3rd Annual International Neurodiversity *and the* Built Environment Symposium:

PlaceMaking

FRIDAY, OCTOBER 14, 2022

The event is presented by the Synesthetic Research & Design Lab by the College of Architecture & the Built Environment at Thomas Jefferson University; Center for Autism and Neurodiversity at Thomas Jefferson University and Jefferson Health; Inclusive Design Research Centre, University College Dublin; SMARTLab at University College Dublin, Skelligs (Ireland) and Niagara (Canada).

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Building on the last two years symposia, 2020's *Building Community and Rethinking the Built Environment* and 2021's *Immersive Experiences*, this year's dialogue will expand on the notions of belonging, placemaking and sensemaking over a two-parts symposium during October 2022 and Spring 2023. These serial events are intensely cross-disciplinary and aim towards critical interactions addressing all-inclusive ways for inhabiting and perceiving our environments. They aim to stimulate international dialogue amongst architects, planners, designers, artists, therapists, medical field experts, tech companies, educational institutions, advocates, neurodivergent people and their caregivers.

The event is presented by the Synesthetic Research and Design Lab, College of Architecture and the Built Environment at Thomas Jefferson University; the Jefferson Health Center for Autism and Neurodiversity and the University College Dublin Inclusive Design Research Center of Ireland in partnership with SMARTlab teams in Dublin Skelligs and Niagara.

SCHEDULE

9–9:30 a.m.

9–9:20 a.m

Synesthetic Research & Design Lab, SR&DL–CABE
Severino Alfonso & Loukia Tsafoulia, SR&DL Directors and Ass.Professors, College of Architecture & the Built Environments, Thomas Jefferson University

Center for Autism and Neurodiversity, CAN
Wendy Ross, Inaugural Director, Thomas Jefferson University, Jefferson Health

Sabra Townsend, Director of Operations

Michael Barrett, Design and Education Coordinator

SMARTlab
Lizbeth Goodman, Founder/Director, SMARTlab, Founder/Director, the Inclusive Design Research Centre of Ireland @ UCD

Anita McKeown, Director, SMARTLab Skelligs

Tara O'Neil, Director, SMARTLab Niagara

9:20–9:25 a.m.

Mark L. Tykocinski
President, Thomas Jefferson University
Anthony F. and Gertrude M. DePalma Dean, Sidney Kimmel Medical College

9:25–9:30 a.m.

Barbara Klinkhammer

RA (DEU), Dipl.-Ing. Dean and Professor, Thomas Jefferson University, College of Architecture and the Built Environment (CABE)

9:30–11 a.m.

PANEL 1

XR Tools + Inclusive Societies

Chaired by *SMARTLab*

9:30–9:45 a.m.

Nigel Newbutt

Inclusive and ethical ways to co-design technology with autistic groups: A case study of virtual reality and robots

9:45–10 a.m.

Julie LeMoine

AR Digital Helpers for Teens and Young Adults with Autism

10–10:15 a.m.

Muireann O'Sullivan-Byrne

Fish Climbing Trees; Repurposing Technologies for Twice Exceptional Students and Gamification for Gifted Inclusion

10:15–10:30 a.m.

Saskia Wilson-Brown

Social change in perfumery: expanding creative access for a diverse world

10:30–11 a.m.

In Dialogue

Moderated discussion and audience Q&A

11:15 a.m.–12:45 p.m.

PANEL 2

To Human: Narratives for Healing

Chaired by the Synesthetic Research & *Design Lab*

11:15–11:30 a.m.

Tasha Golden

Arts, Aesthetics, and "How We Human"

11:30–11:45 a.m.

Maria Vidali

Narrative, metaphor and fiction as tools for understanding the world and healing it.

11:45 a.m.–12 noon

Joy Knoblauch

Three Approaches to Healing from the 1960s. Government, Psychedelic, and Equine

12 noon–12:15 p.m.

Daithí Ó Murchú

21st Century Multi-literacies, story-telling and disruption. The journeys Together, Apart

12:15–12:45 p.m.

In Dialogue

Moderated discussion and audience Q&A

1–2:30 p.m.

PANEL 3

Design through Advocacy & the Lived experience

Chaired by the Center for Autism and Neurodiversity

1–1:30 p.m.

Jennifer Carpenter, Cait Russell, Evander "Ev" Smith, Rachel Updegrove

Design, Process, and Practice for the Neurodivergent Workplace

1.30–1:50 p.m.

Adam Harris, Magda Mostafa, Stuart Neilson

The Autism Friendly University: from Advocacy to Architecture

1:50–2 p.m.

Anita Yakkundi

Building an inclusive hydroponics vertical farm for engaging the autism community

2–2:30 p.m.

In Dialogue

Moderated discussion and audience Q&A

2:30–2:45 p.m.

CLOSING REMARKS

Organizers, Speakers & Participants

Times shown are Eastern Standard Time.

BIOS INTRODUCTORY REMARKS

MARK L. TYKOCINSKI

President, Thomas Jefferson University,
Anthony F. and Gertrude M. DePalma Dean,
Sidney Kimmel Medical College

Mark L. Tykocinski, MD, is the President of Thomas Jefferson University, and Anthony F. and Gertrude M. DePalma Dean of Sidney Kimmel Medical College at Thomas Jefferson University. Before joining Jefferson in 2008, he was Professor and Chair of the Department of Pathology and Laboratory Medicine at the University of Pennsylvania School of Medicine. His research contributions have been in the fields of molecular and cellular immunology, for which he holds a series of research patents. He serves as SAB Chair for KAHR-Medical, the Israeli biotech company he founded in 2007 for fusion protein pharmaceuticals. He earned a BA in biology magna cum laude from Yale University and his MD from New York University.

BARBARA KLINKHAMMER
RA (DEU), DIPL.-ING

Dean and Professor, Thomas Jefferson University,
College of Architecture and the Built Environment (CABE)

An accomplished scholar, design educator, and architect, **Barbara Klinkhammer**, RA (DEU) Dipl.-Ing., serves as Dean of the College of Architecture and the Built Environment at Thomas Jefferson University. Klinkhammer brings a deep understanding of the contemporary professional design world and a timely vision of the future of design education. An expert on color theory, she has numerous publications and grants to her name focusing on color in the built environment. She co-founded the Jefferson Institute for Smart and Healthy Cities and actively takes part in the discourse of contemporary architecture through practicing and participation in international design competitions. She has served in leadership and board positions of numerous professional and academic organizations including the ACSA, ARCC and SESAH and served as the co-editor of ARRIS. Klinkhammer holds the German equivalent of the Bachelor and Master's degrees in architecture from the RWTH-Aachen and is a registered architect in Germany.

PANEL 1.

XR TOOLS & INCLUSIVE SOCIETIES

9:30–11 a.m., Eastern Time U.S.
Chaired by the SMARTLab, Lizbeth Goodman, Anita McKeown & Tara O'Neil

INCLUSIVE AND ETHICAL WAYS TO CO-DESIGN TECHNOLOGY WITH AUTISTIC GROUPS: A CASE STUDY OF VIRTUAL REALITY AND ROBOTS.

Over the last 40 years there have been a range of applied technologies targeted to autistic groups and efforts to focus research in this area have increased ever since. During this time, research has focused on multimedia applications, virtual reality, touch-screen devices, and robotics (to name a few). However, despite the potential positive impacts of technology integration in the lives of autistic users, most of these technologies have been developed without the input or inclusion of autistic groups or their stakeholders. In fact, much research in this area is derived from, and situated within medical models of disabilities. Therefore, this talk seeks to explore the value of inclusive practices and methods and how this can lead to greater ethical and social models of inclusion, which in turn can improve technology development that is more focused and targeted towards the needs of the autism community. The talk will include examples of technology projects that have explicitly included autistic people and their stakeholders in the co-design and co-development of technology, and how doing so leads to improved research outcomes for the autism community in their communities.

NIGEL NEWBUTT
Assistant Professor in advanced learning technologies, University of Florida.

Nigel Newbutt is an assistant professor in advanced learning technologies at the University of Florida. He is affiliated with the Institute of Advanced Learning Technologies (IALT) where he directs the Equitable Learning Technologies Lab (ELTL). His undergraduate work was in digital media, with postgraduate work in education and special needs. His research then focused on working with autistic communities to support technology applications addressing needs identified by this community. He conducts research on advanced learning technologies, and immersive technologies, with a view to supporting some of the challenges faced by autistic communities. He has led several projects on innovative technology for autism and has established lines of enquiry around wearable technology and sensory preferences for autistic users.

AR DIGITAL HELPERS FOR TEENS AND YOUNG ADULTS WITH AUTISM.

While the hardware of AR and VR continues to evolve rapidly, shifts in technology pricing, availability and ease of use have sufficiently coalesced to make this a time of creating and trying rather than predicting XR impact use cases for individuals with challenges. This talk summarizes research on creating just-in-time (JIT), assistive, AR-based Digital Helpers for teens and young adults with Autism Spectrum Disorder. This study looked at what Digital Helpers should be like, sound like, and act like and the activities with which these helpers should assist. The work established 20 inclusively designed AR digital helper prototype applications. Each helper was co-designed by its intended user, a teen or young adult with ASD. JIT AR Digital Helpers are a novel area of focus, forging a new path for XR as assistive technology for individuals with challenges. Come and learn about this work and how XR may soon be providing assistance that literally walks with their users into everyday life challenges to offer assistance.

JULIE LeMOINE
Assistant Professor of Neurobehavioral Technology, E. K. Shriver Center at UMass Chan Medical School, Co-founder & Manager, Shriver Center Inova-XR Lab, Co-founder medVR, Chief Innovation Officer, HorizonIRs

Julie is an Assistant Professor of Neurobehavioral Technology at the UMass Chan Medical School and the Chief Innovation Officer for HorizonIRs. Her PhD research focused on the application of XR in Health and Wellbeing with a focus on the use of AR as an aid in everyday life activities and challenges, such as workplace or school activities, for teens and young adults with Autisim Spectrum Disorder and other challenges. She has worked more than 35 years to harness the most advanced computer technologies to lasso the future and bring it to users sooner. For the past 17 years, Julie has worked with over 20 organizations to create applied XR strategies, pilots and services. These projects and clients have spanned the healthcare, education, transportation, architecture, corporate and government sectors. Ms LeMoine was an original co-founder of medVR and Women in VR, a Springboard Alum. and in 2018 was voted one of the top women in VR. She is deeply experienced with creating XR solutions and passionate about the impact that 3D, gaming, AR and VR can deliver to improve our world. Prior, Ms. LeMoine was a Fellow/VP at Fidelity Investments FCAT thinktank, and the MITRE Corporation in areas of creating and applying social computing, collaboration software as well as computer security projects that helped turn the ARPANet into the Internet, and to help secure software used by the U.S. Space Shuttle, Air Force and banking systems.

FISH CLIMBING TREES; REPURPOSING TECHNOLOGIES FOR TWICE EXCEPTIONAL STUDENTS AND GAMIFICATION FOR GIFTED INCLUSION.

This presentation will explore the ethnographic influence of twice exceptionality (2e: the state of being gifted but also having learning challenges) on learner experiences. Drawing on the perspectives of 2e students, this talk will attempt to offer a snapshot of the theory and technology-based practices which can help to imbue 2e students with the prerequisite skills and strategies to communicate their eminence, while simultaneously navigating educational barriers. It will address impediments to the fulfillment of their potential and feelings of belonging. Dealing with an often underserved category of special educational need, gifted pedagogy requires an acute understanding of the asynchronous nature of giftedness and the structures which are necessary to facilitate students' success, as external pressures and preconceptions often mar their educational experiences, the perceptions of their mainstream peers toward them, and the places they inhabit. In order to foster inclusion and community, these strategies based in popular media which can be used to ameliorate the challenges faced by these students must reject the mythology that surrounds giftedness, and be cognisant of the seen and unseen obstacles 2e students face as they move towards acceptance and empowerment.

MUIREANN O'SULLIVAN-BYRNE
Faculty at St. Ita's and St. Joseph's Special School, Tralee

Muireann O'Sullivan-Byrne completed her PhD in Inclusive Design and Creative Technology Innovation, with a focus on harnessing virtual technologies and kinaesthetic learning tools for twice exceptional students. She is also a teacher in St. Ita's and St. Joseph's Special School, Tralee, with over 10 years of experience working with DEIS schools and nearly 15 years working in gifted education settings. Muireann is the recipient of the CAPSL Postgraduate Teaching Award from Trinity College, Dublin, for her work on assistive technology, has published extensively in the area of 2e and gifted education, and has developed courses and webinars for teacher training and university-style courses in both the Sciences and Humanities.

SOCIAL CHANGE IN PERFUMERY: EXPANDING CREATIVE ACCESS FOR A DIVERSE WORLD.

When perfumer Simon Barbe dedicated his book "Le Parfumeur Royal" to Louis XIV's son and heir in 1699, he was thinking about perfumery in a context where it was most often created by unionized practitioners for an elite – and often noble – clientele. Little could Barbe imagine today's perfume industry: an expanding, international, and increasingly diversified field. And yet, due to factors including cultural practices, trade secret, and questions around intellectual property, access to perfumery as a creative tool is still heavily restricted.

In this presentation, **Saskia Wilson-Brown** presents an overview of the movement to create more access in the field of perfumery. She will share an overview of her research into the contemporary context in which perfume is made, the touchpoints hindering access to the tools and knowledge of scent-making, and current efforts to expand the practice; not as a symbol of social status or as an object of consumption, but as a creative medium, accessible to a diverse audience in every sense of the term.

SASKIA WILSON-BROWN
Founder, The Institute for Art and Olfaction

Saskia Wilson-Brown founded the non-profit Institute for Art and Olfaction in 2012 in order to foster access and experimentation in perfumery. She went on to launch numerous programs designed to promote independent practices with scent and open-source principles in perfumery, including the Art and Olfaction Awards, Open Source Scent Culture, and many more. In 2019 she served as a visiting lecturer at the Royal College of Art (London), and in 2020 she was a Ballen Scholar at New Mexico Highlands University. In 2021, she started a PhD at SmartLab (University College Dublin), exploring the relationship between perfume, power, and access.

10:30–11 a.m.: In Dialogue. Moderated discussion and audience Q&A

PANEL 2.

TO HUMAN: NARRATIVES FOR HEALING

11:15 a.m.–12:45 p.m., Eastern Time U.S.
Chaired by the Synesthetic Research and Design Lab, Severino Alfonso & Loukia Tsafoulia

ARTS, AESTHETICS, AND "HOW WE HUMAN".

In this talk, Dr. Golden will share neuroaesthetics research and work from the International Arts + Mind Lab at Johns Hopkins University School of Medicine. She'll also discuss arts and aesthetics as part of "how we human": shifting what we know, what we share, and how we define and create wellbeing.

TASHA GOLDEN
Director of Research, International Arts + Mind Lab, Johns Hopkins University

Tasha Golden is Director of Research at the International Arts + Mind Lab at Johns Hopkins University, and a national leader and consultant in arts + public health. Holding a PhD in Public Health Sciences, Dr. Golden advises on several national health initiatives, and is adjunct faculty for the University of Florida's Center for Arts in Medicine. She recently led the pilot evaluation of CultureRx in Massachusetts: the first arts-on-prescription model in the U.S.

Golden is also a career artist. As singer-songwriter for the critically acclaimed band Ellery, she toured full-time and her songs appear in feature films and TV (ABC, SHOWTIME, FOX, NETFLIX, etc). She's a published poet and the founder of Project Uncaged: a creative writing program for incarcerated girls that amplifies their voices in justice reform. Golden has published extensively on art's impacts on health, and draws on her background to help clients and audiences bridge the worlds of arts and health. www.tashagolden.com

NARRATIVE, METAPHOR AND FICTION AS TOOLS FOR UNDERSTANDING THE WORLD AND HEALING IT.

My PhD research on a small community on the Greek island of Tinos helped me develop a perception of how life is experienced through the spatial and social complexity of their village architecture. Using a phenomenological and hermeneutical approach it was revealed to me that this could not happen without the use of narratives connected either with the reality of the village or with the imaginary world of its inhabitants. Through narrative and fiction I realized the value of metaphor as a natural language of sharing a communal way of living, one connected with both the natural and built environment. With the same tools of narrative, fiction and metaphor it became clear how students of architecture might achieve a broader understanding of what the world they design for really is, an understanding released from the preoccupation of what this world should be according to contemporary social and political commandments. Narratives are fluid - the 'old stories' of an elderly man with early dementia change; they are not the same as they were, his real world has altered. I am convinced that narrative exploration has a lot to offer. How, for example, could the narrative developed by a woman with special needs vision reflect her changing world; towards a hermeneutical intentional view of a "space of experience"1 as described by Perez - Gomez.

1. Alberto Pérez-Gómez, 'Hermeneutics as Architectural Discourse', History and Theory 1 Graduate Studio 1996-98. Montreal: McGill University, 1997, par. 5.

MARIA VIDALI
Principal "Maria Vidali – Architect" practice, Athens, Greece

Maria Vidali studied architecture at Portsmouth and Kingston University. She holds an MPhil degree in history and philosophy of architecture from Cambridge University and a PhD in architecture and language from the University of Thessaly in Greece. She was a research trainee at McGill University with interest in architecture and narrative. Her research work Village and Land, The Outlying Chapels on the Island of Tinos was published in Greece in 2009. She has been running her own architectural office since 2007. Since 2017 she has taught at the Drury Centre in Greece, a study-abroad programme of Drury University of Missouri, also at the University of Thessaly, School of Architecture, as well as at DIKEMES/CYA, an educational institution in Athens, based in Cambridge, Massachusetts.

THREE APPROACHES TO HEALING FROM THE 1960S. GOVERNMENT, PSYCHEDELIC, AND EQUINE.

In the 1960s, many of the struggles against the medical model of psychiatry found success and support. This talk covers three novel approaches to mental health beyond inpatient care, as they existed in the 1960s. (1) In 1963, the US federal government launched a construction program of outpatient community based facilities that would replace the horrors of remote institutions. Demographic changes (including the post-World-War-II PTSD among middle class Americans) and new psychotropic drugs enabled this experiment in architectural typology. (2) Psychiatrists and architects looked to other ideas, including psychedelics, to inform designs with a less behaviorist and more of bodymind approach. In particular, Humphrey Osmond collaborated with Kiyoshi Izumi on a community mental health center along with his work with Aldous Huxley and psychedelics. (3) Third, an even less psychologized series of therapies developed in an interspecies environment with a renewed interest in hippotherapy or asking horses to assist in the sensory and trauma healing of humans. Community mental health centers, outpatient care, and drugs are all around us now but the problems of mental health have certainly not gone away. A concluding theoretical speculation will compare these three approaches to trauma healing.

JOY KNOBLAUCH
Associate Professor, Director of the PhD Program in Architecture, University of Michigan, Ann Arbor.

Joy Knoblauch is an Associate Professor of Architecture and Director of the PhD Program in Architecture at the University of Michigan in Ann Arbor. Her first book on *The Architecture of Good Behavior: Psychology and Modern Institutional Design in Postwar America* connects psyche and form to examine a growing tendency to govern behavior through the environment. Her current research is a history of ergonomics that expands this critique of functional theories of psyche to include military and capitalist sites of engagement including open office plans and digital interfaces.

21ST CENTURY MULTI-LITERACIES, STORY-TELLING AND DISRUPTION. THE JOURNEYS TOGETHER, APART.

Today, we are faced with emerging technologies that enable humankind to 'Boldly Go where no one has gone before'. We hear of Metaverses, Universes, Immersive worlds and Intelligent Artificial Intelligence applications that will change the world as we know it, for better or worse! In all of this disruption, there are stories of unique genius formed by remarkable multi-literacies, to be told. The humanocracy and humanology of our human species as we empathetically synergise with these spaces, and spaces between spaces. Let us together, apart journey into this story-telling cosmos.

DAITHÍ Ó MURCHÚ HC
Ireland – International Consultant and Expert Advisor

Daithí Ó Murchú's life has been guided by a wonderful Mother, and learning the ways of survival early, through an engagement with the spaces that are unseen to most, but are magical for the individual. Since the 1970's, he has had the honor to be a head-teacher and lecturer, author and keynote speaker, Honorary Consul, CEO, and founder of several companies including Irish tourism group. Through this journey he has synergised with marginal and tribal communities globally, to share stories of resilience and unconditional love in a world that just didn't 'Get it'. Currently, Daithí consults with organizations on five continents, facilitating rural, linguistic and tribal regeneration, and sustainable, Digital and Green economic development in the areas of EdTech, AI, transformative education, disruption, biodiversity, emerging technologies, SMART Agriculture (SMAI) and strategic planning. Daithí has a passion for eXtreme ultra running and Climate Action in magnificent, global environments.
www.domurchu.com

12:15–12:45 p.m.: In Dialogue. Moderated discussion and audience Q&A

PANEL 3.

DESIGN THROUGH ADVOCACY & THE LIVED EXPERIENCE

1–2:30 p.m., Eastern Time U.S.
Chaired by the Center for Autism and Neurodiversity, Jefferson Health

DESIGN, PROCESS, AND PRACTICE FOR THE NEURODIVERGENT WORKPLACE.

Neurodiversity is becoming a buzzword in many sectors of the workplace, whether it is for inclusive hiring and support initiatives for neurodivergents, or for implementing neurodivergent friendly design strategies to an office or building. But to truly be an inclusive initiative, neurodivergents must be a part of this process – because you can't learn about us, without engaging with us. The act of neuroinclusive participatory engagement takes words and turns it into actions; otherwise, you just have words.

This presentation it an intersectional conversation between two autistics in the workplace, an Architect, designers, and an Occupational Therapist. It will discuss the current workplace environment, illustrate and suggest neurodivergent design processes and strategies, and share and hypothesize what a truly neurodivergent future workplace can look like. By looking at the workplace through different scales – person, product, room, infrastructure, and building – this conversation will encourage audience members that no action or change is too small, if neurodivergents are included throughout the process.

JENNIFER CARPENTER, RA, AIA, LEED AP
Principal, Verona Carpenter Architects

Jennifer Carpenter is a partner at Verona Carpenter Architects, a design practice in Manhattan focused on expanding inclusion by creating environments that embrace neurodiversity. With expertise in education, workplace, and culture, VCA works at the intersection of physical and social sustainability. Jennifer and VCA co-founder Irina Verona met at the Columbia University Graduate School of Architecture, Planning, and Preservation, where they both graduated with their Master of Architecture degree. Jennifer recently concluded six years on the Board of the Quad Preparatory School, serving neurodivergent students, and is active on the NYCAIA Social Sciences and Architecture committee.

CAIT RUSSELL, OTD, OTR/L
Director, Neurodiversity Employment Network: Philadelphia

Cait Russell is the Director of the Neurodiversity Employment Network: Philadelphia, a network connecting employers, academics, providers, vendors, job seekers, and other allies in the Greater Philadelphia region supporting one another to enable neurodivergent individuals to gain meaningful employment. Cait has extensive study in neurodiversity employment, with study in business and psychology at the University of North Carolina Chapel Hill and Duke University and a Doctorate in Occupational Therapy from Thomas Jefferson University. Cait also is the founder of a Sensory Friendly Cities, a non-profit focused on improving sensory accessibility. Cait believes strongly that neurodiversity is a crucial part of diversity, equity, and inclusion, and is proud to be a part of the mission to further inclusion in Philadelphia.

EVANDER "EV" SMITH
Operations Coordinator at A Step Up Academy and Autistic Advocate

Evander "Ev" Smith, is an Autistic adult who uses they/them or he/him pronouns. Ev is the Operations Coordinator at A Step Up Academy, a K-12 school in the Philadelphia area for students on the autism spectrum. In their role they handle DEI programming and business office tasks. They frequently present on topics related to Autistic culture, LGBT+ Autistic identities, and Disability

Advocacy. Ev was diagnosed in with autism early into their college career, around the same time that they figured out they were transgender. Since then, they changed their path to help prepare the world for coming generations of a/Autistic, LGBT+, and disabled people, so that they don't need to go through the same struggles. Ev's undergraduate degree is in Art and Digital Fabrication. Her senior thesis, titled "Look Closer," was an art installation and sensory experience all in one that included 81 different sensory tiles.

RACHEL UPDEGROVE
Lab Planner and Autistic Advocate, WELL AP

Rachel Updegrove is an autistic woman, who graduated with a Bachelor of Architecture from TJU in 2019, with minors in landscape design and a custom minor in community health advocacy. Her neurodiversity journey began as a college freshman receiving an OCD diagnosis, and then with an ADHD and Autism Spectrum Disorder diagnosis a few months after graduating college. As a late-diagnosed autistic, she openly shares her journey and experiences as a neurodivergent woman so that no one feels alone and to remove stereotypes. In 2021, she was featured in Magda Mostafa's exhibition entitled "Autistic Imaginaries of Architecture Space: The World through an Autistic Lens" at the European Cultural Center in conjunction with the Venice Biennale. Rachel encourages designers to think not only about the senses when designing, but to think about how spaces impact communication and the expectations of actions and people.

THE AUTISM FRIENDLY UNIVERSITY: FROM ADVOCACY TO ARCHITECTURE.

This presentation will trace the establishment of the Autism Friendly University Initiative through the advocacy and vision of AsIAm, Ireland's National Autism Charity to its operationalisation through the development of the Autism Friendly Design Guide and more recently the international Autism Friendly University Accreditation Panel. Working with Dublin City University (DCU), the world's first designated Autism Friendly University, the guide was developed collaboratively and consultatively with a diverse stakeholder group: autistic students, administrative support teams, autism advocates. The autistic voice was central to its creation. It utilized Design Thinking Methods, developed specifically for the autistic participants, and outlines the resultant recommendations framed around the 7 principles of the Autism ASPECTSS Design Index, and expands these into ASPECTSS 2.0. These recommendations touch on issues such as acoustical qualities, materiality, color and lighting in spaces; as well as broader organizational issues of spatial planning, wayfinding and technology. This presentation includes one autistic artist's response to these issues in the form of visualizations of his sensory experiences in the shared public spaces across the Glasnevin campus. Finally, it presents the operationalisation of these recommendations in 3 test cases: the Glasnevin Student Commons, the Glasnevin Student Residence and an Escapescape across campus through indoor and outdoor spaces. This guide also currently provides the architectural, campus planning and facilities guidance for higher education institutions interested in achieving the Autism Friendly University Accreditation.

ADAM HARRIS
Founder & Chief Executive Officer – AsIAm.ie Ireland's National Autism Charity

Adam Harris set up AsIAm based on his own experiences growing up as a young autistic person in Ireland. Diagnosed with Asperger's Syndrome from an early age, the condition was far less understood or even known as it is today. Having spent his initial school years within the special education stream, he moved to a mainstream school in Second Class and was supported by an SNA.

Adam is the Founder and CEO of AsIAm, Ireland's National Autism Charity. Adam founded the organization based on his own experiences growing up on the autism spectrum. Today, AsIAm provides support to the autism people and their families, advocates on behalf of the community, and works to support public and private sector organisations and communities in becoming inclusive and accessible.

A Social Entrepreneurs Ireland Awardee, Adam is a frequent contributor to media and conferences in Ireland and overseas. He has also sat and advised on many government consultative and policy committees on disability rights and inclusion. From Greystones in Co Wicklow, Adam was appointed to the Irish Human Rights and Equality Commission in July 2020.

MAGDA MOSTAFA
Autism Design Consultant, Progressive Architects

Magda Mostafa is an architect, scholar and educator focusing on autism and inclusive design, currently leading autism design at Progressive Architects and teaching as Associate Professor of Design at the American University in Cairo. She is the author of the Autism ASPECTSSâ design guidelines, the world's first research-based design framework for autism worldwide. ASPECTSSâ has been presented globally and was awarded the UIA International Research Award in 2014 and was the subject of her well-received TedxTalk in 2015. Through various consultancies ASPECTSSâ has been used across 5 continents. Information about her work can be found at www.autism.archi. She recently developed the world's first Autism Friendly University Design guide at Dublin City University, The published guide can be found at: https://issuu.com/magdamostafa/docs/the_autism_friendly_design_guide. Her work was also exhibited at the 2021 Venice Architectural Biennale. A digital version of that work is at https://www.autism.archi/aspectss-venice-architecture-biennale.

STUART NEILSON
Postdoctoral researcher in the School of Inclusive & Special Education, DCU

Stuart Neilson lectures and writes about the autism spectrum as a health statistician and from his personal perspective of an Asperger syndrome diagnosis in 2009, at the age of 45. He uses video to produce images of motion in the shared public space in his home city of Cork, in Ireland. He uses computer processing and statistical techniques to combine multiple frames to display the locus of motion of individuals, and of crowds. These images convey his sense of how the "completed action" appears as a memory or pattern of how space is shared, the "hot-spots" of high intensity shared (or contested) space, and the distracting or attracting elements of an environment.

BUILDING AN INCLUSIVE HYDROPONICS VERTICAL FARM FOR ENGAGING THE AUTISM COMMUNITY.

The prevalence of autism worldwide is increasing with an estimated rate of 1 in 44 in US (1) and 1.1% in the U.K. . Moreover, only 21.6% of autistic people are in paid employment in the U.K. (2), which is the lowest rate of all disabilities. Lack of suitable opportunities, appropriate support and difficulties in sustaining employment are some of the factors contributing to these low employment rates (3). Autistic spectrum offers a huge talent pool and here Dr. Anita Yakkundi shares her journey of an autism mum and her vision of creating an inclusive vertical farming unit to offer training and employment in hydroponic cultivation. She will share her experience of creating AuSome GrowSome CIC, a social enterprise that offers a safe space for the autistic youth while using sustainable farming technology to provide a locally grown supply of green and microgreen produce addressing social, environmental and economic aspects.

1. https://www.cdc.gov/mmwr/volumes/70/ss/ss7011a1.htm

2. Office for National Statistics (2021). Outcomes for disabled people in the U.K.: 2021 report.

3. Dillenburger, K., McKerr, L., & Jordan, J-A. (2016). Benchmarking Autism Services Efficacy: BASE Project (Volume 5) Final Report. Queens University Belfast

ANITA YAKKUNDI
Founder-Director, AuSome GrowSome

Anita Yakkundi is a Scientist, educator and social entrepreneur. Her initial training is of a molecular therapeutics scientist (20 y) after having completed PhD in microbiology in 1996 she worked at Queen's University Belfast and Ulster University in cancer sciences. As an autism mum she increasingly experienced the gaps in opportunities for her daughter and family and therefore retrained in Applied Behaviour Analysis with the purpose of working in social sciences and autism and was a recipient of a Marie Curie-Cofund fellowship (2016-2018), for research in assistive technology for Autism and Intellectual disability at the SMARTlab, University College Dublin. The fellowship gave her an opportunity to make connections and develop the idea for setting up a social enterprise AuSome GrowSome CIC, a hydroponic based centre for autism and marginalized communities.

2–2:30 p.m.: In Dialogue. Moderated discussion and audience Q&A

PRESENTED BY

The Synesthetic Research & Design Lab (SR&DL) at the College of Architecture & the Built Environment, Thomas Jefferson University

The Synesthetic Research and Design Lab at the College of Architecture and Built Environment – Thomas Jefferson University, engages in multidisciplinary projects positioned at the intersection of art, design, technology, digital culture, and health. It serves as a collaborative research platform where interactive design and emergent health sciences meet, highlighting the recursions between humans, objects and environments. The SR&DLab collaborates with the Center for Autism and Neurodiversity – Jefferson Health, a number of health departments within TJU and external community partners in building a solid foundation of collective knowledge, addressing all-inclusive ways for improving our built environment via scientific experimentation. These collaborations stimulate cross-disciplinary and community dialogue amongst designers, medical field experts, neurodivergent people and self-advocates in order to catalyze places of comfort, celebration and joy within our current environments. We explore opportunities for our spaces to leverage conditions of perceptual differences in order to trigger change and we aim to learn from unexpected collaborations and test unconventional ideas. We engage in novel pedagogical explorations with young minds that come from diverse backgrounds in cultivating a collective learning process. The SR&DLab has been awarded numerous grants for the development of "conversational" and sensorial installations. Currently the lab is working on a deployable interior space prototype for self-regulation with real-time space adaptation using non-invasive, distant to the body technologies.

Severino Alfonso and **Loukia Tsafoulia** are registered architects, educators and researchers whose creative work examines the interplay of information, materiality, human cognition, and the senses. They are founders of PLB studio design and research practice, and Assistant Professors at the College of Architecture and the Built Environment, Thomas Jefferson University where they co-direct the Synesthetic Research and Design Lab. Their scholarly research is positioned at the intersection of responsive environments, cognitive sciences, digital technologies and the computational theory of design in the 1950s-1970s in Europe and North America. They both hold a Post-Professional MS in Advanced Architectural Design from the Graduate School of Planning and Preservation, Columbia University.

Their work has been exhibited in international art and design venues such as theTrajan's Market Museum of the Imperial Fora in Rome, Italy (2022), at the 2021 European Cultural Center, Venice Architecture Biennale in Venice, Italy, and at the Municipal Theater of Piraeus in Athens, Greece (2021–2022). Prior to joining TJU, they taught at Barnard + Columbia Architecture, Pratt Institute, Parsons School of Design, New York Institute of Technology, the Spitzer School of Architecture at The City College of New York and at the New York City College of Technology.

Severino holds two MS in Urban Design and Advanced Architecture respectively from the school of architecture in Madrid (ETSAM) where he is currently a PhD candidate. He has worked with international architectural studios such as Carme Pinos, Angel Fernandez Alba and Federico Soriano in Spain, Lomar Arkitekter in Sweden and Per-forma Studio, KDF Architecture and Natalie Jeremijenko in the United States.

Loukia received her diploma in Architecture Engineering from the National Polytechnic School of Athens where she is a PhD candidate. She is the editor of the book publication titled "Transient Spaces" and editor of the in-progress book "KatOikia, Housing in the Age of Rapid Globalization, Ubiquitous Technologies, and Information". She has worked with Studio Dror, LEESER Architecture, and Jorge Otero Pailos in New York, and with K+T Architecture and the NTUUrban Environment Lab in Athens.

The Center for Autism and Thomas Jefferson University and Jefferson Health

The Center for Autism and Neurodiversity – Jefferson Health drives a collaborative effort among those affected by autism, clinicians, and community partners to create pathways for meaningful interaction and participation throughout the lifespan. The Center takes a novel approach by taking those from differing professional and personal experiences and incubating programmatic conceptual shifts to move the needle from the concept of a 'cure' to creating opportunity for those who think and interact differently, and examining the impact both on those individuals and the world at large throughout the lifespan. The Center is excited to engage with the Synesthetic Research and Design Lab in exploring the physical environment and its impact on the population of those affected by autism. This collaboration serves as a catalyst that will open new pathways in how we design spaces. Its goal is to spark enthusiasm, ongoing dialogue and exploration in how we all view the world and our roles within it, emphasizing the value of the integration of multiple perspectives in maximizing possibility for everyone. The Center continuously strives to learn from multidisciplinary and stakeholder perspectives, pilot new programs, and measure outcomes, in an effort to create optimal endeavors and strategies that can be widely disseminated to enhance opportunity.

Wendy J. Ross, MD, is a developmental and behavioral pediatrician and the inaugural director of Jefferson's Center for Autism and Neurodiversity, which merges her love of clinical medicine with her community inclusion programs. Dr. Ross created the first Autism Airport Inclusion Program with mock flights, upon which Senator Lautenberg based legislation. She additionally has pioneered programs at museums, sporting events, and other settings. In 2014, Dr. Ross was recognized internationally as a top 10 CNN hero. She attended the Humanities and Medicine program at Mt. Sinai School of Medicine in New York, where she graduated in the AOA honor society. She completed a pediatrics residency at Yale and a fellowship in Developmental Pediatrics at Harvard.

Sabra Townsend is the Director of Operations for The Center for Autism and Neurodiversity. Her position is multi-faceted in the field of autism services: directing Center operations, clinical and strategic development, training, and grants management. Prior to Jefferson, she worked in public health, focusing on community service to children with special needs. Most recently, focusing on individuals with intellectual and developmental disabilities, she directed an AmeriCorps national service program, managed medical and nursing students who performed basic health assessments, and provided training to both parents and professionals on topics including special education and everyday strategies for improved life outcomes. Her work experience includes human factors engineering and technical aviation publications at the Federal Aviation Administration as well as community coordinating at the Philadelphia Dept. of Public Health and The Children's Hospital of Philadelphia. Sabra served as group leader on the statewide PA Autism Task Force and works with the city, state and private organizations to improve services for people with special health care needs. Recent publications topics include Engaging University Partners in HealthMeet® – assessments for people with intellectual and developmental disabilities. Honored with the Small Miracles award by the Center for Autism in 2012. Sabra earned her BS in Industrial Engineering from Lehigh University with a concentration in Operations Management.

Michael Patrick Barrett, OTD, OTR/L, is the Design and Education Coordinator at Jefferson Center for Autism & Neurodiversity. He is an educator, researcher, and therapist working to bring together the fields of rehabilitation and design. Since completing his doctorate at Thomas Jefferson University in 2020, Dr. Barrett has collaborated with industrial designers, graphic designers, architects, landscape architects, interior designers, nurses, physicians, and local government to create built environments that better meet the real needs of real individuals. As an educator, he works with both occupational therapy and design students to broaden their view of clients and understanding of function, users, and the environment. This includes the creation of tools and environments to facilitate function as well as understanding complex biological and psychological processes and interactions underlying therapeutic intervention. As a researcher, his work focuses on the often overlooked and misunderstood intersection of healthcare, occupational function, and design, particularly when it comes to the education of students in various health and design disciplines. Dr. Barrett's role with students extends beyond the classroom, incorporating real projects with real clients into the curriculum as a means to better understand the potential successes inherent to collaboration.

The Inclusive Design Research Centre, University College Dublin and SMARTLab teams at University College Dublin (UCD), Skelligs (Ireland) and Niagara (Canada)

SMARTlab was founded by Lizbeth Goodman in 1992, with a vision to create an education system that values diversity, values women, values children, values wisdom and learns from the world's most diverse people, including the elders and other knowledge-keepers. SMARTlab specializes in developing ground-up technology solutions for people of all levels of cognitive and physical ability, from mainstream learners of all ages to 'special' and 'gifted' learners and lifelong learners in the developed and developing worlds. The aim is to transform lives through providing unlimited access to education and tools for creative expression.

SMARTlab is an academic collective created to ignite change. For three decades, SMARTlab has run an award-winning practice-based PhD programme and delivered high-impact research, development and innovation programmes and projects. SMARTlab aims to bring together the brightest minds across disciplines and to provide them with the tools they need to contribute to solving real-world problems and building sustainable solutions. We provide world-class research and incubation space and offer a brain trust for academic staff, practice-based PhD students, Postdoctoral Researchers, transdisciplinary teams spanning the Arts, Engineering, Humanities, Social and Natural Sciences, Connected Public Health and Business Innovation domains, alongside private and public sector partners.

Lizbeth Goodman is the Chair of Creative Technology Innovation and Full Professor of Inclusive Design for Education at University College Dublin, where she directs the Inclusive Design Research Centre of Ireland at UCD, in partnership with SMARTlab clg and the Academy4theFuture. She is Chair of EDI for SMME and is an Athena Swan programme representative for Engineering & Architecture. Lizbeth founded the SMARTlab in its first iteration in 1992 and has developed the award-winning practice-based PhD Programme through the institute, along with the associated MAGIC Multimedia and Games Innovation Centre and Gamelab, which Lizbeth designed with industry collaborators as a prime knowledge transfer space in the London docklands prior to moving the lab to Dublin in 2010–11.

Prior to joining UCD, Lizbeth was Director of Research for Futurelab Education, working with David Puttnam and the team to establish innovative platforms for the future of education in a context of global change. In 2018 she launched the Academy4theFuture at Davos, and in 2019 she and the team returned to Davos to present the SMARTlab WEF Women awards, delivered to the UNDP summit in October 2020. In 2019 she was named Woman of the Decade by WEF Women. In 2008 she was named Best Woman in Academia and the Public Sphere; and Best Woman in Technology by the Blackberry Rim international awards panel. She was nominated to Chair the Royal Irish Academy's Social Sciences Committee in 2012. She is the author/editor of 14 books and many peer- reviewed papers, has supervised 55 PhDs to successful completion, and is a prolific broadcast presenter on TV, Radio and Online. She is PI and co-PI of several major funded research projects, and an evaluator and judge of numerous research council and EC evaluation panels.

She is known as an expert in Digital Inclusion, including learning models for communities at risk. She is an award-winning advocate of community-based ethical learning and teaching models using interactive tools and games to inspire and engage learners of all ages. She specializes in working with people who do not have physical voices (whether due to disability, injury, illiteracy, or other social/political factors), enabling the use of new creative technologies for expression vocally, in writing, and with movement and music.

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SMARTlab Skelligs was established in 2017 in a unique working partnership with a social enterprise, Living Iveragh DAC after a five-year relationship with Professor Lizbeth Goodman, SMARTlab Founder and Ms Jean Byrne, Director of Design21c and Living Iveragh.The collaborative partnership aimed to build a local research ecology developed through embedded research, as a strategic action for the Iveragh (Uíbh Ráthaigh) peninsula, Kells to Castlecove. This strategic development plan emerged out of an initiative by Living Iveragh and the Insitute without Boundaries that became a peninsula-wide consultation commissioned by Kerry County and in 2017. Living Iveragh supported Dr Anita McKeown, FRSA, FIMP as Director of Research and Development, SMARTlab Skelligs as part of the SMARTLab Global network, led by Professor Lizbeth Goodman and in collaboration with Living Iveragh. SMARTlab Skelligs is based in the Cahersiveen Library, supported by Kerry County Council and is a hot-desking research cluster that undertakes research and supports local researchers.

Anita McKeown is the director of SMARTlab Skelligs – Host research satellite, UCD. She is an award-winning artist, curator and educator working at the intersection of art, equitable spatial planning and technology; Open Source Culture and Technology (ethical and ecological implications) and STEAM education and placemaking across a range of interdisciplinary projects, processes and partnerships. As directed or SMARTlab Skelligs SMARTlab, UCD faculty, she works across the intersection of arts, technology and social change through arts-led research, education, outreach and PhD supervision. As an educator within formal (MA and PhD supervision) and informal learning situations; prisons, youth and community organizations Anita utilizes a systemic STEAM approach through project / practice based learning. Her research focuses on resilience, emergence and self-organization within Creative Placemaking, using a bespoke systemic framework including a practical toolkit piloted in the U.K., Ireland and U.S. More recently her work has focused on developing resilience in rural communities through STEAM education, developing growth mindsets and placemaking.

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At **SMARTlab Niagara**, Inclusive Design principles empower interdisciplinary PhD and post-doc researchers to discover radical innovation for Canadians. The lab focuses our research on areas that benefit the Niagara region directly. Regenerative tourism, XR technology for good, sustainable 3d printing, climate change and shoreline restoration, an aging population and the Future of Niagara are all current topic areas. Vulnerable people and overlooked voices are not only considered but brought in as leaders and co-designers in our work. We work directly with the community, for the community, to deliver original thinking and novel solutions. SMARTlab exists on a razor-sharp overlap between academic exploration and business strategy. Neither leads but instead gives space for each to grow. The dynamic, fluid relationship between the two creates unexpected opportunities, giving SMARTlab Niagara a unique perspective. We exist to make the invisible visible.

Tara O'Neil is an innovation strategist and designer who uses futures thinking and Inclusive Design to tackle wicked problems. She is the Chief Innovation Officer at SMARTlab Niagara, where she leads the exploration and development of radical innovation with teams of PhD and postgrad researchers. The lab aims to build resilient communities by finding solutions for vulnerable populations. XR technology, 3D printing and Foresight are three critical areas of focus at the lab today. Tara received her PhD in Inclusive Design and Creative Technology Innovation from SMARTlab at University College Dublin. Her thesis focused on transdisciplinary innovation. Previously she earned a Master of Design in Strategic Foresight and Innovation at OCAD University in Toronto, Canada.

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