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City as Resource

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RAPS 2022 Eindhoven Conference

'Radical Entanglements: Architectures, Societies, Environments, Politics'

Book of Abstracts

Radical Architecture Practice for Sustainability
Second international conference
11th - 12th November 2022

Contents

RAPS – Vision and Aims

Sonja Dragojlovic-Oliveira, Jonathan Mosley, Torsten Schröder and Ana Betancour

We are architecture. We are entwined with each other, our designed environments, other species, infrastructures, technology, systems and buildings. We mutually affect one another. We are mutually dependent. Our emotions, our memory, our health, our functioning, our interactions are all informed, shaped and reshaped by the designed environments and architecture that surround us; and we create and re-create those spaces on a daily basis through our inhabitation, our perceptions and our action or inaction.

Climate crisis, resource depletion, social segregation and other societal and environmental challenges - are increasingly threatening conditions of this entwined existence. The necessity for new forms of transformation appears to be obvious, but how to enact this radical transformation is still unclear. Within the last three decades, discussions, acts, policies and practices concerning 'sustainability' in its broadest scope have in architectural debates become embedded in ways that cause confusion and haziness, in which easy rhetorical use masks lack of real change, commitment and responsibility.

The premise of Radical Architecture Practice for Sustainability (RAPS) emerged in 2018/19 through a desire to enable a wider discourse and debate on how sustainability is practiced and researched in the context of designed and built environments drawing on multiple perspectives, experimentation and diverse disciplinary views and forms of knowledge – shifting the dominant paradigm in policy, practice and increasingly research that has tended to focus on the instrumental

and technical overlooking other possibilities and perspectives. To practice architecture towards sustainability is to practice sustaining ourselves.

RAPS is characterised by a departure from narrowly instrumental debates and instead geared towards re-thinking architectural design and research practice for sustainability with the aim to advocate innovative approaches and transformational change. This initiative seeks to explore the role of architecture and architects in practicing design for and through sustainability. We argue that architecture/architects have an important and proactive role in this transformation. RAPS aims to assemble, collate and propel a collective and necessarily broad, experimental and provocative understanding of sustainable architecture that includes diverse perspectives, tools and knowledge domains: technology, materiality, responsibility, ethics, knowledge production, philosophy, social sciences, aesthetics, politics, agency and more. A broader understanding of sustainability in architecture, that includes questions how knowledge is generated, problems are framed, design targets defined, concepts created, choices made and how these shape design development, building materialization and operation will enable key dimensions of this radical transformation to start to materialise.

Thus, RAPS welcomes and encompasses the idea of heterogeneous characters and relational associations co-shaping each other. We embrace radicality as an approach that has the potential of producing new ways of seeing, new ways of making, new ways of acting, new ways of dreaming. These are needed to make a step change and in order that architecture and architects, artists and other cultural thinkers and practitioners lead in establishing more symbiotic relations with that greater assemblage of which we are a part.

In solidarity let us begin.

Radical Entanglements:
Architectures, Societies, Environments, Politics

'Radical Entanglements' acknowledges architecture and architectural practice as fundamentally entangled with the world, affective and affected. We are entangled, with each other, with our environments, architectures, other species, infrastructures, technologies, politics and more, in ways that are increasingly threatening our own conditions of existence. Despite this significance, these entanglements are not understood or explored in-depth as yet. The necessity for systemic change appears to be obvious, but how to enact transformations that are sufficiently radical is still unclear.

This conference explores diverse forms of practices, processes and modes across and within architecture through its heterogenous entanglements. At its core sustainability is about entanglements: of different actors, different entities, different scales, different timeframes, as well as the long-term affects of actions that result from them. We aim to draw out how these entanglements frame specific problems, exchange impacts and create potential solutions. The conference seeks to overcome reductionist explanation models, and a mode of thinking that rests on separately layered realities (e.g. the technical, the social, the material). Instead, it welcomes and encompasses the idea of heterogeneous characters and relational associations co-shaping each other. Whilst many approaches from systems theories to assemblage approaches

have tried to explain and characterise these interdependencies, there have been few multimodal and multidisciplinary approaches towards sustainability developed through and for architecture.

How can we discover, devise and create (additional) entanglements for and through architecture that are going to the roots or fundaments of our contemporary situation, thus enabling radical new forms of practices for sustainability? With radical entanglements the conference aims to develop new forms of knowledge and actions, through different sets of relationships, including though not limited to acts, processes, moments or practices of caring, imagining, acting or navigating. What entanglements are useful to move beyond the status quo, that challenge dominant paradigms, that offer new perspectives into practices for sustainability?

We are calling for a broad range of thinking and/or doing, drawn from experimental, multi- and interdisciplinary approaches as well as architecture, engineering, arts, design, sociology, anthropology, computation, psychology or environmental science. We seek to explore practices, processes and modes of operation through entangled relationships geared towards re-thinking architectural design and research practice for sustainability with the aim to advocate innovative approaches and transformational change.

Organising Committee

Prof. **Ana Betancour** is an architect and Professor of Architecture, Head of Architecture Institute, at The Oslo School of Arcand Design, the former Rector, Head of School at UMA School of Architecture, Umeå University (2015 – 2019), she was previously a professor in Urban Design at Chalmers University of Technology (2007 – 2014), and Associate Professor/ Senior Lecturer at KTH School of Architecture, Stockholm (2001 – 2007), and The Bartlett, University College London, London (1999 – 2003), and the Head of Exhibitions and Public Programme at The Museum of Architecture in Stockholm (2007 – 2009). She studied Architecture at; The Bartlett, University College London, ETSAB, School of Architecture in Barcelona, and the School of Architecture at the Royal Institute of Technology in Stockholm. She founded A + URL/ Architecture + Urban Research Laboratory (1999 – 2007), and she co-founded P.H.A.B. Architects (1996 – 2001) and the architectural practice Urban + Architecture Agency (2008 – ongoing), a multidisciplinary organisation and design practice. She is widely published and exhibited and is a member of various international reference groups, networks and organisations, nationally and internationally, such as member of the board of direction of the University of the Arts in Stockholm, the advisory group in the Delegation for Sustainable Cities Sweden, Chair of Jury for the Swedish Critic Award Architects Sweden, the Architectural Research European Network Association (ARENA), the Academic Advisory Board to the African Futures Institute; the New European Bauhaus Collective; and a former member the steering board of the Swedish National Research School, the steering board of Architecture in the Making part of the SRE (Strong Research Environment Sweden), the Architecture Academy in Sweden. She is the jury member for the Golden Trezzini Award, and the Mies van der Rohe Young Talent Award; external scientific reviewer for Swiss National Science Foundation, and KU- Leuven, member of the advisory board for FOLIO, Journal of African Architecture, and editorial member of AJAR, Arena Journal of Architectural Research, and the Radical Architecture Practice for Sustainability Network, and the Future School at the Korean Pavilion in La Biennale di Venezia, among others.

Dr. **Anđelka Bnin-Bninski** is an architect engineer with specializations in theory of arts and media (University of Arts, Belgrade) and architectural philosophy (ENSA Paris-La Villette, Paris). She works as educator, curator and interdisciplinary researcher, affiliated with the University of Belgrade - Faculty of Architecture and associated with laboratory Grephau in Paris. She holds experience as practicing architect, has collaborations with the independent artistic scene in Belgrade and she is engaged in multiple international trans-disciplinary design-driven projects and initiatives. Her current investigations are focused on critical strategies and activist tactics of drawing research in architectural practice. She is representative for the ARENA architectural research network and is a member of the Advisory Board for the CA2RE+ project and partner for the RAPS project.

Dr. **Cristina Nan** is an Assistant Professor in the Unit of Architectural Design and Engineering (ADE) in the Department of the Built Environment of Eindhoven University of Technology (TU/e). In her research, Cristina focuses on emerging technologies relating to computational design and digital fabrication, such as additive manufacturing, automation, architectural robotics and material experimentation. The process of making is central in her research, in which she considers algorithm-aided design, aspects of conventional craftsmanship and digital fabrication as equal, interlinked parameters. Cristina explores hybridized material systems and both digital and non-digital fabrication strategies in relation to non-standard geometries. Form optimization, the concept of digital materiality, and circularity are key areas of Cristina's focus. Another investigative stream interrogates the use of AI, socio-economic, spatial and environmental implications of automation and ICT. Her work was exhibited at the National Museum of Scotland, Festival of Architecture Montpellier 2019, London Design Fair, ArcInTex Edinburgh and Concrete Construction Centre part of Futurebuild 2019 at ExCel London.

Dr. **Davide Landi** is currently a senior lecturer in architecture at the Bristol School of Architecture and Environment, UWE-Bristol, and a registered architect. After his studies, Davide worked as Architect and Researcher in a number of different countries including Japan, China, Italy and the United Kingdom. His current research investigates the notion of architectural types in contemporary culture and the ephemeral character of cities, emphasized by the recent digital turn.

Dr. **Deniz Ikiz Kaya** is Assistant Professor in Heritage and Sustainability, and Irene Curie Fellow at Department of the Built Environment in Eindhoven University of Technology (TU/e), the Netherlands. Trained as an architect, she holds a M.Sc. degree in Historic Conservation and a PhD degree in Architecture awarded by the Oxford Brookes University, UK. Her areas of expertise include heritage management, adaptive reuse and transformation, resilience building, sustainable development, and smart citizen engagement. She has been involved in a number of national and European research and innovation action projects. She is also an active member of ICOMOS and Climate Heritage Network.

Dr. **Fidel Meraz** is Senior Lecturer in the School of Architecture at UWE, Bristol with an established career in architectural education in Mexico (Anahuac University) and the United Kingdom (Universities of Nottingham, Nottingham Trent and Suffolk). He has contributed to the planning, validation and pedagogical direction of architectural and design programmes, served as external examiner in India, and as Link tutor in UWE's partner City School of Architecture in Colombo, Sri Lanka. He is a Senior Fellow of the Higher Education Academy. Currently Programme Leader of the MArch Architecture, he is contributing to teaching in the areas of theory, history and design at undergraduate, master and doctoral levels. His research focuses on philosophical approaches, mainly through phenomenology, to the relationship between spatiality, temporality and the architectural place, covering issues such as collective memory, heritage, cultural identity and perceptions of wellbeing. In practice, he worked extensively in design and construction in Mexico, Italy and Central America.

Dr. **Gráinne McGill** is a Strathclyde Chancellor's Fellow and Lecturer in the Department of Architecture, University of Strathclyde. She holds a BSc (hons) in Architecture, MSc in Sustainable Design and PhD in Architecture. She previously worked as a Researcher at the Mackintosh Environmental Architecture Research Unit (MEARU) at the Glasgow School of Art (2014 – 2020), where she taught environmental design and analysis in architecture and co-founded an MSc in Environmental Design. Gráinne is a Committee Member and Membership Secretary of the UK Indoor Environments Group (UKIEG) and coordinator of the AHRC-funded Health Effects of Modern Airtight Construction (HEMAC) network. She is Editorial Board member for Architectural Science Review journal, Intelligent Buildings International and Frontiers journals (Indoor Environment). Her research interests include low carbon design and evaluation post occupancy, indoor air quality and ventilation in housing, overheating and the impact of the built environment on health.

Prof. **João Manuel B. Meneses de Sequeira** studied 3 years in the Lisbon School of Fine Arts, has a 5 year diploma in Architecture from UTL, a Master degree in Urban Design from ISCTE and a PhD in Architecture-Urbanism from the ULHT. Has been a university professor and researcher since 1993 in three Portuguese Universities He's a member of the Portuguese Association of Architects (OA4237) and of the College of Urban Architects (CAU134). He is an integrated researcher at the Center for Art History and Artistic Research CHAIA at the University of Évora, and Professor at DECA-University of Beira Interior (Covilhã). He's a founding member of ARENA since 2013 and one of the authors of EAAE Charter on Architectural Research. He´s the founder and scientific coordinator of the Architecture and Art Laboratory research centre LabART. He's an invited expert on architecture in several funding organizations in Portugal (FCT), Belgium (FWO), Dutch (STW), Danish (KADK), Slovenian (ARRS) and in EU (ERASMUS+ and New European Bauhaus).

Dr. **Johanna Höffken** is an Assistant Professor in the group Technology, Innovation and Society at Eindhoven University of Technology (TU/e). Trained as a social scientist using qualitative research methods, her areas of expertise include science and technology studies (STS) and social studies of energy, sustainable development, and responsible innovation. She follows this interest both in her research and in her teaching activities. Her current research, funded under Europe's H2020 program, revolves around responsible innovation, issues of justice and energy communities in Europe and India. In her teaching activities questions around responsible and sustainable innovation play a central role. In 2019 Johanna became Best BSc teacher of TU/e and in 2020 she received the the national recognition by becoming "Lecturer of the Year". Since September 2020 Johanna is member of TU/e's Eindhoven Young Academy of Engineering. She leads the subgroup on consumer and citizens engagement within the European Commission's H2020 BRIDGE initiative and is a member of NWO's "Young-MVI (responsible innovation)" thinktank.

Dr. **Jonathan Mosley** is a practising conceptual artist/architect and Associate Professor of Architecture and Experimental Practice at Bristol UWE, leading Design Research, 'Place and Society' within CABER and contributing to Digital Cultures Research Centre and Document and Location. He is a co-founder of research initiative Radical Architecture Practice for Sustainability and part of the ARENA network. Jonathan specializes in the interface between architecture, art and more recently psycho-social studies, examining cultures of occupation of architectural space towards more equitable, playful and collective co-existence. His collaborative studio Warren and Mosley with artist Sophie Warren has developed an international reputation for challenging research-based projects that create new thinking around entanglement between human and non-human entities, spatial negotiation, play and participation. They have been commissioned by museums, galleries and research organisations to explore these issues through practice-based exploratory events, installations and exhibitions. 'Days of Action' uses collective actions to examine the institutional building of Tate Modern. After a residency at the French Communist Party HQ as Institut Français international laureates and funding from Arts Council and British Council, the collaboration with psycho-social experts is psychologically profiling the building, testing innovative architectural psychological methods. 'Rogue Game' (Rootstein Hopkins award with Can Altay) studies co-habitation and negotiation of space through play using events and live research exhibitions at Spike Island (Bristol), Casco (Utrecht) and The Showroom (London). Following publication 'Beyond Utopia' presenting a provocative planning application for an architectural vertical common in the city of London (research project with Robin Wilson funded by AHRC), the participatory project 'Utopian Talk-Show Line-Up' searches for an architecture of Utopia that affords co-existence of difference, with events at Moderna Museet (Malmo), Eastside Projects (Birmingham) and Santralistanbul (Istanbul). warrenandmosley.com

Prof. **Juliette Bekkering** is full professor architectural design at Eindhoven University of Technology. Her main focus is on the translation of sustainable concepts into architectural designs. Circularity, nature-based solutions, healing environments and innovative technologies are the fields that she covers. With a strong dedication to architectural excellence and our natural environment, Juliette Bekkering takes part in many national and international advisory boards, expert committees, think tanks and juries. As architect/director at Juliette Bekkering Architects she realised many award-winning projects. Currently she works in partnership with Neutelings Riedijk architects, on a range of complex projects in the Netherlands, France, Belgium and the United States. Juliette Bekkering graduated in architecture at the Technical University Delft and finalised a post-graduate education in urbanism at the Laboratori d'Urbanisme in Barcelona (ETSAB). She is a member of the Supervisory Board of Het Nieuwe Instituut; the Dutch institute of Architecture, member of the Expert team of the University of Hasselt, member of the board ArchiPrix and the thinktank: Het Groene Brein.

Louwrens Botha is an architect, urbanist and researcher with an interest in the co-creation of urban imaginaries, utopia, and the commons. He is currently a PhD candidate at Eindhoven University of Technology (TU/e), working within the JPI-funded consortium project 'CoNECT: Collective Networks for Everyday Community Resilience and Ecological Transition'. Within this context, his research explores the relationship between

everyday neighbourhood initiatives and the creation of alternative futures. Having studied at the University of Cape Town and the University of Sheffield, he has worked as an architect and urban designer in South Africa, the UK and the Netherlands.

Dr. **Roberto Cavallo** is an Architect, Associate Professor, Chair group Architectural Design Crossovers and Head of section Theory & Territories, Department of Architecture, Faculty of Architecture and the Built Environment, TU Delft. He is a member of the steering group for the Department of Architecture research program. Between 2014-2019 he has been the faculty Director of Education; currently he is a council member of the EAAE and a member of ARENA research network. In 2013/2014 he worked in China as a senior researcher (Shanghai, Hong Kong, Beijing). He has extensive experience in workshops, symposia, conferences, exhibitions, keynote lectures and as a scientific committee member in international academic and professional events. As a practitioner he worked for the offices of Cees Dam & Partners and Studio di Architettura; in 1999 he co-founded Studio-AI in Amsterdam. Since 2013 he collaborates with the European Commission as a built environment advisor and in 2019 he has been appointed as an expert for the Dutch Architects Bureau.

Prof. **Sonja Dragojlovic-Oliveira** is an architect and Professor in Architecture and Sustainability Innovation at the University of Strathclyde, Glasgow. She has over 20 years internationally leading design innovation and research experience in the architecture and sustainability sector, having led delivery of complex multidisciplinary projects ranging in value from £200k-£29mil in the UK and internationally. She has an established international reputation in socio-spatial intelligent energy governance and climate action thought leadership. Her most recent work is looking at how we use imagination and visual socio-spatial sense making to develop new forms of communicating collective resource use – energy, water, air, land across diverse designed environments and habitats- both physical and digital. Sonja works mostly across disciplines at the nexus of architecture, design, socio-spatial methods and computation to develop and experiments with new forms of communicating sustaining life. She founded the Radical Architecture Practice for Sustainability initiative with leading design practitioners and researchers in Sweden, the Netherlands, Portugal, Austria and France. She is a Thought Leadership Specialist Advisor to the Design Council and a board member of the World Green Building Council (Serbia), as well as scientific and industry advisory member of numerous scientific committees including the newly launched New European Bauhaus Collective. Currently, Sonja is leading delivery of multiple research and innovation projects aiming to transform interrelated energy governance systems to account for complex multi-phenomenon and multi-scale interconnected encounters between humans, nonhumans, spatial, socio-technological and environmental dimensions of everyday life. Her recent work carried out for accelerating design innovation capability and capacity for socially responsible net-zero housing delivery was selected for the UK House of Lords Science and Technology Select Committee's report and presented as invited keynote at the Westminster Social Forum.

Dr. **Sophia Bannou** is an architect (TEE/ARB) and Senior Lecturer in Architecture at the University of the West of England, Bristol, where she is Programme Leader of the Interior Architecture course. She has studied architecture in Athens, Newcastle and Edinburgh. Her doctoral research (ESALA 2016), funded by the Bodossaki Foundation, examined architectural representation and the status of architectural drawing conventions through a critical-historical, design-led approach to urban representation. She has practiced architecture in Greece and taught architectural design and theory at the Newcastle University and the University of Edinburgh. Her recent research is concerned with questions of representation, media and mediation in architecture.

Dr. **Sergio M. Figueiredo** is an architect, author, curator and historian. He is an Assistant Professor of Architecture History and Theory at TU Eindhoven (TU/e), where he founded the *Curatorial Research Collective* (CRC), a fledgling curatorial and research group. At TU/e, he is also the chair of the AUDE Research Committee, the coordinator for the research seminars on architecture and urbanism, as well as the chair and head curator of *CASA Vertigo*, the exhibition program of the Department of the Built Environment. Figueiredo's work focuses on architectural institutions and exhibitions, particularly how they shape (and are shaped by) architectural culture, which he continues to develop through numerous contributions to publications and conferences, including guest editorships for the journals OASE and Architecture & Culture. His first book, The NAi Effect: Creating Architecture Culture, was published in 2016 by nai010 publishers.

Dr. **Torsten Schröder** is an architect, researcher and design strategist. He is Assistant Professor of Sustainability in Architectural Design at Eindhoven University of Technology (TU/e) and co-founded the Radical Architecture Practice for Sustainability network. His research focus is on how to translate the concepts of sustainability and circular economy into architectural and urban practices. Torsten's interdisciplinary 'theory in practice' approach helps identify new opportunities and analyses how architects, engineers, clients and others apply the concept of sustainability to their design projects, in their studios and on-site. Drawing on Science and Technology Studies (STS), he shifts attention to the ways design challenges are framed, knowledge is produced, design strategies assembled and how controversies and conflicting priorities are settled. In this way, Torsten aims to develop innovative, comprehensive and compelling design strategies for sustainability in specific architectural and urban design projects. He obtained his PhD in the LSE Cities Programme, winning the RIBA PhD research award in 2015. Torsten has participated in and led diverse research projects, and offers a unique blend of practical and research expertise. He is a Senior Architect with 10 years of experience in designing and realizing a wide range of outstanding architectural projects for leading design practices, amongst others as project leader for Rem Koolhaas/OMA.

Weijie Zhong is an architect, researcher, and currently a PhD candidate in Architectural Design and Engineering at Eindhoven University of Technology. She holds a MSc degree in Architecture - Architectural Design from Politecnico di Milano. Her areas of expertise include biophilic design

and sustainable architecture, and she has worked on urban and architectural design projects in China and Italy. Weijie's PhD research focuses on exploring how 'nature' can be conceptualised within architectural design practices and contribute to more sustainable futures, in which 'biophilic design' is adopted as a theoretical framework to understand 'nature' and improve the impact of nature-based designs in architecture.

Dr. Yahya Lavaf-Pour is an architect, senior lecturer in architecture and programme leader of the BSc (Hons) Architecture course at UWE-Bristol. His research expertise lies in the exploration of geometrical form in architectural design. Bridging between spatial sensibility and responsiveness to the environment and pre-existing conditions. He has won and worked on a number of funded research projects in Malaysia, Hong Kong and the UK. Currently, a co-investigator for an EPSRC project and a recipient of an ECR grant investigating architectural form and daylighting as a sensory design index. His current research looks at critical sustainability, pursuing subjective design decisions in relation to the environment and aesthetics of nature. He has acted as a member of the scientific and organising committee and reviewer for several journals and international conferences. Some of his works have received internationally excellent recognition as part of the UK HEI's Research Excellence Framework.

Keynotes

Kiel Moe, architect and builder

Kiel Moe, FAIA, FAAR works part-time as an architect. In recognition of his design and research endeavors related to the energetic and material basis of building, he was awarded a Fulbright Distinguished Chair in Helsinki; the Gorham P. Stevens Rome Prize in Architecture at the American Academy in Rome, the Architecture League of New York Prize, and the American Institute of Architects National Young Architect Award. He has published several books including Unless: The Construction Ecology of Seagram Building; Empire, State & Building; Wood Urbanism: From the Molecular to the Territorial; Insulating Modernism; and Convergence: An Architectural Agenda for Energy.

Doina Petrescu and Constantin Petcou / Atelier D'architecture Autogérée (AAA)

Doina Petrescu is Professor of Architecture and Design Activism at the University of Sheffield and Jubilee Professor 2022 at the University of Chalmers. Her research focuses on issues of co-design and civic participation, gendered practices, political ecology, co-production and resilience in relation with architectural and urban design. She has conducted a number of research projects and is author of numerous publications including Architecture and Resilience (2018), Learn to Act (2017) The Social (Re)Production of Architecture (2016), Agency: Working with Uncertain Architectures (2009), Altering Practices: Feminist Politics and Poetics of Space (2007), Architecture and Participation (2005).

Constantin Petcou is an architect and semiotician. Since 1996 he has taught in various schools and universities including ENSA Malaquais and the University of Paris 8, Harvard and MIT Massachusetts, etc. He is co-founder with Doina Petrescu of the atelier d'architecture autogérée (AAA) and has won several prizes in France, USA, Romania, Belgium and Japan. He has coordinated several research projects research projects and, together with AAA, initiated the Rhyzom network (www.rhyzom.eu) and the R- Urban strategy (www.r-urban.net). He has contributed to numerous publications and co-edited Urban/ACT: a manual for alternative practice (2007) and Trans-Local-Act:Cultural Practices Within and Across (2010).

Atelier d'architecture autogérée (AAA) is a professional organization, which conducts actions and research on participatory urbanism and architecture, involving local residents in creating and sustaining commons in their neighbourhood, engaging in social and ecological practices and initiating resilient networks.

Theme 1 | Caring: Ethics and Responsibilities

Architectural processes and practices to a large extent impact on the planet, on our and others vital conditions of existence, and on human and non-human well-being. Thus, our ways of creating, living, using, transforming, controlling and territorialising architectural spaces (physical and digital) are inevitably entangled with questions of caring, ethics and responsibility. There are many challenges, for instance: homelessness, affordability of housing, privatisation of public space, forced labour, bereft designed environments, architecture for profit, excessive resource consumption, waste. What are the moral principles that govern our acting, behaviours, wants, needs, uses of space, matters, privacy, ownership, inclusivity, diversity? What does it mean for architects and stakeholders involved in architectural practices to care, to act ethically and responsibly, to look after others and/or the environment? How can architecture balance care towards the individual with that of the collective or negotiate concern for the present with that for the future? What part can architecture play in the ethics of how we want to live together?

Session 1

Chairs

Johanna Höffken | Eindhoven University of Technology, The Netherlands

Anđelka Bnin-Bninski | University of Belgrade, Serbia

Towards affective entanglements: Radical architectural practices of care and sustainability

Akari Nakai Kidd | Deakin University, Australia
Jan Smitheram | Victoria University of Wellington, New Zealand

This paper is attuned to the informal, small, mundane, often hidden caring practices that occur in and through buildings/ architectures, to maintain its ongoing life. We focus on the responsible, caring orientated sustainable practices in the post-occupancy stage, through objects, matter, and spaces – that help hold together the materialised assemblages we call architecture. An important aspect of what Christopher Henke calls these 'backstage' practices are the radical entanglements and acts between loosely connected bodies, objects, and things (occupants, cleaners, maintenance workers, structure, building materials, even trash) that come together to improve, sustain, care, and repair the unstable, indeterminate, and often unexpected conditions. A sense of care and responsibility is forged from the very instability of the building's compositions which provides a site for affective connectedness and commitment to the building. From this perspective, to be involved in a building encompasses more than dwelling or working *in* it (passively), it also encompasses the active care of it. We explore this commitment to care and sustainability through stories and short vignettes of people who care for buildings and their practices that often go unnoticed, together with interviews of teachers and students who occupy these spaces. These interviews occur through a comparison of two architecture schools, in different countries, to explore these ideas through a cross cultural analysis. The aim is to bring these invisible caring acts of architectural practice to the fore, not only as an informal process of interactions in general, but also to draw out the intimacies or 'affective bonding' that are generated by and through such acts. The paper exposes the practice of architecture to an understanding not only of practice's interdependency and vulnerability, but also, and more importantly, the issues of responsible, sustainable, and affective needs, commitments, and care.

Emerging transpacific concepts, burnout architectures and the future wholesome urbanism

Ken Fallas| 도시설계연구실 ReCUD, South Korea
Ekaterina Kochetkova |Seoul National University of Science and Technology, South Korea

Latin American and Asian urban studies are mostly influenced by the theoretical framework of political economy of urbanization which, despite criticism, tends to bring only analytical and western- centric approaches in functionalist bias that subjugates the hyper complexity of urban ecosystems at the service of a positivist way of thinking the city (problem solving). At the same time, the instrumentalization of popular wisdom makes architectural practices no different from what an ordinary citizen would do with effects on glocal design and management, thus, giving some sense to the idea that building a city is different from urbanizing.

However, urban practice and its entwined bio-politics shaping the world cannot ignored that current pandemics, wars and the climate crisis, have converged as a civilization breaking point. Yet, also as an opportunity to radically shift our perspective on status-quo structures and the urgent alliances between post-anthropocentric, de-colonial, and more inclusive epistemologies in which the notion of burn-out is acknowledged even at the planetary scale. If city production must be seen as a reflection of power that mirrors the values of our era, how can architecture reconsider its ethics through the lenses of other so far neglected multicultural, ecological and feminist practices of care that proposes sharing responsibility for the world, people, and all life forms?

This research will address a transpacific revision of interdisciplinary-oriented design practices leading to the emerging idea of "wholesome urbanism" and how excluded wisdom of the city must be reinviticated in order to subvert the situation that locates Latin-American and Korean cities as merely study cases (objects) analysed from the western-centric perspective. In this sense, this research aims to challenge urban entanglements to burnout and well-being, allowing us to go beyond architectural responsibilities by proposing alternative concepts (city sweetness, smart village and slow living) that catalyse change towards sustainable action.

Forest in chains - A call for ethical approach when building with timber

Claudia Larsen | Chalmers University of Technology, Sweden

Globalization facilitated many advancements in society. Through technology distances have been shortened, markets connected, and cultures shared. However, it has also magnified societal issues on a global scale. Illegal trades permeate all major industries, including the construction sector, and rely on the most vulnerable to build highly lucrative operations.

"Global laws forbid the use of slave labour in the built environment, yet our buildings, and the materials that go into our buildings, are heavily reliant on slave labour." (Grace Farms Foundation, 2020).

In the forefront of sustainable materials, timber has been progressively taking ground for being both ecologically renewable and economically viable. However, it is also among the materials at the highest risk of embedded slavery and is often linked to illegal logging, jeopardizing the social aspect and holistic approach of The Sustainable Development Goals.

As architects, are we taking our share of responsibility and playing our part to ensure our specifications are not promoting such practices? Does the holistic sustainable perception of building with timber reflect the reality? Also, does the lack of ethical criteria within the construction process compromise the sustainability status of building with timber?

This article summarises findings of this pressing crisis, with an emphasis on the timber supply chain, and a focus on the extraction of wood in global hotspots, it seeks an understanding on the social impact of victims of forced labour. By understanding the main global actors, current practices, and policies, it pursues through design to gather the relevant information and arm professionals with the right questions in pursuit of breaking the cycle of vulnerability, exploitation, and re- victimization of those in forced labour. Continuous graphical reflections are used to support the findings and build alternative perspectives of building with timber. A continuous construct to the final written and graphical manifestos. A practical invitation for change.

Wisdom and the idea of sustainable design a pleas for radical unilateralism

Jacob Voorthuis | Eindhoven University of Technology, The Netherlands

The word 'should' and its sibling 'ought', are tricky words to use. In their deployment they assume a measure of wisdom. What is wisdom? Philippa Foot defined it well as 'knowing good means to good ends and knowing their value'. Sounds good, but that would only help us if we know how to critique sustainable design decisions so that their 'good' can be properly and fully analysed and evaluated and translated into what we ought to do. What do we measure their goodness by? An age old problem which can only be solved by looking at interdependently at notions of duty, character, care and consequence. In this light, to design sustainably raises quite a few questions. What is it we want to sustain exactly? And to what end? We speak blusteringly of 'saving the planet' when it is not the planet that is at risk but something rather less tangible, namely our conception of the good life. In this paper I will offer a description of what we might want to sustain with regard our life on this planet. It will be a utopian effort in describing the notion of what Aristotle to defined as the only end which is itself not also a means, and that is the notion of flourishing.

Let's play together: The role of positive, creative & collective practices towards climate emergency retrofit in a context of technocratic domination

George Lovesmith | UWE Bristol & University of Bath, UK
Zoe Rasbash | Bristol+Bath Creative R+D, UK

Throughout 2022 & 2023 Watershed Bristol (cultural cinema, talent development & creative technology centre) will be working with George Lovesmith, architect & socially engaged artist on plans to adapt their grade II listed (UK heritage status) building for the Climate Emergency. Watershed is an organization which leads within its communities with a proud activist agenda and has set an ambitious Zero Carbon 2030 commitment. Housed in a prominent heritage structure where building operations make up the majority of its current carbon emissions, the challenge is immense.

Methodologies:
Integral to this endeavour will be an exploration of creative methods for coming together / commoning as an alliance of building users, staff, creatives, management, activists, visitors…

- demonstrating the value of creative practices (e.g. events, games, storytelling, play, metaphor, gratification, imagination, collective learning, skill sharing, reciprocating, entertaining…)
- bringing people into a partnership to address the challenge and establishing shared understandings of building retrofit principles. This is not, however a purely technical challenge – Indeed the endeavour is intentionally re-framed as transdisciplinary, and inherently creative, because the way things are currently getting done nationally simply isn't working and has insufficient urgency.
- because as an arts organization, addressing the climate emergency isn't only about technical solutions, it's about collective expression and welcoming people on board.

The practice and research hinge around the following expected findings:
- a recognition that there might be unexpected successes to design proposals if clients/users/others are invited to invest their expertise, understandings, creativities and desires in the processes.
- an educational value of communing – mutually engaging those same clients/users/others in the processes of adapting our built heritage.
- a net gain for participants, of increased critical design appreciation and a wider-spread ability to contribute to improvements of the built environment.

The soft infrastructures of value (re)production in architectural education

Andrea Čeko and **Mia Roth Čerina** | University of Zagreb, Croatia

Besides the obvious delivery of transversal skills and development of a way of thinking, architectural education serves as a vehicle of assimilation into this hidden power-play, affirmed and cultured through an array of rituals serving the existing power equilibrium. From Henri Lefebvre's theoretical concept of space (re)production to Michel Foucault's sense of positioning oneself within these power relationships, they take shape from the very beginning (quote the interrelationship of power, subjectivity, and knowledge formation). When considering space and architecture as tools to (re)produce values, according to anthropologist David Graeber, values are a word used to invoke the sense of user and exchange (financial) value, value as meaning, and values as ethics. In its hidden process of culturing an architect, values that architectural education can produce occur differently in what political economist Massimo De Angelis has called 'value practices'. Within particular sets of circumstances, values are here entangled with actions and process emergent in social aims, as a correspondent 'web of relations', or the soft infrastructures.

The work builds arguments on the findings of the European Erasmus+ *Architecture's Afterlife* research project whose aim is to identify the multi-sector impact of an architecture degree and the extent to which skills taught to architecture students are needed in other sectors. The study detects certain 'other values' among the answers of its in-depth interviews, as 'other' to the dominant, market-driven neoliberal narrative within architectural education. They are the values of communing, mutuality, and cooperation. Defined as 'the systems that enable circulation of goods, knowledge, meaning, people and power', the work seeks to further explore the soft infrastructures of value (re)production as crucial entanglements in architectural education.

Theme 2 | Imagining: Desirable futures & Dreams

Designers, through their heightened capacity to imagine, have the potential to ask questions, inspire new thinking, create scenarios, and envision potential futures. The power of imagination and dreaming can be a crucial driver to overcome the status quo and think outside the box. Speculative scenarios can open new opportunities, make ideas tangible, discussable and help bring them from the future into the present. Imagination is a concept far more frequently invoked than it is analysed. How do we study imaginaries? How can we create novel entanglements to inspire new thinking and develop radical visions and scenarios of sustainable futures? What narratives and imaginaries lead to other possible futures? How can we create unusual inspirations and make proactive steps towards desirable futures? How can we visualise our dreams? How do we want to live in the future?

Session 2

Chairs

Sonja Dragojlovic-Oliveira | University of Strathclyde, UK

Yahya Lavaf-Pour | UWE Bristol, UK

Louwrens Botha | Eindhoven University of Technology, The Netherlands

Co-dreaming climates: Publics and planetarity

Julia Udall | Sheffield Hallam University, UK; Studio Polpo, UK

Julia Udall will explore three experiments in assembling publics around questions of climate justice, drawn from her collaborative work over the past two years in Belgrade, Berlin and Sheffield. In developing this work as an architectural researcher, with performance makers, sonic artists, urban curators, and community and cultural organisations, Udall co-designs modes and tools of sensitisation and attunement that seek to enable greater collective climate 'respons-ability' (Haraway, 2017). In drawing on Patricia Reeds work on Planetarity, she argues that such challenges cannot be addressed in an atomised way, yet, also poses a challenge the notion of the Anthropocene which, in its location of responsibility with 'the human', jumps to the scale of the species, without being clear that it is certain humans who are more responsible for the intertwined crises that we face today. Each of the three experiments - Sonic Acts of Noticing, Amplifying Climate Dialogues, and ark-sheffield – embeds, develops and supports practices of listening as productive of public space that challenges human exceptionalism, and recognises the need to 'make inhabitable worlds in common' (Reed, 2021). Here the sonic is understood 'as a means for enabling new conceptualizations of the public sphere and expressions of emancipatory practices' (La Belle, 2018). Listening operates in affective, political and ecological registers. Attention is drawn to atmosphere, what can be said, who listens, who is absent, and interdependencies between human and more-than-human others. Each mode of sonic practice allowed for different rhythms, intensities, realisations, desires and stories to unfold. Each had different protocols, affordances and potentials, expressed through different genres- computer code, stage settings, co-building, eating together- each time they can play out differently. In coming together to listen, we sought to create spaces for co-dreaming climates, where climate is understood as (in) crisis, as colonial project (Mould, 2021), as atmosphere, and as potentiality.

Educators as learners: Establishing 'spaces of growth'

Olga Ioannou and **Tillmann Klein** | Delft University of Technology, The Netherlands

For the past years, the Faculty of Architecture and the Built Environment of TU Delft and in particular, the Circular Built Environment (CBE) Hub, have been systematically involved in research related to how the concept of circularity affects and is affected by the built environment. But how can the input of this research be organically integrated into the faculty's education in order to inspire students and educators towards adopting circular principles? Two major challenges emerged: the first was relating the research findings in one consistent narrative and translating the research input into communicable knowledge. The second, was developing novel pathways for teaching circularity and most importantly, building the capacity of the school's educators to support students in their learning.

This paper looks into the strategic plan developed by the CBE Hub for circular education and in particular, a newly established program directed towards supporting educators. The program originates from the premise that circularity as a concept in-the-making requires that educators work synergistically and that safe spaces are needed for educators to publicly perform their views and work their way through the indeterminacy together. The set up consists of two open and freely accessible online platforms: the first platform, *Circularity for Educators*, is a space meant for sharing content that capitalizes on the CBE Hub research background and the group's modelling of circularity in the built environment. The second platform, *Educators for Circularity*, is a space destined to sharing experiences and therefore offers multiple communication channels for informal exchanges between peers for circularity and also for pedagogy. The paper provides with an overview of the collective effort behind the making of the two learning environments and the ways in which it aspires to facilitate the integration of circularity, help educators endorse the concept, but most importantly, help create a shared imaginary for educators and students alike.

The indeterminacy of the architectural complex in dreamwork

Thomas Mical | The New Centre for Research & Practice, USA

We each dream, and often dream of architecture, but details can shift and warp and dissolve upon waking. We seek to initiate a book of dreamed architecture, informed by personal and historical and theoretical analysis of dreamed spaces. This research seeks to mobilise a wide range of insights and concepts around the elusive topic of individual subjective dreams of architectural complexes. We define the architectural complex in the waking world as projects of some complexity, often mixed-use functions and bigness as scalar aesthetic - in all senses a composite. We seek in the dream world to define and describe the dreamed architectural complex through apparent structure, function, form, passages, transitions, and atmospherics which occupy our dreamworld (as immersive and extensive). We examine specifically those irrational transitions and assemblages in the dreamed architectural complex through the prior theory work on the variables of the dreamwork. Our synthetic methodology entangles multiple lenses: psychoanalysis, surrealism, cinema and poetics. Through these we seek a more precise language to transcode private dreamed spaces into saturated waking though-images. To dredge lucid mobile spatial experiences from the unconscious to consciousness remains the challenge, and someday the catalogue of all dreamed architectural complexes can be written.

The walkway project: An entangled narrative of public space for learning, exchange, and practice in Gugulethu, Cape Town

Kathryn Ewing | University of Cape Town, South Africa

Safe and accessible public spaces are vital elements of South African cities. Public spaces hold the potential to act as entangled places for exploring innovative ways of learning, disrupting perceived ways of exchanging, and crafting alternative ways of practicing. I refer to such space as *fractional urban space*. Walkways, however, are some of the most neglected, undetermined, and dangerous urban public spaces experienced in the local neighbourhood of Gugulethu in Cape Town. The paper offers a series of *urban stories* collected from urban design teaching, research and social design practice focusing on the waterways and walkways of Gugulethu, known as 'The Walkway Project'.

The *first narrative* translates creative works surfacing over the past three years from co-design workshops, emotional mapping exercises, and design proposals as part of a design-research studio, Gugulethu Studio Hope, in the Master of Urban Design (MUD) Programme at the University of Cape Town. The studio focuses on deliberate and engaged learning. The *second narrative* presents urban walks and urban talks as a learning exchange between Gugulethu youth, active citizens and researchers sharing ideas, strategies and challenges on public space, waterways, and walkways. The platform illustrates an increasing awareness around access to education, climate change impact, resilience strategies, and place-making in fragile urban environments. The *third narrative* presents a case study, referred to as iThemba Walkway, that transpired from urban walks and Studio Hope. The walkway is a community-driven and 'kindness' project that demonstrates active social design and co-created implementation opportunities. It is considered an experimental public space upgrade facilitated, motivated, maintained, funded, and implemented by a group of diverse local partners and residents. The translation of the narratives enables a deeper understanding of the entanglement of public space, co-design methods, learnings, and sustainable processes, whilst also exposing a real-world, safe walkway for learning, exchange, and practice.

Desakota Re-Assemblage

Ben Stringer | University of Westminster, UK

At the University of Westminster I lead a Masters level Architecture design studio with architect Peter Barber. When identifying sites for our studio's projects we look for complex, contested city edge spaces which have uncertain futures and which open up questions of the relationships between cities and their rural hinterlands. In the past few years, we have been developing an approach to architectural and settlement design that stresses entanglements with processes of all scales from global to detail.

A distinctive part of our design method is in the way that we ask students (about 15 per year) to work as a kind of interactive cluster of projects and processes within the same locality. The result is a set of distinct architectural projects with their own cultural logics which also act as a kind of negotiated assemblage of agricultural, industrial, social and ecological processes wherein tensions as well as synergies pertain.

With reference to assemblage theory this paper will reflect on the dynamics of this design strategy within the context of radical architecture's historical relationship with utopianism and within the context of architectural education's tendency to emphasise singularity within design more than relational aesthetics.

The Muscycuse as a social agent: The Re-Tire Park, The e-Waste Extrusion Beacon, and The Craft Community FOGO Forest as architectures of transformation

Andrew Steen | University of Tasmania, Australia

Sustainable practices and sociocultural activism in architecture are held back by entrenched relations that cohere in disciplinary terms around programs and typologies. Analysing the hidden assumptions and embedded value judgments of these concepts can expose blockages that stymie positive change as they contribute to the hegemonic system of Western capitalism in the Anthropocene. This exposure of preconceptions and the underlying paradigm can be exploited by turning architecture on itself and asking it to find new symbiotic relations.

Prompted by a studio brief that asked for a hybridised architecture that integrates three ideologically contrastive programs and typologies – museum, recycling centre, and refuse centre – final year Master of Architecture students at the University of Tasmania (Australia) dreamed up schemes with radical agendas built upon revised definitions of architecture. "Re-Tire Park" evolves from a tyre recycling plant to an open-air recreation and sculpture park, showing an alternative life for retired tyres beyond the standard shredding and scrapping. "The e-Waste Extrusion Beacon" takes cues from enfilade and production line, extending and spiralling unprocessed, discarded CDs and DVDs for Construal Level impact to counter designed obsolescence. "The Cardboard Community FOGO Forest" processes everyday rubbish for children's craft and accumulates neighbourhood waste in account boxes designed to aggregate into an eventual suburban forest.

This presentation gives a brief account of the studio and these three schemes. It will describe how each entangles artefacts and experiences of the precious, the transitional, and the disowned within hypothetical built form, and forces new relations between waste and value, repulsion and engagement, and storage and growth. In sharing these new, radical relations of programs that imagine affective and socially active architecture, it hopes to provoke the discipline to take further steps towards responsiveness and responsibility.

Session 4

Chairs

Ana Beatncour | The Oslo School of Architecture and Design, Norway

Gráinne McGil | University of Strathclyde, UK

Architecture and the cosmic: 1960s inflatables as a response to earth seen anew

Katarzyna Balug | Harvard University, USA

Inflatable architectural structures were enormously popular in Western Europe and United States 1960s, before all but disappearing in the following decade. From Ant Farm's inflatable pillows, to Haus-Rucker-Co's multi-sensory chambers, to Graham Stevens' experiments walking on water or Utopie's pneumatic homes, the 'inflatable moment' has since been characterized as a nomadic, counter-cultural and flexible alternative critical of modernism's materialities and temporalities. This paper instead contextualizes this 'moment' as at the apogee of two centuries of human spaceflight, when man at last left Earth's bounds. Such a reading reveals a cosmic, existential preoccupation that reverberates across inflatable projects.

From manned ballooning, invented in 1783, to the Apollo 11 moon landing in 1969, aeronautics relied on perfecting environmental control to distance mankind from Earth. Architecture in parallel sought a mechanized "well-tempered environment"2 to free designers from limits imposed by climate. Yet while both disciplines advanced techniques of enclosure, the inflatable 'bubble' was designed to leak. Air escaped in response to movements of occupants or the surrounding climate, and the structures continually refilled with air via a connected blower. These breathing, creaturely environments visibly registered the human and non- human forces acting on them.

The paper finds that the inflatable's operational logic and form articulated an architectural response to the existential crisis that opened up upon seeing the Earth from space: at once a limited, graspable machine, and an infinite speck in the universe's vastness that sealed our fate as Earthdwellers. While the histories of science, technology, and the environment have examined the paradigmatic implications of the 1960s space journeys, architecture has to date overlooked its entanglement with our relationship to the cosmos. The 'post-lunar' imaginary that emanates from inflatables read this way contested enclosure and the drive toward progress, and envisioned symbiosis among Earth's various systems.

Utopian/Dystopian imaginary cities
"Metropolis" "Exodus" and "Slave City"

Charlott Greub | North Dakota State University, Fargo, USA

Utopian ideas are often defined as the opposites of dystopian ones but in practice these seemingly opposite concepts tend to eventually become two sides of the same coin. When utopian ideas or movements are pushed to their logical conclusions, they sometimes tend to break down into dystopic outcomes. Case studies using Fritz Lang's *Metropolis*, Rem Koolhaas' *Exodus*, and Van Lieshout's *Slave City* are presented to illustrate utopian concepts of modernity that deteriorate into a dystopian visions of the city of the future. These three cases portray oppressive dualistic societies based on division, segregation, order, and control which are expressed architecturally and spatially, however in a slightly different way: in Metropolis through a vertical hierarchy of an above-ground and below-ground city, in Exodus through a wall, and in "*Slave City*" through cellular units surrounded by agricultural land.

The first case, *Metropolis*, shows a utopian vision of modernity's progress revealed through the cinematic narrative of a dystopic panoptical control, disenfranchised workers, cruel exploitation, and technological innovation that leads to destruction outcomes. The second case, *Exodus*, presents a utopian vision of collectivism, based on modernist Soviet constructivist theory of the "social condenser", that turns into a dystopian prison and a dehumanizing social system of perfect surveillance and population control. The third case, *Slave City* refers to the modern utopia of rationalization to create an efficient, profitable, and sustainable society that turns into a dystopian reflection on the Shoa and the rational processes behind Nazi extermination camps during the World-War II. *Slave* City pushes the ordering mechanism in the modernist utopia of the "Garden City" into a dystopic outcome of the complete exploitation, cannibalization, and recycling of human beings.

Architecture and architectural practice are inextricably involved or "entangled" in the design and building of prospective sustainable built environments. Thus, it becomes necessary to critically interrogate them in order develop innovative sustainability approaches that foster equitable non- dystopic transformations. For architecture to play a constructive role in "imagining desirable dreams" for new built environments with "sustainable futures", it would be useful to appreciate the forces (like inequality or totalitarianism) that turn these past radical or utopian ideas into undesirable dystopic outcomes.

Imaginographies of infrastructure resource flows – being at one with water, air, energy and land

Sonja Dragojlovic-Oliveira | University of Strathclyde, UK

Most of the world's urban infrastructures that transport, manage and extract resources such as water, air, land and energy are characterised by linear, functionalist and largely inanimate properties. They have evolved largely in industrialised times to supply an ever increasing demand to build, expand and inhabit lands and waters in a manner that has tended to ignore, overlook and in some instances destroy habitats they encroached. Although it is now well established that humans and other species have deeply emotive and multisensory entangled relationships with resources their lives evolve through and depend on, there has been little thought into how these relationships could inform the infrastructures that contain, transport and manage them. This is especially pressing in the context of evolving automated and digital new properties of infrastructures such as smart grids through which humans might manage, control and influence how, when and who engages with the resources they use.

Through drawing on ways humans imagine and visualise the resources their lives depend on – water, energy, land and air, new paradigms of communication and characterisation of these infrastructures from inanimate to animate, from linear to networked, from functionalist to emotive could be made possible. Imagination has not been examined as a way of creating a new 'language', way of communicating spatially and socially to develop resilient relationships with resources we depend on such as energy, water, land and air. Yet, imagination is seen as the most powerful cognitive resource to visualising solutions and new paradigms of communication across many disciplines. The purpose of this study is to explore through dialogue vignettes with the conference audience participants, how our imagined visualising of water, air, energy and land might develop new infrastructural properties within our cities and towns. The findings would enable an initial mapping of participants' imagined propositions and viabilities that would offer an initial emotive characterisation of urban infrastructures.

Next nature architecture: Towards a legible aesthetic for nature-technology hybridisation in architectural design

Karim Jaspers and **Emma Schoonhoven** | Eindhoven University of Technology, The Netherlands

In the age of Anthropocene increasing attempts are made to incorporate natural processes within cultural practices. 'Next Nature' is introduced by Van Mensvoort to describe this process of hybridisation, leading to an experience of animism between man, nature and technology. This philosophy is represented in architecture through the unification between living and manufactured elements. Once the process of hybridisation reaches its height, all dualist conceptions disappear and along with them the clear distinction between natural and technological design elements. This is in sharp contradiction with the current aesthetic paradigm of iconic architecture where contrasting elements and simplification are used as design tools to enhance a quick understanding for the mass public. The legibility of these designs seems to be a crucial component for people to navigate themselves within the complexity of contemporary society. Thus – following the assumption that the radical process of hybridisation is taking place within the discipline of architecture – the question remains: in what way can a Next Nature philosophy manifest itself into architecture while securing the legibility of design?

Through an extensive literature review and an interview with Van Mensvoort the implementation – rather than its theoretical philosophy – of hybridised architecture is analysed. Furthermore, a drawn analysis of the architecture of Bjarke Ingels Group (BIG) is used to illustrate the importance of legibility in architectural design while also demonstrating the negative influences of the use of contrasting materials on the building's sustainable performance. In this paper, both the simplified contrasts used by BIG and the hypothetical, hybridised architecture originating from the Next Nature philosophy are critiqued based on criteria regarding respectively sustainability and legibility. Three alternative courses are proposed where a hybridisation can take place while ensuring architectural legibility: new bio- based materials are developed which can ensure material contrasts are maintained, a new sustainable aesthetic is established without the use of material contrasts, or conventional contrasting materials are made sustainable. Overall, this paper provides insights for architects to formulate a legible aesthetic for hybridised architecture.

The spirit of radical change: Myths, ritual, magic and tradition

Timothy Stacey | Utrecht University, The Netherlands

The world is facing multiple intersecting crises at present: war, recession, mass migration, housing shortages, and ecological collapse. Scholars and visionaries have long known that what we need is nothing short of socioecological revolution. And yet simply *knowing* doesn't seem to be getting us anywhere. While scientific dispute remains in a number of fields, what we are fundamentally lacking is not knowledge but inspiration. As society has increasingly rationalised, we have become very good at identifying problems and developing solutions, but we have lost touch with the myths, rituals, magic and traditions that make alternative futures real, meaningful and desirable. Collectively, I call this spirit of radical change. Understood in this way, the problem-solution approach cannot solve our crises because it is an integral part of them: it is their epistemological source. By way of an alternative, this paper serves as an exercise in reacquainting ourselves with spirit. It explores what myths, rituals, magic and tradition are, how they shape us, for better and for worse, and how we can use them in our work to re-enthuse one another with the faith that radical change is possible.

Theme 3 | Acting: Practice and Impact

We are in a pivotal decade, characterized by multiple challenges and modes of existence. We must act now, both collectively and individually. But without a profound change of our wider socio-technical systems, we will not tackle these challenges ahead. Exploring actions, practices, alternative modes and socio-ecological relationships, on different scales, locally or globally; grassroots projects, politiques and policies ranging from micro-level practices in co-housing, alternative energy provision, shared resources, co-production of urban space, urban agriculture, peer-to-peer consumption and production, and alternative economies. How to rethink the role of the architect in sustainable futures and her relation to an issue action-based approach to practice? How can architects and architecture become agents of change? What radical entanglements can be created through architectural processes and practices? What practices and projects have enacted radical impact and change?

Session 3

Chairs

Torsten Schröder | Eindhoven University of Technology, The Netherlands

João Sequeira | CHAIA - University of Évora / University of Beira Interior, Portugal

Deniz Ikiz Kaya | Eindhoven University of Technology, The Netherlands

Towards positive entanglement: Creating radical change by infiltrating the decision-making power structure

Robert Greenstreet | University of Wisconsin-Milwaukee, USA

Architecture has the power, through its creative, problem-solving approach, to envisage radical change, and those ideas are no more powerful and far-thinking than in our Universities.

However, few architects or academics actively engage in the actual power structures – political, financial, communal – that can make change, limiting their ability to either become change agents or to consistently influence decision-makers. By consequence, they remain spectators or passive players where many ideas, however powerful, remain sterile if they do not influence the power agents who have the authority to act upon them.

This paper explores a recent American experiment in building structural change, where academia and government fused to create a unique 'town/gown' partnership. The project brings academic, architectural ideas directly into the Mayor's Office to create long-term, sustainable change. Essentially, the Dean of the University of Wisconsin-Milwaukee's Architecture and Planning School was appointed by the Mayor to simultaneously serve as Director of Planning and Design for the City. The results of the five-year experiment include:

- The enactment of 13 Area Plans, one for each of the districts in Milwaukee's 99 square miles, empowering the communities and becoming catalysts for comprehensive, neighbourhood change.

- The creation of a Design Review Team to consistently introduce new ideas to design development and raise the bar for architectural standards.

- The creation of a Green Team that led directly to the formation of the Office of Sustainability and an ongoing blueprint for sustainable change.

- The direct engagement of the University in undertaking approximately 25 projects a year working with the City to bring academic ideas directly into the community.

Without a receptive audience prepared to embrace them, ideas, however powerful and necessary, remain in a theoretical vacuum. Structural partnerships, where the promoters of radical change can directly affect the decision-making power process, are an effective way to ensure long-term, sustainable change.

Along the lines: Train passangers as an art audience

Natalia Irina Roman | Bauhaus University Weimar, Germany

Making art means for me creating spaces of possibilities. Illustrating this train of thought, Along the Lines is an art practice making space along frequently travelled train tracks, changing our daily train travels and illustrating the transformative power of artwork.

Along the Lines is the vision of a platform for art in a public space transforming former interlocking towers along railway tracks for passengers. I have kicked off the initiative in Berlin with exhibitions connecting towers along the Circle Line, funded by the prestigious Capital Cultural Fund (Hauptstadtkulturfonds).

Along the Lines is art research focused on the unexplored potential of disused railway infrastructure, which has grown into a self-initiated artist in residency with the German Railway (Deutsche Bahn).

In the process of automatizing and centralizing the railway, the towers have been losing their former function. Currently, they face a similar conflict: they find themselves too close to the railway tracks, sometimes in between the tracks, which makes it unlikely that they can be repurposed, due to security concerns.

Central for Along the Lines is the gaze of passengers through the train windows. I have turned the towers' close proximity to the tracks from a disadvantage into an advantage by installing art for the train passengers, to be seen from the trains and from the train platforms. I have worked with light, because this medium has allowed me to create works at the border between the possible and the imaginary. As such, the time in between the stations has gained a different meaning: one experiences public art instead of a solely functional ride, the traveller becomes an art viewer.

Early results of this artistic re- search practice point towards the transferability of the working methods, so allowing the transformation of towers into art spaces in other regions, nationally and internationally.

From circle to string figure. Visually reconceptualizing circularity of the built environment, depicting entanglements through action-based research on two industry parks

Ellen Verbiest | KU Leuven, Belgium

The building sector is responsible for over a third of all waste in Europe. Circularity of the built environment promises to tackle this number by *reducing*, *re-using* and *recycling* building materials. Convincingly conceptualizing its potential via clear geometric shapes such as circles, ladders and triangles, circularity has found its way into the building profession. Although circularity is high on the agenda of policymakers and other spatial professionals, translating and implementing these 'simple' concepts into the complexity of a real spatial project has proven to be challenging. Current representations lack stakeholder agency and contextual representation. In an attempt to bridge the gap between concept and practice, this article visually re-conceptualizes circular economy of the built environment, including its many socio-spatial entanglements.

Firstly the article uses two real case studies to challenge current uncontextual representations. It translates data gathered through mixed-method action-research on circularity of the built environment, conducted on two industry parks In Flanders, into explorative socio-spatial visualisations. Secondly, based on the entanglements found in the case study research portrayed in the socio-spatial visualisations and, by adopting Dona Harraway's *string figures* concept, an attempt is made to visually re-conceptualize circularity of the built environment. By representing circularity of the built environment conceptually as a dynamic string figure, the bridge from concept to site is drawn portraying real world complexity.

Touching energy: A set of architectural "micro-interventions" and a network of micro-actions as keys for enabling a true community-based energy market and supply chain

Stefano Converso and **Hamed Abbasi** | RIMOND Studio, Italy

This work moves from the need to face a really big challenge: engaging people with energy, and with electricity, in particular. Electricity is probably one of the most intangible energy sources: even its quantity is hard to see, to measure using intuition. It is quite strange how much it became, in contemporary times, an almost invisible commodity, if we think at its beginnings when the rise of electricity was a source of emotion, of shows, of discovery for the brave new world.

This paper looks at the world of Renewables, to the rise of dynamic energy markets, with their local supply chain based on distributed generation of energy communities and peer-to-peer trading, as a new world that is in need of a new interpretation, at both social, figurative and ultimately architectural levels.

The document will present built experiments conducted in the context of Research Projects funded by Horizon2020 Grants. In the Rezbuild Project, energy refurbishment of existing residences was conducted through optioneering in a digital environment and the design of custom micro-architectural energy components. In the ReDREAM project, a kit of tools to detect and act on energy data are coupled with a software and service ecosystem that provides you feedback on actions. Such feedback could be virtual, as well as physical, if devices are designed to react to power change, showing its intensity, use, save dynamics, for example.

All these interventions aim at acting at both physical and digital levels, and particularly on the hypothesis that the two levels have to live together and that "touching" energy through micro-actions and micro-energy devices is a key for people's involvement in sustainability and advanced energy management in innovative supply chains. Data have to "emerge", and architects have to design such emergence. Built projects and software will be presented and discussed in the context of people engagement and "phygital" design practice.

The discussion will move from the experience, practised during the Solar Decathlon competition, where the first real point of touch with electricity came thanks to the "Energy Balance" monitoring, provided during the competition. Every daily action there was "reacting" in a context, in a constant comparison with others, and with a communal balance. Knowing that your actions are in a network can make people feel connected, if the contribution is free, protected and fun. Architecture is by definition building spaces for people. Contemporary space has an increasing symbiosis with energy and resources: designing ways to interact with them is also a way to reconnect with nature, with our bodies, with our territory. With the roots of architecture.

Can stories save us?

Toby Smith | University of Bath, UK

The environmental challenges we face are unprecedented, requiring widespread change to our lifestyles - everyone needs to be on board. While awareness has increased over the past decade, our behaviours are slow to shift from old patterns. There is a gap between intention and action.

This gap reveals a core truth of human psychology; we are not governed by logic, but by emotion. Facts and data can create a want to act. But, for new behaviours to form, we must influence the motivators underpinning our emotional brain. And our emotional brain likes stories.

The power of this should not be underestimated. Stories define who we are as individuals (identity), who we are as a society (collective), and our willingness to act (agency). Each story overlaps to create a full picture; an idea of self that changes with the people and environment we are surrounded by.

Any creator of these environments - physical or virtual, real or fictional - can influence our stories. Wherever space exists, so does the opportunity to change who we are and how we act. Consequently, the design of space can play a key role in turning intention into action.

"Can Stories Save Us?" will explore pro-environmental behavioural change through the lens of an architect. Using psychological theory and applied examples, it will demonstrate how the spaces we inhabit are entangled with the stories that define us, and how this can be utilised to inspire sustainable behaviours.

Due to my background in professional architecture, my research to date has been focussed on live projects. This provides a uniquely pragmatic perspective, which is yet to be formalised as academic output. The Radical Entanglements conference offers an opportunity to begin the process of formalisation, sharing findings - through presentation or round-table discussion - and opening it up to collaboration with wider partners.

The lichen incubator

Justyna Lesny | University of Westminster, UK

Dungeness is an unforgiving landscape for many species, yet there is an abundance of lichen. Lichen, a resilient organism formed by a symbiotic relationship between fungi and bacteria/ algae is one to be admired; both taking from one another exactly what they need to exist. Nutrients and protection in exchange for sugars and energy. These cryptogams are capable of absorbing approximately 14 billion tons of carbon dioxide per year, helping to remediate the increasingly detrimental impact of human activity. Although capable of growing anywhere and on anything, the site and all of its biodiversity is soon to be completely submerged by rising sea levels. Dungeness B is one of seven UK Advanced Gas Cooled Reactors (AGR) that are due to close by the end of the decade. Its decommissioning has left an unmoving and available environment, specifically its façade.

Through the extensive understanding of the properties of lichen this project retrofits Dungeness B to act as a container of a vast quantity of lichen species. Environmental analysis, air and daylight simulations inform a façade system that collects and cultivates airborne spores and cryptogams. The growing logics of lichen are incorporated into the design of an architectural 'bioskin' tile that varies in surface area, shading, material, and form according to their placement on the façade of the reactor. The Lichen Incubator is an intervention that sees the opportunity for reuse and re-purpose of both the material structures left by these characterful buildings, but also the social and economic void left in the community. Here in the Incubator, lichens' unique properties can be researched, harvested and utilised to slowly remediate our environment as part of a balanced relationship that compliments the strategy of *Degrowth*.

Session 5

Chairs
Jonathan Mosley | UWE Bristol, UK
Davide Landi | UWE Bristol, UK

Is architecture accessible: Raising awareness by dissecting diversity in design

Cristina Cassandra Murphy | Michigan State University and Virginia Tech, USA; XCOOP, The Netherlands

"We may all look different, but why are most of our experiences or journeys into the design world so similar? Is design becoming or championing an exclusive environment? How does diversity play a role in this?" [by NYASHA HARPER-MICHON]

On the wave of police violence," "systemic racism," "the legacy of slavery", the Society's Cage Pavilion by the SmithGroup was displayed in the National Mall in DC in August 2020. The Society's Cage was a statement on the forces of systemic racism designed by a team of SmithGroup architects as an interpretive installation developed after the murders of George Floyd and Breonna Taylor and created as a traveling installation. https://www.smithgroup.com/societys-cage. This, like all other manifestations of human intolerance toward "intolerance," provides an important reflection on racism happening now. While we should feel a responsibility to contribute creatively to this fundamental time in history, we have at the very least, the obligation of being involved intellectually.

The Society's Cage serves as a powerful tool to educate us about this nation's ugly history of State Violence against Black Americans... against any difference. The intention is for the exhibit to travel around the country to share this emotional experience and spread this powerful message to a wider audience during this important time.

Can any life be accepted? This paper advocate that, through design, it is possible to provide spaces of tolerance that welcome diversities. Through a variety of academic and professional projects, we reflect on intolerance and test whether design can be used to create spatial and social experiences supporting better lives for city residents. While designers should feel a responsibility to contribute creatively to this fundamental time in history, they have at the very least, the obligation of being involved intellectually.

"Moruzzi Road, beyond a road", a case study for the generative process of transformation, its impact on participation strategies, and the architect's role

Nazila Salehnia | University of Pavia, Italy
Ioanni Delsante | University of Pavia, Italy; University of Huddersfield, UK
Tabassum Ahmed | University of Huddersfield, UK

This proposed contribution draws upon the experience developed alongside "Moruzzi Road, beyond a road", an experimental project based on urban commoning and co-designing practices that aimed at transforming a leftover road in the city of Pavia, developing since April 2021. The project is based on the formal collaboration between the University of Pavia, "Moruzzi Road" (a not-for-profit organisation), and the Pavia City Council. However, the stakeholder mapping exercise demonstrated many more individuals and organisations were keen to be involved in various capacities, including active citizens, schools (both primary and secondary), enterprises, and local industries.

The paper offers an insight into six prominent actions that were conducted in the generative process of the transformation, from the initial phase until very recently (June 2022), and it aims to critically reflect on the project itself, its impact as well as its shortcomings.

Moreover, it became evident how participation and power relations among actors have been constantly evolving over time. These changes are not linear nor consistent, therefore they deserve further insight. Analysing and representing such dynamics through some models of participation and power relations such as "Ladder of Citizen Participation" (Arnstein, 1969), "Ladder of Co-production" (TLAP), and "Triangle of Participation" (Jans and De Backer, 2002) intends to critically explore the level of participation at each stage, new perspectives and strategies emerged in the process, and the impact on the architect's role in light of current evolving scenarios and directions.

Picnicking on bridges: Reclamation and rebellion on bridges across The Nile

Omar Ismail | University of Toronto, Canada

Within a context of diminishing public space in Cairo, bridges over the Nile go beyond connective infrastructure to become public sites of social, political, and economic practice - including picnicking, protesting and purchasing. With only 0.8m2 of open space per capita, availability of public space in Cairo is severely lacking falling well below the WHO recommendation of 9m2. This is exacerbated by neoliberal privatization of the Nile's riverbanks - a pillar of Cairo's public space. Currently, highly unstable and precarious informal use is the primary means by which members of the middle and working classes appropriate bridges as public space such as at the 15th of May bridge; vendors, commuters, couples and families take to the bridge armed with carts and chairs to make a living, enjoy a snack, and take in the view of the Nile - when conditions allow. Rare formal interventions by the government have failed to consider the contextual relations that shape the appropriation I of bridges leading to generic spaces unsuitable for informal users effectively displacing them and limiting public use.

Through the development of archetypal human-scale interventions implemented contextually, the appropriation of bridges can be supported and expanded, increasing access to public space. These interventions will not be final products but rather objects gradually developed and altered by working class community members to tweak spaces according to need. The objects would allow bridges to adapt to different uses in different places at different times. The bridges can then become social condensers integrating people and practices as initially theorized by Russian constructivists. This approach favors mixed use and overlapping program to produce what Koolhaas (2004) calls 'social collisions' or interactions within and across classes. The connectivity of infrastructure - such as bridges - is also key to supporting the social condenser according to Michal Murawski (2020). I therefore propose maintaining the coupling activity of bridges to produce vectors of connected public spaces.

Extra-legal wisdom: Trading the entanglements of patronage for those of collaboration

Scott Gerald Shall | Lawrence Technological University, USA

Communities around the world are facing immense environmental, social and political challenges, prompting architects, engineers and designers to consider how they might create more resilient work. Unfortunately, expanding practice in this manner has proven difficult, as the fields involved are so thoroughly entangled by the expectations of patronage. In education, training and practice, those who design the built environment have become consumed by the preferences of their patrons (Crawford, 1991). Although this arrangement has obvious benefits to the professions, its plodding pace and top-down bias has largely compromised the professional's ability to offer useful work in many communities (Theime & Kovaks, 2015). There is, however, an alternative.

Over one billion people currently live in communities that are generated using a much faster and more responsive, grassroots approach. Constructed with unapproved methods and unsanctioned materials, these *extra-legal settlements* have thrived within the crucible of modern development, propagating at a pace and scale that far exceeds that of state-sanctioned urban areas (Mahabir, 2016).   This is despite the fact that these settlements are disadvantaged in almost every way: underfunded, built on undesirable or dangerous sites, and overtly opposed by powerful actors (UN-Habitat, 2015).

The paper proposed by this abstract will analyze the patterns behind the design, construction, occupation, demolition, and re-construction of these unique settlements. The tactics thereby discovered will then be used to understand the surprising persistence of a small set of recently-completed works in several South African townships. Constructed of mostly scavenged means in only a few days with budgets of less than $1500, these modest architectures have thrived in the face of incredible pressure. By understanding the reasons behind their resilience, perhaps professionals will become able to trade the entanglements of patronage for those of collaboration – to the benefit of the communities they might thereby serve.

Architecture for social change: Citizen activated spaces redefining power relations between institutions, individuals, and communities

Hollie Lewis | UWE Bristol, UK

Michel Foucault's use of English philosopher Jeremy Bentham's 'Panopticon' as an example of disciplinary architecture to control and transform individuals signifies the critical role architecture plays in defining power relations between institutions and citizens. Architecture is not the essence of power, but the use of space to control bodies reveals it as a tool power uses to operate. Foucault observed that prisons resemble factories, schools, barracks, and hospitals; institutions that play a mechanistic role in surveillance and discipline whilst also being spaces that every individual must traverse at some point in their lives. The built environment impresses upon people, consciously and unconsciously, moulding and shaping identities. The architect's role as an actor for social change is to determine if those impressions shall continue to reinforce hierarchy and administrative control, or challenge how space is used to establish power relations.

This paper will present a Foucauldian analysis of the role of Architecture in defining power relations between institutions, individuals and citizens by examining the case example of the Al Daayan Health District, designed by OMA and Buro Happold. This paper will argue that the difference between OMA and Buro Happold's 'hospital of the future', Foucault's hospital-prison and Bentham's panopticon lies in who is empowered by the design. Citizen activated spaces are those that are designed for human wellbeing, enjoyment, and community empowerment. A citizen activated design is as powerful for social change as a panopticon is for social control. The focus of the built environment must be on the needs of the least privileged if it is to be a tool to enact social change and achieve social sustainability, equality and justice.

City farm tales: A comic strip catalogue of ecological actions

Jane McAllister | London Metropolitan University, UK

This paper retells a series of interviews in the form of a comic. The comics narrate *Tales* of well-being experienced by city farm workers, capturing their spatial practices against their cultural capital and field of expertise within the local setting.

The broader context of the research compiles research-by-design documenting farm practices which create incremental changes to the farm. These practices transform commercially un-viable sites into community assets, and in doing so, embody well-being within their setting. The thesis argues that this is achieved by individuals working between the *Agency* of a setting and *Activities* curated by the farm.

The *Tales* narrate the motivational and operational activities of the farm workers, unfolding their stories through time, across frame and page using metonymy and motif to guide memory through different contexts. The method of gathering and sharing data from the workers' voices, aims to promote two things. Firstly, the depth of farm activities to a wide public readership, including children, those with learning difficulties and for those with English as their second language. And secondly, identify how, working between agencies of the setting and activities of the farm projects, the individual can develop and articulate their cultural capital, within a hierarchy of spheres involving self, community, and state.

If the farm can be identified as a civic ecology, it will offer a complimentary approach to well-being which supports a productive desire to repair rather than one which relies on the acquisition of material assets.

Session 10

Chairs

Sonja Dragojlovic-Oliveira | University of Strathclyde, UK

Fidel Meraz | UWE Bristol, UK

Sergio Figueiredo | Eindhoven University of Technology, The Netherlands

On nature and architecture: Research into design strategies for nature inclusive architectural designs

Juliette Bekkering and **Weijie Zhong** | Eindhoven University of Technology, The Netherlands

In recent years, the topic of nature and architecture has received widespread attention, as nature is significant to people's wellbeing, the sustainability ambitions of buildings, biodiversity, and the reduction of the effects of climate change. We see ever-expanding greenery lining façades and growing into interiors, ranging from a purely decorative function to an essential part of the architecture. The current debates focus primarily on the social, technical, building physics related and sustainable effects that nature has on architecture, reducing the debate to a pragmatic sum of results and facts and figures. This leads to a neglect of the vital link between architecture and nature, which is beauty and the creation of rich spatial experiences that appeal to the senses.

This contribution examines how the theme of "nature and architecture" plays a crucial role in architectural design and has been applied to the most canonical buildings throughout the ages. We have analysed emblematic projects in which both have been interwoven (biophilic architecture) and samples have been drawn up of design principles of how nature can be integrated into architecture. References were collected and analysed in a comparative way and grouped under three topics: food and architecture, landscape and architecture, and nature in and on architecture.

The results provide an overview of the integration of nature in architecture, a matrix of how nature and architecture were intertwined in the past and can be intertwined in future design practices. We present a toolbox for architects to integrate nature into built form, and in this way incorporate aspects such as water flows, light reflections, the rustling of leaves or the smell of flowers within the architectural narrative. The research showcases that the symbiosis of both is embedded in a long architectural tradition and provides charters for the future to create places of beauty.

Learning from real utopias: Interrelating circular practices, placemaking, and coproduction toward a circular built environment

Tamara Egger | Delft University of Technology, The Netherlands

In Circular Built Environment (CBE), humans engage in diverse practices to close resource loops at different spatial-temporal levels. These activities are based on care for other humans, materials, and environments throughout lifecycles. The CBE is still a desired future. However, evidence of small-scale initiatives that point toward a circular future can be found worldwide. Such real utopias are happening on the margins of the present-day linear mainstream but are based on utopian visions of alternative futures.

This work identifies case studies that entangle three kinds of human practices toward a CBE. Circular practices are diverse human activities that support slowing, closing, and narrowing resource loops. Placemaking is a collaborative practice to transform spaces of possibilities into places by filling them with diverse activities, narratives, and identities. Co-production are collaborative processes combining diverse human knowledges and skills toward common goals. Frameworks are needed to study cases of real utopias. First, to empower them as subjects of politics, research, and activism. Second to learn from them and inspire other initiatives around the world. The question becomes, what can be learned from real utopias on how circular practices, placemaking, and co-production can be interrelated to enable human agency to transition toward a CBE?

First, this article develops a framework of hypotheses on the interrelation of the three practices from a literature review. In the second step, the framework is tested with one pilot case study. Therefore, fieldwork was conducted in 'Haus der Materialsierung' in Berlin. Finally, the article concludes with recommendations for selecting global cases of 'real utopias' to apply the framework further. Researching and communicating about real utopias can empower small-scale practices to gain snowballing momentum and significantly contribute to transitioning toward a Circular Built Environment.

"Co Creation" within art, architecture and social design.
What's our role as a designer, an artist or architect

Tom Veeger | Eindhoven University of Technology, The Netherlands

The theme I would like to explore is "Co Creation" within art, architecture and social design. General question: What's our role as a designer, an artist or architect?

As an architect I have been involved in the design of collectively commissioned housing development with co creation of the future residents. In addition. I worked on "Live lab" an EU-funded Tender "iCity" in Eindhoven, in which I investigated together with techno artspace Mad emergent art centre how software and various virtual developments can contribute to the co creation process. At the invitation of the municipality, this was also presented during the large Smart City event Nordic Edge in Stavanger. During the Corona period I worked as an Artist in Residence on a research project in the former monastery Eikenburg, commissioned by social housing foundation Trudo and Baltanlab (an artspace that focuses on research in the area between art and society). The Brothers of Charity on Eikenburg were a religious community that was very active in the field of care and education. When the area was transferred to the housing corporation it was stated that the social and cultural history should be respected and if possible continued. The first group of residents consciously chose this location based on the social vision that the social corporation formulated in consultation with the Brothers. After a few years the inhabitants experience a stagnation in the process of further development. People wait and see and feel a dependency that also stems from the power relations that automatically arise between tenant and landlord. Participation is difficult to shape when there is an unequal power structure. Researching the way, the monastic order functioned and projecting this on the current situation of Eikenburg was in my opinion a first step to answer the question of the residence, how to start an active co creation process and the active involvement of the inhabitants in their living environment. During my conversations with many residents and users of the area a number of interventions emerged that could have a positive impact on the process of community building at Eikenburg.

The architectural design as a dialectical process of contamination and entanglement: The case of Malagueira by Siza Vieira

João B. Menezes de Sequeira | CHAIA-University of Évora / University of Beira Interior, Portugal

It is intended to present a summary article of an investigation into the architectural design of the neighbourhood of Malagueira by Álvaro Siza Vieira.

For this purpose, we use the drawings and existing texts that served as a study for the solutions and that describe the various events and reflections that occurred throughout the long-entangled process of conception that began in 1977 and, although partially completed in 1978, is still to be concluded.

Architectural design is seen here as a means and a process of creating personal knowledge. But personal knowledge does not mean imperfection or contingent knowledge, on the contrary «in every act of knowing there enters a passionate contribution of the person knowing what is being known, and that (...) coefficient is (...) a vital component of (...) knowledge» (Polanyi, 1958)

In order to carry out, a more in-depth study of the cognitive and instrumental processes of architectural design used by Siza Vieira, an intertwining between the drawing and the more or less vast set of his verbal reflections is essential.

If the collection of texts is relatively simple to obtain, through the dates of Siza Vieira's involvement in the elaboration and construction of Malagueira, as well as all the articles that directly or indirectly refer to it, the drawings and above all the relationship between drawing and verb involved more in-depth studies. Despite my 3 years training in painting at the Faculty of Fine Arts, the study of architectural drawing and its relationship with texts was a more complex subject as it implies a reflection on different languages. For this reason, we considered that both languages are, from a spiritual point of view, "denominators", being under the essential law of language, "according to which it is the same to express oneself and to interpret everything else" (Benjamin, 1916).

Rad(iaRon/ical) Atheneum & The transient estate

Chada Elalami | University of Westminster, UK

"Sending this message was important to us. We considered ourselves to be a powerful culture". This is only one of many messages requested to be evoked by a report on long-term nuclear waste warning messages.

In laying out the dangers of nuclear power, few are aware of the hazards caused by unethical nuclear waste disposal methods. While it is technologically challenging to eradicate radioactive traces from the ecosystem, it is crucial to attempt to locate sites of concentrated radiation and communicate it by using nuclear semiotics.

In Dungeness, the nuclear power stations are in their decommissioning phase. The project speculates on the repurposing of the power stations after they are decommissioned as a deep ground nuclear waste repository. It focuses on innovative semiotics methods that extend human timeline while predicting the importance of the augmented/virtual reality as a main hosting and visualization platform for the future generations.

The project involves a complex superposition of architectural programmes to keep up with the extended radiation timeline. At t0, that is when the decommissioning is completed, a nuclear centre – meant to be transient – neighbours the repository. Left to decay, the architecture timeline reaches t1, more than 50 years later, when the skin of the building has collapsed, revealing a core understructure of stone markers. With an emphasis on stability and durability, the markers invite visitors to explore a nuclear museum in an augmented world. Therefore, at t1+, the future generations are presented with an array of spatial sequences recounting the complex nuclear history, from its genesis in the 20th century to its downfall.

Spatial provocateur _ Embodied questioning

Farnaz Fattahi | University of New South Wales, Australia

Questioning the ever-present social and environmental problems experienced globally is a group of artist-architect-activists coined in this research as the *Spatial Provocateurs*. The *Spatial Provocateurs* question the status quo through immersive interventions in the public realm using the practice of embodied questioning. The *Spatial Provocateurs* design scenarios to question the existing reality through participation and engagement in response to social concerns. These interventions make the participants question everyday realities through tangible immersive experiences. The *Spatial Provocateurs*' interventions are socially motivated, socially relevant, and socially imperative as they question the problems and allow participants to experience the alternative reality.

This paper investigates multiple *Spatial Provocateur* projects to explore their methods of embodied questioning through a comparative analysis of these case studies. The *Spatial Provocateur* designs spatial interventions that utilise architecture's artistic and embodied experiential quality to question social matters. This paper elaborates that questions posed through space render an opportunity to investigate fundamental experiential and embodiment questions to diagnose, encourage, and promote conversations on social matters through the medium of architecture.

The findings posit that the *Spatial Provocateurs* embodied questioning methodology can visually, performatively, and experientially offer new forms of function and behaviours concerning the context through the action of the inhabitants of space that goes beyond words. The *Spatial Provocateur* uses embodiment scenarios to change the relationship of the encounter with architectural elements to pose questions through embodied non-linguistic methods. In this embodied experience, the participants become both the actor and spectator within the intervention scenario, and the intervention becomes a dynamic space of interaction. The findings demonstrate that the *Spatial Provocateur*'s embodied questioning challenges the conventional practice of architecture towards a more temporary and experiential practice. Furthermore, these findings have the potential to encourage experimentation to prototype scenarios of embodied questioning and bring about the possibility of radical change.

Making waves: Water dwellers in 1970s Amsterdam

Soscha Monteiro | Delft University of Technology, The Netherlands

In the 1970s many houseboats were docked throughout Amsterdam and its fringes. Especially among low-income groups, houseboats offered a solution to the housing shortage. Most water dwellers also occupied part of the quay through informal gardening. They experimented with other forms of living through spatial experiments, in relation to each other, to greenery, weeds, water, and to other species. Strategies to expel houseboat-owners employed by municipalities throughout the Netherlands included shutting down gas, electricity, and water supply; destroying cared for gardens and self-made sheds on the quays; rising the harbour dues disproportionately; and demanding ships to be painted a certain colour. Houseboats were criticized for being unsightly and unkept, ruining the aesthetic qualities of city, village, and landscape. Their variety in design was often not wanted, nor their experimental forms of urban gardening, keeping small livestock, recycling, crafts, and self-building. Nowadays, these socio-ecological spatial experiments of houseboat-owners and urban nomads range from being cleaned up and criminalized through policy, to being long formalized and regulated. Living on water was also co-opted by developers and municipalities, while becoming inaccessible for low-income groups. This paper aims to bring to the fore some of the forgotten spatial experiments of water dwellers, mostly from the 1970s, when the awareness of the Limits to Growth spread across Europe. By examining under-explored administrative records in several archives in Amsterdam, the paper uncovers some of the spatial, ecological, and political struggles of the houseboat-owners, and their expressive self-build architectures, quay landscapes and floating gardens. It foregrounds the often-forgotten role that civic society played in bringing sustainability thinking into political agendas, urban policies and design.

Session 11

Chairs
Jonathan Mosley | UWE Bristol, UK
Yahya Lavaf-Pour | UWE Bristol, UK
Cristina Nan | Eindhoven University of Technology, The Netherlands

The labour club: Co production, authorship and the benefits of a fuzzy approach to architecture

Paul King | Sheffield Hallam University, UK; University College London, UK

These experiences led Ferro to write extensively on architecture as the production of commodity, whose 'modern' practices demanded a division of labour in order to generate the highest profits. For Ferro, this attitude was encapsulated in the architectural drawing, whose exclusive language alienated builders, couching them as ignorant manual labour. The situation was exacerbated through isolating each part of the construction process, which effectively gave architects complete control and removed all agency from those who built their designs. In Ferro's conceptualisation of architecture, the process of designing buildings could not be separated from their construction.

Due to the privileging of the Architect's drawing, the building site is often seen as a place of difficulty and conflict by architects. This paper offers a counter-narrative that the building site is also a place of solutions and equity. Ideas and concepts become tangible on the building site as they materialise from lines and shade on pieces of paper. An inevitable process of adaptation takes place as the reality of material properties and tacit knowledge combine to provide the vehicle for the physical realisation of an idea.

A shift in the balance of power away from the architectural drawing towards the operating modes of the building site, the architectural drawing loses authority when the construction of a project begins, becoming an object that inspires and informs construction. The actions and activities that occur on the building site take over as the key driving forces behind the construction of an architectural project and the range of communication methods is expanded when construction begins. Some tasks are better executed without formal architectural drawing(s) e.g. through spoken language. It is these non-orthographic, fuzzy, methods of interaction that offer a compelling opportunity for co-production that reconsider the role of the architect.

Unplanned works. Radical, playful entanglements towards pro-ecological urban development

Tassy Ellen Thompson | University of South-Eastern Norway, Norway

New urban developments and municipal playgrounds are the context of my *Radical Entanglements* proposal. Playgrounds are usually a required element of planning permission applications for housing developers. How do we take pro-ecological approaches to urban design through playful reflexivity? I will not be repeating definitions of sustainability. Suffice to say the climate crisis is truly upon us, globally and in every facet of our lives, both as humans and as part of the multi species Zoe sphere we exist in. We are out of time for stating the obvious. We must act. We as academics and practitioners, as philosopher Rosi Braidotti called for, must '*roll up our sleeves*' and put the act into activism. I propose an argument, through qualitative research, for a more messy posthuman architectural 'plan of works' as a *radical entanglement* which might be challenged by a vital materialism onto-epistemology. I use an abductive methodology and a deep mapping method, layering and cross referencing the empirical material created in the planning, building and use of two new municipal playgrounds. I question the apparatus of strategic definitions of 'Client', 'Site Assessment' and 'Business Case' in planning core tasks. The empirical material offers examples of radical, playful, value changing entanglements and practices experienced by our diverse team of children, plants, designers, masterplanners, builders and developers. I make an argument for pro-ecological approaches to public realm design as a Deleuzian, rhizomatic assemblages. These must include ethical obligations and complexities beyond the merely economic and contractual. A process in which; a client is an assembly, the site assessment is only ever partial and wholly immeasurable by remote means, the business case is one redefined by wholly different measurements and the impact or post occupancy assessment is also at the start.

~~Principles~~ Poetics of plentitude

Niels Groeneveld, **Floor Frings** and **Raoul Vleugels** | Werkstatt, The Netherlands

"All this stuff came from somewhere."
(Moe. K. (2021), Unless: the Seagram Building Construction Ecology, Actar Publishers, Barcelona.)

When we perceive our build environment, what are the materials which make up the bulk of our buildings? Where do they come from, and, what do these materials mean to us?

Material flows do not end in the build environment, they suggest a source, a start point. They move between communities and influence economics and landscapes. Materials leave a plethora of traces, they exist in place AND time.

The scale on which we use and employ materials conceives notions of plentitude and limits. The word 'plenty' is the culmination of two notions: abundance and 'just enough'. How does the building industry relate to these ideas? What is available in abundance, and what is finite and deserves a sparing, careful utilization. Which roll do new, regenerative building materials play next to the beautiful, finite materials without which we cannot image our build environment?

Confronted with this contradiction, we try to reverse the implications of conflicting notions. Finite and infinite are not diametrically opposed: 'just enough' and abundant reinforce each other in a dynamic way. This asks for a multi faceted perspective on the value of materials. Next to their functional qualities, they embody memories, potential and beauty. Beauty which is not confined to the 'looks', but which can also be found in the origin of a fiber, or the potential of a future destination.

This multi-faceted approach is based on the thinking of Kiel Moe and Gion Caminada. It could be firmly stated that we need both collective and individual action to engage in alternative economies. The building - in economic sense- is therefore not an object, but part of a 'building ecology', a system. The architect needs a deep entanglement with the community in order to analyse and ensure understanding of changes to system. A question remains: do we engage a community through explaining principles, or by seducing them with a new, poetic, notion of the alternate economy?

City as resource - Expanded practices of reusing of the existing building stock in context of climate change

Simon Sjökvist | Cobe Architects, the Royal Danish Academy, Aalborg University and ETH Zurich

The building and planning industries' consumption of land and natural resources is a cause of great environmental concern. It drives resource scarcity, threatens biodiversity, and the energy consumed when processing these resources into building materials, constitute a substantial and increasing share of buildings' and cities' total carbon footprint.

This is contributing to the transgressing of the environmental 'boundaries' to human activity on planet earth, and the return to a so-called 'safe operating space' will thus require a radical transformation to the way we think, plan, and construct our buildings and cities.

In all plausible scenarios, this will entail substantial reductions from current levels of building activity.

Over the years the materials have accumulated in our buildings and cities, and the built environment today accounts for more than 98% of the global anthropogenic material stock. Institutions such as IPCC point to the necessity of making better use of these vast material resources.

Much hope is put in circular economic (CE) building practices. However, up to now such practices have been carried out a small scale, focusing on components, or small-scale buildings, even though there are indications that the impacts of such practices would be bigger on an urban scale - across buildings, infrastructures, landscapes, and even entire urban districts.

Through case study analysis of urban development projects in Copenhagen, looking at processes of construction and demolition, resource flows and associated embodied carbon. This project critically explores and discusses potentials for scaling up CE building practices - to implement them more broadly and on a larger urban scale - and the environmental impacts of doing so. Is the potential as big as its often made out to be? And what the incentives and barriers in relation to such an 'upscaling'?

Based on this, the research further points to alternative and expanded notions and practices of recycling and reuse.

Through the looking glass: How socio-economic non-conformities revolutionise architecture as a political act

Aliki Myrto Perysinaki | Liverpool John Moores University, UK

Focusing on Studio Elemental in Chile, Tatiana Bilbao in Mexico and Teddy Cruz together with Fonna Forman in the US/Mexican border, this proposal intends to examine constructive typologies and political protocols that open up emancipatory perspectives for social appropriation of the territory. In Chile, 'half-good houses', a 'skeleton' of a solid structure acting as the 'DNA' of a middle-class home, are being transformed by the residents based on their needs and finances. In Mexico, houses are divided into expandable parts and volumes, whilst the exterior image does not witness an unfinished design. In Tijuana, San Diego's 'left over' (obsolete housing) is recycled into 'second hand' urbanism, turning the disposable housing stock of one city into prospective permanent dwellings of the other. Housing becomes perceived as part of public space infrastructure, defined primarily as a network of social, economic and cultural exchanges. Such practices enable a social interpretation of economy, both as a means of transforming housing and land ownership, as well as boosting urban renewal. The critical analysis intended in this presentation aims to question the potential of 'marginal' approaches from so-called 'problematic' places to generate resilient mechanisms. What are the successes and what the risks of such enterprise? (How) could such processes apply to European contexts?

The doughnut economic approach in architecture

Piero Medici, **Roberto Cavallo** and **Henri van Bennekom** | Delft University of Technology, The Netherlands

In 2017 Prof Kate Raworth from Oxford University and Amsterdam University published the book *Doughnut Economics: seven ways to think like a 21st century economist.* The Doughnut, the core concept at the heart of Doughnut Economics (DE), is a tool for human prosperity in the 21st century to meet the needs of all people within the means of the living planet. It consists of two concentric rings, a social foundation and an ecological ceiling, and in between lies a doughnut-shaped space, the safe and just space where humanity can thrive.

In 2018, at the Faculty of Architecture TU-Delft (BK), Henri Van Bennekom supervised the graduation projects of four students who developed the AREA-Framework, a tool to guide the design interventions in the built environment, addressing DE. In Raworth's doughnut-shaped space, the AREA-Framework introduced the following qualitative eight categories (and subcategories) to address a resilient built environment. From 2019 until 2021, Van Bennekom adopted the AREA-Framework in the AREA Design Studio at BK, TU-Delft. Most involved researchers, practitioners and students' feedback highlighted its limitations of being only qualitative and its categories and subcategories being not enough quantitative and measurable.

In 2020 several architectural practices from the Ex'tax-network, (e.g. RAUArchitects, CityFoerster, SuperuseStudios, Space&Matter) involved in the TU-Delft project 'Circularcity' expressed the need for guidelines and toolkits to address the Circular Economy (CE) challenges comprehensively. Space&Matter proposed to develop a research specifically focused on a tool similar to the AREA-framework, reckoning that DE is part of the Amsterdam policy to achieve a fully circular city by 2050; other practices from the Ex'tax-network agreed on its importance. The following research question originated from the practices involved in Circularcity: how to develop a tool similar to the AREA-Framework further, from a quantitative and qualitative perspective, to support the architectural practices to implement DE in the built environment?

The goal of this paper is to proceed with the first step to develop the framework further through literature review and interviews with practitioners and academics. The framework will contribute to positioning the architectural practices concerning both DE and CE.

Theme 4 | Navigating: Concepts and Strategies

The world is complex and entangled. There are multiple relations, but for individuals or collectives not all relations are equally important. Without assumptions and choices we cannot move forward and develop approaches. How do we choose, and develop pathways? How are these pathways designed and composed? There are multiple worldviews and entanglements of multiple entities, how do they differ? What are the suppressed, surprising or crucial entanglements towards sustainability that are built on specific forms or knowledge, framing, moments, roles, human/non-human, ontologies, realities, and actions? How to deal with messy and complex relations? How do we explore them? What is our map or compass? How to navigate through them? What are the conceptual approaches, strategies or hands-on practical approaches that may enact radical impact and change?

Session 6

Chairs
Fidel Meraz | UWE Bristol, UK
Juliette Bekkering | Eindhoven University of Technology, The Netherlands

Catalyzing sustainability transitions through the new aesthetics of circular architecture

Antti Lehto and **Sanna Lehtinen** | Aalto University, Finland

Circular Economy (CE) has gained a growing foothold internationally in policymaking, academic research, and practical projects. The CE framework is often approached from economic and technical perspectives, leaving the social dimensions in the background (Pomponi & Moncaster 2017). This is a major information gap. This article builds a new connection between the theories of Circular Architecture (CA) and applied aesthetics. Our research question is *how can the theory of Sustainable Aesthetics be applied in Circular Architecture to accelerate sustainability transitions in society?*

Our research framework comes from applied aesthetics, especially Yuriko Saito's theory of "green aesthetics" and newer perspectives, such as intergenerational aesthetics (Lehtinen, 2020; Capdevila-Werning & Lehtinen 2021; Brady 2021). Adapting Arnold Berleant, we hypothesize that the cognitive level of aesthetic experience and the contextuality of the meta-level have a decisive influence on the experience of beauty (Berleant 2000).

We show that the novel design strategies and values of CA create new meanings in the daily environment. When aesthetic experiences are combined with a growing awareness of the climate crisis, we are on the verge of a new paradigm both in aesthetic values and architectural design. This change in aesthetic taste and, on the other hand, subtle paternalistic control, open the possibility of influencing everyday choices (Melchionne 2007; Saito 2007; Lehtinen 2021). Circular Architecture thus offers an opportunity to contribute to the transformation of society's sustainability.

Modernity was built for the Industrial Revolution, eventually reflected in the buildings that became the image of the new era. The CE framework seeks change in the same core, production, based on contemporary knowledge about ecology and sustainability. In case the progressive school of thought in CE (Reike et al 2018) will be implemented, circular design has the radical potential to turn a new page in architecture. In this article, we propose a theoretical framework for the aesthetics of this new type of architecture.

Design ecologies: How to defy solutions

Simone Ferracina | University of Edinburgh, UK

Potentiality—the ability to change—does not rely on the intrinsic properties of an object, but on how these contribute to a broader set or environment. A pencil is not a pencil (meaning: an object used to make marks, to draw, etc.) in the middle of a glacier, or in the depths of an ocean, but only in relation to at least a sheet of paper and a human hand. In other words: the potential to write or draw does not fully belong to the pencil, but is a function of its encounter with a broader constellation of objects. I call these constellations, designed to target and achieve specific potentials, *ecologies of inception*.

An ecology of inception orients objects towards one another and allows them to be understood together and to share common languages and functional scripts. The word 'ecology' comes from the Greek *oikos* meaning family or house, and suggests a fundamental relational unit. The term 'inception' comes on one side, from the Latin *incipere* (to begin) and *capere* (to be receptive, to grasp, to seize), foregrounding the ways in which tuning objects toward one another might spark new performances and interactions—for example, my ability to grab the pencil and draw a figure on a sheet of paper. Yet, on the other, *in-capere* (to capture in, to enclose) also alludes to the violence implicit in annexation, appropriation, and inclusion; it suggests that "making useful" or "powerful" within an ecology is simultaneously a "making useless and powerless" of something else, of something or someone other—left outside of it. As a counterpoint—towards sustainability in design— the term *ecology* of suspension is thus introduced to reclaim a potentializing role for other (nonrelational, noncompliant, queer) ecologies that negotiate a measure of worth in suspension, in the lack of productive relation.

Writing + Queer + Architecture

Marko Jobst | independent researcher, UK

This paper calls for the development of *queer architectural writing methods* as modes of radical disciplinary and environmental engagement. It aims to challenge established notions of architectural research and its relationship to writing and develop decidedly queer modes of 'radical entanglement'. The *queer* is addressed here both as subject matter and a methodological approach (Browne and Nash 2012; Ghaziani and Brim 2019; Halberstam 2019), while simultaneously adding to the growing body of work in architecture that tests unorthodox writerly methods (Rendell 2010; Havik 2014; Frichot and Stead 2020). As Anna Gibbs notes, '[m]ethod refers not only to the process of research, but also to the process of making sense of that research in and through a writing which does not come afterwards as a "writing up" of what has previously been discovered, but is actually continuous with it, and, in large part, produces it' (Gibbs 2015). Building on Gibbs's premise and following in the footsteps of Browne and Nash's volume, this paper asks *what uses the term queer can be put to* in the context of writing as architectural practice – and the complex relational, but also antirelational, methods of engagement with the world such processes help foster.

Stewarding entanglement through the internet of doors

Peter Russel | Tsinghua Shenzhen International Graduate School, China

The nature of the built environment is becoming increasingly dominated by the nature of information. Connected devices (the 'Internet of Things') are permeating the industry ranging from bricks to buildings which measure conditions, presence and use. The flow of this information, between users, objects and systems requires a measure of stewardship to avoid the chaos and denial of service, that uncontrolled communication will mean. The paper presents a solution for governance based on a topological approach using blockchain technologies to manage building information without compromising the privacy of individuals or the potential performance of machine learning systems. The topological approach to location-based systems focuses on the threshold of the topologies. In the case of the built environment, these are usually doors. The exact location information of sensor data, objects and users is usually unnecessary. More important is the location relative to other objects and sensors and this can be defined in a topology. In cases where exact x-y-z or Lat-long-height information is needed, it is usually available upon request to the device. Importantly, the declaration of topological relationships ahead of any data processing saves the processor-intensive calculations needed to determine proximately. Thus, the topological approach increases system performance by saving precious processor cycles. Placing the sensors and actuators in the door frames also has several practical advantages: they are at the threshold where topological location changes, they are usually near power (lights witches), they provide both 'above-height'and 'at-hand' heights for sensors and controls, and they are an unused cavity with plenty of space for housing components that are easily accessible. The computational power placed in the doorframes can then become the host of blockchain ledgers which document the changes in the building (or sensor records) as transactions in the ledger. An important system design issue is the preparation for forking any blockchain, which will facilitate the separation of user data from the building's sensor data (anonymisation). This will allow privacy to be retained and still enable machine learning systems at the housing unit or building level to acquire better behaviours. This is even conceivable at the city quarter level, where shared energy and heats systems can function. The paper concludes with the discussion of how learning systems can share information both vertically (nested systems) and horizontally (peer-level communication.

Cities within cities: Towards a dialogic agency of self and other

Robert Brown | University of Plymouth, UK
Suha Hasan | KTH Royal Institute of Technology, Sweden
Ioana Popovici | University of Plymouth, UK

'To be means to be for another, and through the other, for oneself.' (Bakhtin 1984, 287)

In the context of contemporary cultural, ecological, economic, and political entanglements spatialised in the contested ground within a rapidly changing city, and whose roots date back to identities and structures imposed by a now-distant colonial other, this paper explores the possibility of a dialogical approach embracing the potential to be found within/across the messiness of conflicting agendas. The locus of this discussion is Tuti Island – a city within a city – situated in Khartoum, Sudan at the convergence of the Blue and White Nile, whose indigenous inhabitants' livelihoods, sustainable practices, and cultural identity are threatened by external forces seeking to appropriate Tuti Island for economic gain. This discussion has wider significance in how we deal with contemporary conditions of the urban as site of multivalence – and difference – and as further exacerbated by climate change and resultant displacement.

Central to this discussion are three challenges: 1) the city as a site of multiplicity with adjacencies of disparate identities and agendas delineating distinct cities within the city; 2) inherited perspectives rendering their adjacencies as bounded domains; and 3) inherited practices within the context of difference marginalising or negating the problem posed by the other (and the other themselves). In response to these challenges, we will explore three interrelated pursuits: 1) the city itself as archive, whose hidden, current and future palimpsest- like layers reveal liminal spaces of clash, divide and fracture; 2) conceptualisation of these liminal spaces as threshold spaces of encounter between conflicting agendas and identities; and 3) the embrace of the other – not only through accommodation but also working with the problem posed by the other – as the solution.

Posited is an approach that dialogically embraces entanglements enabling a mutual, sustainable re-shaping of self and other.

XR technologies for enhancing urban environmental analysis and public engagement

Biayna Bogosian | Florida International University, USA
Maider Llaguno-Munitxa | UCLouvain, Belgium

Raising urban temperatures, air pollution, water levels, water pollution, and noise pollution, among others, can not only severely damage the natural and built environments but can also impact the health and well-being of the citizens. Therefore, urban health is one of the most pressing questions that stakeholders and policymakers must address today. In the last two decades, many cities have adopted innovative resilience strategies, technologies, and policies to control the emission of pollutants as well as to promote sustainable urban development. However, many of these initiatives have concluded that long-term success would also require investing in the environmental literacy of the general population. Therefore finding approaches to guide and enhance the citizens' understanding of complex and interconnected urban environmental issues and the impact of small daily decisions are critical.

The research argues that in order to communicate complex and nuanced urban environmental issues, we need to adopt engaging and data-driven information representation and discussion methods. Therefore, this research presents the application of Extended Reality (XR) media, including Virtual Reality (VR) and Augmented Reality (AR), to evaluate citizens' background knowledge and perceptions of urban environmental phenomena. Recent literature demonstrates that XR media enable embodiment, interaction, and immersion, which could lead to impactful feedback mechanisms for collecting feedback granular from the participants. This research uses detailed urban models and analysis, which are experienced through VR and AR technologies. This research will be presented through two studies, a VR study focused on the city of Brussels' urban green infrastructure and an AR study focused on the city of Miami's water issues. Through these case studies and the authors' previous work developing citizen- centric media, the aim is to demonstrate the effectiveness of XR representational strategies for the engagement of citizens in urban health risk assessment and policy making.

Session 12

Chairs

Torsten Schröder | Eindhoven University of Technology, The Netherlands

Anđelka Bnin-Bninski | University of Belgrade, Serbia

Johanna Höffken | Eindhoven University of Technology, The Netherlands

Ode to a patch of weeds: Non-human agencies & authentic architectures

Max Wisotsky | Birmingham City University, UK

We find ourselves deep within a climate and biodiversity crisis, a changed world — thousands of years of reciprocity replaced by two hundred and fifty of hubris and exploitation. What role has the design of the built environment had in this change? As the cultural technology that perhaps most defines our relationship with our encompassing world — literally separating and protecting us from it — it has fundamentally reframed our worldview.

In contemporary practice, we find ourselves in the thrall of the overly aesthetic architectures of a cadre of self-congratulating starchitects whose dedication to the capitalist project far outweighs their consideration of asking: "Should this be built?" These are architectures of an infuriatingly inauthentic response to this crisis of climate, conscience, and connection — orgiastic assemblages of soil, steel, and plants. Shrub-dotted investments by the billionaire class.

To find a true architecture of engagement with our encompassing environment I need look no further than the wispy wild and weeded plot of gravel at the front of my house; the beautiful flower growing out of the pavement across the road; the spiders in my gas meter box; the dandelion in the downspout: the proverbial patch of weeds — those unplanned places where our non-human relatives re-entangle their bodies and re-weave their agency.

It is only through a re-interrogation of these spaces as adding to the worth of our architecture that we can begin the ontological shift that will bring a true authentic and sustainable relationship with our local and global environments. We must learn to adapt our aesthetic rules and give new ones space to convince us of their sensual and vivacious anarchy. We must actively develop the tools that allow these informal patterns of non-human accretion – a knitting together of rigorously planned zones, intractably human, with the unplottable desires of dandelions, moss, and ants.

(Im)possible Instructions

Heidi Svenningsen Kajita | University of Copenhagen, Denmark; Newcastle University, UK

Architects instruct (un)built environments using drawings, specifications, and snagging lists that foremost pertain to construction. But can such architectural instructions also support the entangled interactions that our "broken world" necessarily involves? In her plea for a more caring and democratic architecture, Joan C. Tronto notes that the problem is not that architects' do not care, but that they care wrongly. Architects, she writes, care for "things" but should rather be "caring by participating in the ongoing relations of those who are cared for." (Tronto, 2019: 27). I bring Tronto's call to current challenges in the transformation of Northern European PostWW2 large-scale housing areas. Here, I conceptualize architectural documents as material instructions that do not only act as commands for construction but also enhance situated ways of knowing and participating in socio-material situations.

While instructions are central to architects' communicative processes, their standardized and object-oriented purposes are often at odds with residents' particular and localised social processes. To link these incongruent processes, I adopt a lingering approach associated to caring participation and conditioned by the time it takes to do "paperwork, the domestic work, care work, diversity work" (Ahmed, 2019: 206). In the book *What's the Use?* Sara Ahmed shows, how 20th century utilitarianism led to and restricted somethings' usefulness, and she shows, that to diversify something can even be to refuse it's proper use. Taking this possibility to architecture, I refuse to use instructions properly. Instead, I analyse architectural documents by intersecting notions of care as "human trouble" (e.g. Tronto, Puig de la Bellacasa, Ahmed, Krasni, Frichot) with archival- and document studies (e.g. Yaneva, Hull, Eichhorn). From here, this paper exemplifies techniques for making documents work for more democratic and caring purposes following: 1.*Urgent minor matters* of an office archive compiled as a motley collection of participatory techniques and genres. 2. *Plan drawing* acting in siting-processes with residents over time; 3. *Residents' lists and letters of complaints* used to transfer information across document genres, and 4. *Idle talk* as it is translated from oral interactions to paper. These *(im)possible instructions*–engaging those who are cared for–act in both restrained and open-ended ways in the architectural design process.

Emergent grounds: Urban cartographies of Bristol through the lens of the protesting crowd

Aikaterini Antonopoulou | Liverpool School of Architecture, UK
Sebastián Aedo Jury | University of Portsmouth, UK

The aim of this paper is to challenge the politics of urban representation and to propose new forms of mapping and perceiving the city by unpacking the imagery of the protesting crowd during the 'Kill the Bill' demonstrations, which took place between March and April 2021 in Bristol, UK. Using design-led research, this project sources, evaluates, and categorises images and videos from the events as posted online to devise a series of city maps and models. These unconventional cartographies help decode the spatial, social, and cultural complexity of the city and reveal a new form of constructed 'ground,' one that emerges through the people's concerns on their right to protest freely and without restrictions.

The embodied representations generated from this process reveal hidden and suppressed realities of the city, and allow the marginal, the contingent, and even the accidental to come to the forefront. The work is framed by formulations on the posthuman and the posturban: with the media having entered the very definition of the self as well as the collective assembly, the crowd as a cinematic object becomes a device through which to understand the complex entanglements of bodies, technology, the city, and its environment, and to detach from homogenizing and uniform urban visions. The recurrent shifts across the media involved in this process (from photography to drawing to film to modelling and back...) raise pertinent questions on the role of representation in the production of diverse narratives on the space of politics in the city.

Artificial landscapes: Nature as urban object

Sophia Banou | UWE Bristol, UK

This paper will focus on the objectification of nature within architectural and urban design in order to define and examine a new 'iconic' (Jencks, 2006) turn of architecture, towards the integration of nature as a token of sustainability. The paper will argue that there is an increasing normalisation of design projects that rely on an iconographic fetishization of nature as object and image rather than a symbiotic counterpart to the manmade.

Through a critical-historical review of architectural approaches to and imaginaries of 'nature', from Le Corbusier's idea of the 'urban jungle' (Koolhaas, 1994) to Superstudio's speculative designs Continuous Monument (1969) and Supersurface (1971), the paper will frame the juxtaposition of architecture and nature within urban design practices. The growing treatment of the natural as architectural matter and object will be further framed through the analysis of two recent case studies of urban interventions: the Marble Arch Mound in London, designed by MVRDV Architects (2021), and the Little Island at Pier 55 in Manhattan (2021), designed by Heatherwick Architects, as representative of an iconographic approach to the natural, which clashes with concepts of sustainability in design, especially in the context of the current discourse and action pertaining to the climate emergency.

The paper will demonstrate how rather than nurturing and engaging with the natural element through active occupation and principles of environmental sustainability, the two case studies add to a tradition of architectural projects that either put nature on display, as an object of visual intrigue and symbol of sustainable design, or as cases of extreme technification of nature. In both cases, the paper will underline the necessity to address such phenomena of 'simulation' (Baudrillard, 1994) and the issues they raise about the integration of publicness and nature within the urban, in relation to design approaches, planning policy and professional regulation.

Negotiating with practices of commoning: A reflective account of socio-spatial reclamation of a community space

Tabassum Ahmed | University of Pavia, Italy
Ioanni Delsante | University of Pavia, Italy; University of Huddersfield, UK

This contribution shares an insider's reflections on the unfolding of newly formed and ongoing spatial practice in reviving and reclaiming a council-owned land, Fartown Forest Garden, in a suburb of Huddersfield, West Yorkshire, UK. As an informal self-organised group, the actors have been testing ethics of commoning (Bollier 2011)- namely, non-hierarchical position, collective attitude of care, ownership through use and care and community designed practices – as guiding principles to work collectively with the motivation to create a community space of sharing, learning, and growing in nature. In this paper we trace over our ethnographic experience as architect-researchers who share the responsibility of being an embedded and equal spatial agent (Awan et.al 2011) with other active locals in the reclamation project.

By discussing its initial phase of mobilisation using institutional framework of commoning, we aim to share patterns and attitudes that develop within such pro-social networks as they recreate this physical space. At the same time, we also critically reflect on the architect-researchers changing positionality as they negotiate with the arising complexities and conflicts within the entangled mental space of being a horizontally organised collective. Our conclusions suggest that such critical spatial practices give roots to potential urban commons (Dellenbaugh-Losse et al. 2020) that sit outside the normative spatial practices governed by the state and market and create mediums of empowerment at local levels and trigger transformational change from a bottom-up level.

Radical imaginaries

Ana Betancour | The Oslo School of Architecture and Design, Norway
Carl-Johan Vesterlund | UMA School of Architecture, Umeå University, Sweden

There is a growing body of research on urban visions in social futures and transition studies exploring the role that imagination plays in shaping cities. Drawing on the importance of examining processes of urban imagination and exploring the potential effects they may have on the future development of urban built environments, communities, and ecologies (Lindner and Meissner, 2019) in this paper we wish to explore further the politics of urban imagination.

In his book Capitalist Realism: Is There No Alternative? Mark Fisher describes how strong the current narrative, worldview and idea of reality, created and continuously reproduced by capitalism, is. Departing from the phrase 'that it is easier to imagine the end of the world than the end of capitalism', attributed to Fredric Jameson and Slavoj Žižek, he describes how the idea of capitalism as being the only realistic political economic system has infiltrated our minds, to the point where 'capitalism seamlessly occupies the horizons of the thinkable'.16 He describes how what is 'realistic' and thus what is considered possible at a certain time, is always defined by a series of political determinations. This is for us a strong argument for how urgently alternative common imaginaries of possible futures are needed.

Central in our thinking is therefore a constant questioning of through what perspectives we understand the environment that we are living in. Departing from a critical perspective, in terms of social and cultural representation, we ask: What kind of life do we imagine and for whom? In suggesting alternative spatial practices as answers to the need for projecting critical alternative futures with extended ecological horizons, our aim has been to open the imagination for other options, beyond the hegemonic view of 'reality' and what is defined as possible.

Theme 5 | Emerging Radical Ideals

Emerging Radicals tackles issues and challenges of emerging significance - as yet not fully known or well understood but with potential of transformative action. The session tackles multiple issues from future anxieties in Architecture studio higher education to saline landscapes and dystopian visions of sustainability.

Session 7

Chairs
Sonja Dragojlovic-Oliveira | University of Strathclyde, UK
Sophia Banou | UWE Bristol, UK

The line: the rise of dystopian sustainability

Justin Agyin & Hüsnü Yegenoglu | Eindhoven University of Technology, The Netherlands

It is conceivable that the most radical forms of sustainability will be applied by authoritarian governments. In 2017, 'His Royal Highness Mohammed bin Salman', Crown Prince of the Kingdom of Saudi Arabia – an absolute monarchy – launched the vision for an entire future vertical city called 'The Line' in the Tabuk Province in north-western Saudi Arabia. The new city will be 170 kilometres long but only 200 meters wide and will house around 9 million residences in 2030. It is stated that 'The Line' represents an unexpected 'revolution in civilization' based on 'Zero Gravity Urbanism' accomplished by advanced satellite technologies that will help to create a city without roads or cars and runs on 100% renewable energy with zero CO_2 emissions. It sounds like a utopia, but we think the architecture of 'The Line' is one of the most recent exponents of 'radical' sustainable architecture that constitutes the image of an appealing, yet oppressive world at the same time. It is characterized by the highest ambition of sustainable development, performed by a megalomanic spatial structure where everyone can be surveyed permanently but in an unobtrusive way. The 3D renderings of the project – conceptualized by Morphosis architects – promise to the amazed observer the perfect world of biomimetic architecture, where natural phenomena such as flora, fauna, or entire ecosystems are imitated in a literal or metaphorical manner. In 'The Line', the dualism of technology and nature is outdated, as in fact, technology and nature are now appearing to merge or even trade places. In our final paper, we will further deepen this astounding interrelation between new concepts of sustainability, the rise of cybernetics, and the speculative power of biomimetic design to imagine the 'ecological future' within authoritarian control systems. To end our abstract with our core hypothesis: sustainable architecture is never non-political.

The sightless perception of space and others in a dance performance: How do we interact with each other when we cannot see?

Nicoletta Brancaccio | UWE Bristol, UK

Do we need an image-driven space to picture a fulfilling reality? This research project is about exploration, emotions, social interactions and how they are influenced by architectural space. Specifically, it explores how preventing individuals from relying on sight might encourage a freer and deeper space-exploration, creating a powerful brain image of space and suggesting a stronger relation with people, objects or architectural elements and involving more senses rather than only the sight. An instinctive use and ab- use of objects and space might provide useful suggestions for designers. A specific topic now emerging in the neuro-architectural debate deals with the relationship between sensory experience and architectural perception. According to J. Pallasmaa the role of non-visual perceptual modalities, and specifically of touch, is arousing great interest. This project aims to improve space design and increase its enjoyment and to achieve its scope it exploits the passion and the competences of professional dancers. The study analyses the behavioural response and the feelings experienced by the artists comparing two performances: one conducted blindfolded and one conducted with open eyes driven by the same music within the same stage.

The first step consists in the observation of the dancers while training (e.g., relation with space and the typology of movements executed), these elements suggest how to settle the stage for their performances. The observation and the data analysis together with the interviews with the dancers, confirm the initial intuition: the performance conducted while blindfolded allows a higher degree of imagination, inducts a stronger will of exploration (both of other bodies and space), arouse curiosity and facilitates the embodiment of the space, the nerve-endings in the body act and map like bionic eyes. The second performance is instead characterised by the continuous attempt of "using" all the objects available, movements and physical interactions are faster, dancers look distracted and anxious of going somewhere else.

Session 8

Chairs
Jonathan Mosley | UWE Bristol, UK
Davide Landi | UWE Bristol, UK
Cristina Nan | Eindhoven University of Technology, The Netherlands

Confrontation with future anxiety in architectural design studio

Selda Bancı and **Nur Çağlar** | TOBB University of Economics and Technology, Turkey

Design faces the future all the time, even if grounded on past experiences and materialized starting from today. Design mediates building a relationship with the future. The designer imagines what is not yet, projects what has not been, speculates upon the future that has not been realized, and takes steps towards making it real. An architectural design studio is thus an environment where new ideas are explored through design in building technology and materials, spatial organization, building programs, aesthetics, etc. The architectural design studio is inherently open to innovation. It is innovative. A studio is where designers are concerned with future projections and experiment with new ideas. However, there is no single, inevitable and predictable future; instead, we can talk about multiple futures. Futures in the plural: according to Norman Henchey, for instance, there are possible, preferable, plausible, and probable futures. Then which future will architectural design studios focus on is a consequential and challenging question. Therefore, this paper aims to speculate on the role of different futures in architectural design studios. Examining future scenarios developed by undergraduate students in an architectural design studio at TOBB University of Economics and Technology, the paper shares the theory and practice of the studio, its pedagogy and experiences. It stresses how an alternative/experimental learning environment based on editing self-designed fragments endorsed by collected aphorisms improves the quality of assignments and presents bright and thoughtful future scenarios. Because the best way of handling future anxiety is; to hold the courage to create it, researching through designs in this studio contributes to exploring the future rather than living in fear of it. Rereading the studio's productions will allow us to better understand the architectural design's role in crafting the future.

Socio ecological relationships from architectural studio to practice in the South African design landscape

Buhle Mathole | University of Cape Town, South Africa

It has become evident in practise in the architectural fraternity that a lot of students struggle to reconcile harsh socio – economic realities found in practise from their studio environment. The relationships brought about by realities of economy, energy crises and scarcity of building materials in the South African environment present real design informants that require active and agile minds in the industry.

It is notable that however the studio projects are arcane yet utopian in their ideals, this then fosters a calmer way of design problem solving from students. Yet reality is unforgiving in terms of its harsh realities. We will use a project designed by myself (Kabu Design Architects) that investigates how to design in the context of South Africa within a limited budget, practical and yet energy efficient way in order to enhance the livelihood for all. This to contribute energy solutions in the planet where globally there is an immerse energy crises.

The key aspect in this paper is defining the socio ecological relationships in a symbiotic design environment. The list is probably exhaustive but, in our case, study designed house we endeavour to define a simple relationship between all stakeholders such as the client, the architect, municipalities, materials through builders and engineers. Utilities such as electricity and water from city become fundamental in bringing breath to the designed project.

I believe strongly that Architecture is an apprentice type of teaching (reconnecting learning with practise), it's really a skill that gets acquired over time. Talent of an individual cannot be disputed but integrity in design is of paramount importance – developing strong leaders and financial managers who can run strong practices in this economy is something that is learned and not taught. My intentions are to see how that learning as a process can be entrenched in the Architecture school during the years of learning. How to develop strong social values. We can't save the world, but Architects have a significant role to play in designing a world not only in buildings but in transforming the public's mindsets in spaces they reside in – environments created that are conducive to a thriving global environment.

Facilitating architecture, rethinking authorship: Enabling resilience in self-constructed housing in rural India

Divya Chand, **Shweta Sundar** and **Sai Kelkar** | Lokal Habitat Labs, India

The 'Building Better Initiative' is a framework that supports housing which is dignified, durable, resilient, and safe, keeping in mind principles of socio-economic and environmental sustainability in rural India. In a unique partnership with a microfinance rural housing bank with self-constructing customers, through targeted interventions with multiple stakeholders, the project works to substantially improve the local building ecosystem by offering both housing finance support and technical facilitation. Enabling users to build safe and durable houses not only optimizes their consumption of financial and material resources, but also increases the lifespan of the structure, subsequently requiring lesser repair, maintenance and rebuilding. This leads to smarter and sustainable financial and resource consumption. Through an iterative design and research process, the team has developed a set of model solutions which are adaptable, flexible, incremental, aspirational and sustainable.

In an effort to enable better self-construction, the practice is a much-needed partnership between the different yet overlapping sectors of finance, construction, material production, housing policy, and architecture. Conserving the existing housing delivery-configuration, co-producing with the lateral-kinships and local micro economies, collaborating with India's largest private provider of small-finance loans for rural housing, the architecture firm is expanding its conventional role to what works, encouraging incrementality, designing small upgradations and capacity building, all to facilitate better architecture instead of selling it. To communicate the benefits of sustainable design and construction practices to homeowners on one end and sell the idea of such a project to the corporate finance company on the other, while also trying to set up partnerships with local NGOs and agencies working on sustainable and affordable construction technologies puts the architects in a tricky yet hopeful middle ground. The designs are incremental, and the standardized palettes of locally available, adaptable solutions are easy to improvise upon by the self-constructing homeowners, improving their standards of living on their own terms.

Session 9

Chairs

Ana Beatncour | The Oslo School of Architecture and Design, Norway

Torsten Schröder | Eindhoven University of Technology, The Netherlands

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Saline landscapes

Kirsten Davis | University of Westminster, UK

The latest IPCC report predicts the sea level to rise by up to 1.2 metres by 2300, which poses the threat of land loss to coastal communities, compromising soil quality and salinity as the sea water seeps through the landscape. Dungeness lies on the South-East coast, and is forecast to be entirely underwater within the next century. The landscape is formed of dunes, saline lagoons, and marshlands with varied, unique ecosystems.

Simulation during research stage explores the natural process of salinity-driven osmosis, and its energy potential. Experimentation with salt crystal formations inspired the materiality and functionality of the design.

Locally grown blackthorn twigs fill a timber frame, used to harvest salt from brine water through evaporation from wind and sun. The maintenance and replacement of which, would be conducted by local employees, who would have an active role in the co-operative building adaptation strategy.

In line with the Green New Deal strategies, the scheme provides green energy-generated on-site, green jobs - manual skilled labour techniques, and aims to address issues of land protection and restoration. The landscape would be preserved via manipulation of the salinity line; increasing concentration in some areas to harvest salt, and decreasing it in others so that inland groundwater is desalinated. The structure hosts the tools to visibly monitor salinity level.

Along the project timeline, the building plan adapts to the changing sea level, and industrial success. Some typologies would shift in land, others duplicated within the scheme's flexible formation. Buildings fixed in place are elevated to last over a century, and the paths between slope down to the floating structure that supports Lagoons and saltworks at Rye Harbour intends to serve as a prototype for local construction at saline intersections to manage soil salinity and naturally harvest the industrial potential of salt.

Rethinking architecture: Thinking inside the box

Krishnokoli Dutta | University of Strathclyde, UK

Architecture as a profession is known to be a creative field, where the architect designs a space for suitable use by the users, and in the process, the architect displays their creativity, bringing out uniqueness, and newer pathways to create the same thing in several different forms. Creativity, along with technical prowess is a powerful arrow in the architect's quiver. The urge of creativity was further fuelled by the movement of 'thinking outside the box'.

This has given rise to the now common culture of every architect trying to create something different, something so unique that will catapult the way architecture is perceived. While this race towards excellence is well appreciated, the trajectory of architecture has been slowly taking a turn towards a different undesirable direction. In the global south the idea of being aloof, isolated from the society, genius in one's own work, creating sculptural monuments has taken over and dominated the architectural discourse. This unfortunate shift has affected the public, civic domain of our society (Srinivasan, 2011).

Architecture is far more than iconic form making. In the urge of creating something new, often the urban fabric of neighbourhoods are shredded down. The need of the hour is to rethink how we see architecture, take a step back, and to start thinking inside the box. Any design must belong and fit well to its surrounding. We must think inside the box, and have a clear knowledge of the local social and cultural identity. The tangible and intangible elements of the site should lead us to envisioning the future edifice, and this must be taught to the future architects. Our imaginaries must be sustainable, not only environmentally, but also socially and culturally.

[1:1] Workshop

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[1:1] WORKSHOP is being organised by WOVEN, annually since 2013 as a form of a summer school. The main goal of the workshop is to work as one team with students in different conditions for learning than they usually experience behind the school walls. In 12 intense days, they need to set to the teamwork, practice-based exploring and context-aware approach. They not only broaden their practical skills, critical thinking and discussion competencies, but the responsibility also lies in the resulting craftwork, which remains on the site and becomes a vital part of the place. Throughout the years [1:1] WORKSHOP became a movable event of sorts, travelling from town to town, bringing life to forgotten places with potential or faded past. It activates unused parts of parks and towns and becomes a framework for new layers of interpretations and contents.

The shared experience during the 12 days of the event resulted in a site- specific action in public space. It tries to positively influence an existing situation and its wider surrounding, to bring change which is still capable of further evolution and interpretation, while changing the ingrained habits of locals. The process is precisely planned and tailored and led step by step from the first breaking of boundaries, discussions and teamwork through the observation and mapping the situation to the common design decision and organised building process.