

APPOINTMENTS AND POSITIONS

- 11.2024 - present **COMPAS Association** | Board of Directors
- Strategic leadership for the development and adoption of the COMPAS in AEC
 - Oversight of financial sustainability, technical infrastructure, and open-source initiatives
 - Promotion of interdisciplinary collaboration through events, workshops, and community support
- 01.2024 - present **Princeton University** | Assistant Professor (Tenure-track) | School of Architecture
- Founding and leading a research lab for XR, AI and robotics
 - Acquiring and leading multidisciplinary research projects
 - Teaching undergraduate, graduate and postgraduate students
- 10.2018 - 01.2023 **ETH Zurich** | Co-Lead of the Immersive Design Lab and Senior Researcher | Design++ and Gramazio Kohler Research
- Responsible for the immersive design lab with a focus on XR, AI and room acoustics
 - Acquiring and managing research projects
 - Teaching undergraduate and graduate students
- 11.2018 - 03.2022 **ETH Zurich** | Doctoral Researcher | Gramazio Kohler Research
- Research and/or project lead, amongst others for Augmented Bricklaying, Interactive Robotic Plastering and Tie a Knot
 - Development of novel systems for XR, collaborative workflows between humans and machines and adaptive computational models
- 07.2017 - 06.2018 **University of Applied Arts Vienna** | Principal investigator | Co-corporeality FWF PEEK
- Leading and managing an interdisciplinary team for interactive architecture, biomaterials and AI
 - Development of novel sensor systems for embodied computation
 - Project management and acquisition of funding
- 01.2016 - 01.2017 **University of Innsbruck** | Guest Professor | Institute for experimental architecture and building construction
- Teaching undergraduate and graduate design studios with a focus on digital design, computing, media and storytelling

PROFESSIONAL EXPERIENCE

- 10.2015 - present **MAEID - Office for Architecture and Transmedia Art** | Co-Founder and Director
- 11.2014 - 10.2015 **New Territories-Francois Roche** | Architect | Bangkok
- 2013 **Wolfgang Tschapeller** | Architect | Vienna

EDUCATION

- 2018 - 2023 **ETH Zürich, Zürich** | Doctor of Sciences - Dr. sc. ETH Zurich (Nominated for ETH medal)
Field of study: Architecture and Digital Fabrication
- 2011 - 2014 **Academy of Fine Arts Vienna, Vienna** | MArch Degree (Summa Cum Laude)
Field of study: Architecture and Digital Fabrication
- 2013 - 2013 **Royal Danish Academy of Fine Arts, Copenhagen** | Graduate Student
Field of study: Architecture
- 2011- 2011 **Hong Kong University (HKU), Hong Kong** | Graduate Student
Field of study: Architecture
- 2007- 2011 **Academy of Fine Arts Vienna, Vienna** | BArch Degree (Summa Cum Laude)
Field of study: Architecture

THIRD-PARTY FUNDS

2025	Presidential Postdoctoral Research Fellow 150.000 € Princeton
2024	Office of the Dean of Research - Princeton 150.000 € “Robotic Territories” for Collaborations between Artists and Scientists or Engineers Princeton
2024	TUM Global Incentive Fund 10.000 € “Speak Robot” for speech-to-robot-control interface for Robotic Fabrication in Architecture Princeton and TU Munich
2020	Project fellowship 85.000 € “Magic Queen” for Biennale 2021 Government of Austria
2019	FWF PEEK 400.000 € Program for Art & Science Co-Lead Mitterberger, Imhof, Derme; University of Applied Arts Vienna, Angewandte.
2018	Project funding 10.000 € “Chronotop” Government of Austria

SELECTED SOFTWARE RELEASES

2024	COMPAS XR -open source XR software for AEC, 2024 June. Mitterberger, D. , Kenny, J., Casas, G.
-------------	--

SELECTED PUBLICATIONS & PAPERS (2024-2019) - **Blue and Bold** - First or last author

2024	Heritage ++, a Spatial Computing approach to Heritage Conservation , in RILEM Tech Lett 2025, 9, 50-60. https://doi.org/10.21809/rilemtechlett.2024.202 Patankar , Y.; Tennenini, C.; Bischof, R.; Khatri, I.; Maia Avelino, R.; Yang, W.; Mahamaliyev, N.; Scotto, F.; Mitterberger, D. ; Bickel, B.; Girardet, F.; Amsler, C.; Bomou, B.; J. Flatt [journal article]
2024	Cooperative Augmented Assembly (CAA): Augmented Reality for On-Site Cooperative Robotic Fabrication , in Constr. Robotics (2022). https://doi.org/10.1007/s41693-024-00138-6 Vasiliki, E., Kenny, J., Atanasova, L., Doerfler, K., Casas, G., Mitterberger, D. [journal article]
2024	Rethinking Digital Construction: A Collaborative Future of Humans, Machines and Craft , in Architectural Design (2024). https://doi.org/10.1002/ad.3103 , Mitterberger, D. and Doerfler, K. [article]
2023	Diss. ETH No. 29197: Augmented Human & Extended Machine: Adaptive Digital Fabrication and Human-machine Collaboration for Architecture (2023). Mitterberger, D. [dissertation]
2023	Ecologia come testo, testo come ecologia , Timothy Morton, a cura di Francesco D’Abbraccio e Andrea Facchetti. Mitterberger, D. , and Derme, T. [foreword]
2023	Sylva: An Autonomous Hydroponic Garden Cared for by Two Robots , in ACADIA - Habits of the Anthropocene (2023). Derme, T. and Mitterberger, D. [conference proceedings]
2023	Robotic on-site adaptive thin-layer printing: Challenges and workflow for design and fabrication of bespoke cementitious plasterwork at full architectural scale , in Archit. Struct. Constr. 3, 145-156 (2023). https://doi.org/10.1007/s44150-022-00062-9 , Ercan Jenny, S., Mitterberger, D. , Lloret-Fritschi, E. et al. [journal article]
2022	Tie a knot: human–robot cooperative workflow for assembling wooden structures using rope joints , in Constr. Robotics 6, 277–292 (2022). https://doi.org/10.1007/s41693-022-00083-2 , Mitterberger, D. , Atanasova, L., Dörfler, K., Gramazio, F. and Kohler M. [journal article]
2022	Degrees of Life: Human-Bacteria Interaction in Architectural Space , [winner: best project] in ACADIA - Hybrids & Haecceities (2022). Mitterberger, D. and Derme, T. [conference proceedings]
2022	Augmented human, extended machine: extended reality systems for robotic fabrication in architecture, engineering, and construction , in ACM XRDS (2022). https://doi.org/10.1145/3558196 , Mitterberger, D. [article]
2022	Interactive Robotic Plastering: Augmented Interactive Design and Fabrication for On-site Robotic Plastering , [Honorable mention] in CHI Conference on Human Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 174. https://doi.org/10.1145/3491102.35018 , Mitterberger, D. , Ercan Jenny, S., Vasey, L., et al. [conference proceedings]

- 2022** **Extended Reality Collaboration: Virtual and mixed reality system for collaborative design and holographic-assisted on-site fabrication**, in Design Modeling Symposium 2022. https://doi.org/10.1007/978-3-031-13249-0_24, **Mitterberger, D.**, Angelaki, E., Salveridou, F., et al. [conference proceedings]
- 2022** **The Synchronous Garden (SynG) New Perspectives between Architecture and Ecology** in Nonlinear Urbanism: Towards Multiple Urban Futures, Birkhäuser, 2022. <https://doi.org/10.1515/9783035624410-004>, **Mitterberger, D.**, and Derme, T. [article]
- 2022 **Mikroorganismen im Spannungsfeld von Wissenschaft und Kunst—Ein Potpourri**, in Ökologische Krisen und Ökologien der Kritik, 253 - 261 (2022). edited by Beinsteiner, A., Grünberger, N., Hug, T., Kapelari, S. Ascher-Jenuß, J., Imhof, B., **Mitterberger, D.**, et al. [article]
- 2022 **Co-Corporeality of Humans, Machines, & Microbes**. Birkhäuser (2022). <https://doi.org/10.1515/9783035625882>, Imhof, B., **Mitterberger, D.** and Derme, T. [book]
- 2021** **CHRONOTOPE: Digital Craft and Embodiment in Architecture**, in INFLECTION: Journal of the Melbourne School of Design, Volume 08, Edited by Michaela Prunotto, Kate Donaldson, and Manning McBride. **Mitterberger, D.** [article]
- 2020 **Prototype as Artefact: Design Tool for Open-ended Collaborative Assembly Processes**, In Proceedings of the 40th Annual Conference of the Association of Computer Aided Design in Architecture (ACADIA). Atanasova, L., **Mitterberger, D.**, Sandy, T., et al. [conference proceedings]
- 2020** **Augmented bricklaying: Human-machine interaction for in situ assembly of complex brickwork using object-aware augmented reality** Construction Robotics 4, no. 3–4, pp. 151–161, **Mitterberger, D.**, Dörfner, K., Sandy, T., et al. [journal article]
- 2020** **Is Body Architecture?** article in ADATO Magazine, Point Nemo Publishing, edited by Anna Valentiny. **Mitterberger, D.** [article]
- 2020** **There has never been a Patient-0**, In Proceedings of the 40th Annual Conference of the Association of Computer Aided Design in Architecture (ACADIA), Volume 2. **Mitterberger, D.**, Derme, T., Vivaldi, J. and Vaillo, G. [conference proceedings]
- 2020 **The Bat That Therefore I am – Exploring The Eye of the Other**, by Rob La Frenais in conversation with **Mitterberger, D.** and Derme, T. [article]
- 2020** **Digital soil: Robotically 3D-printed granular bio-composites**. International Journal of Architectural Computing 18, no. 2. **Mitterberger, D.**, and Derme, T. [journal article]

FELLOWSHIPS & AWARDS

- 2024 **ROBARCH 24** | Best Workshop Award
- 2023 **JSPS Postdoctoral Fellowship** | Awarding excellent researchers with high future potential
- 2023 **Future of Construction 2023** | Best project award for sustainable construction | Project: CAA
- 2022 **ETH Medal for outstanding dissertation** | Nomination
- 2021 **ACADIA** | Best project award | Project: Degrees of Life
- 2021 **ACM CHI Conference 2021** | Honorable mention | Project: IRoP
- 2021 **Brick Award 2021** | Finalist | Project: Augmented Bricklaying
- 2020 **Archdaily Building of the Year 2021** | Finalist | Project: Augmented Bricklaying
- 2019 **3D Pioneers Challenge in Architecture** | Winner | Project: Augmented Bricklaying
- 2019 **Autodesk Emerging Research Award (ACADIA 2019)** | Finalist | Project: Soil 3D printing
- 2018 **Emergent Media Artist Europe** | Winner
- 2018 **A&T PhD Fellowship** | Winner | ETH Zurich
- 2018 **Architecture Competition IST Campus** | Honorable Mention | BIG Austria

ACADEMIC ENGAGEMENTS (Courses, Thesis supervision, summer schools)

01-05.2025	Princeton University Lecturer “Augmented human, extended machine” <i>PhD Reading course</i>
06.2024 - 09.2024	ETH Zurich Master thesis supervisor “An XR App Using Motion Capture for Bending-Active Structure” <i>Chia Hsuan Chao, Wataru Nomura - motion capturing and AR</i>
04.2024	Princeton University + ETH Zurich Lecturer “Immersive Realities” <i>Seminarweek - Immersive design through acoustic simulation and game engines</i>
01.2024 - 05.2024	Princeton University Lecturer “Embodied Computation” <i>Postgrad Seminar - Embodied computation through augmented reality and robotics</i>
06.2023 - 09.2023	ETH Zurich Master thesis supervisor MAS DFAB “Collaborative Augmented Assembly” <i>Joseph Kenny, Eleni Alexis - human-machine collaboration through AR</i>
03.2020, 10.2021	ETH Zurich Lecturer “New Ways of Worldmaking III and IV” <i>Seminarweeks on phone-based augmented reality</i>
06.2021 - 09.2021	ETH Zurich Master thesis supervisor MAS DFAB Immersive collaboration <i>Foteini Salveridou, Evgenina Angelaki - combining AR and VR applications for immersive collaboration</i>
01-04.2020	ETH Zurich Lecturer MAS DFAB I T2 Design Studio “Intuitive Robotic Plastering” <i>Postgraduate program on human-machine interaction and computational design</i>
07.2020	AA Visiting Lecturer I “Psychotropic topologies summer studio” <i>Human-machine interaction for interactive design and real-time architecture</i>
10.2019	ETH Zurich Lecturer “New Ways of Worldmaking II” <i>Seminarweek - Phone-based augmented reality and virtual reality applications</i>
08.2019 - 09.2019	ETH Zurich Assistant instructor “The Digital in Architecture FS19” <i>elective course on digital and robotic fabrication</i>
03 - 04.2019	University of Melbourne (MSD) Visiting Lecturer I <i>Intensive Architectural Theory and History course</i>

PhD SUPERVISION

09.2024 - present	Main Advisor Eleni Alexi PhD thesis on recycled timber, extended reality and large scale robotics Princeton University
09.2024 - present	Main Advisor Joseph Kenny PhD thesis on distributed systems, extended reality and human-machine interaction Princeton University
10.2023 - present	Second Advisor Yamini Patankar Doctoral thesis on extended reality and conservation main advisor Prof. Flatt at ETH Zurich
10.2023 - present	Second Advisor Alexandra Moisi Doctoral thesis on motion capturing and extended reality main advisors Prof. Gramazio and Prof. Kohler at ETH Zurich

WORKSHOP LEADS

07.2024	Kyoto Design Lab 2024 Kyoto Institute of Technology <i>Workshop on augmented reality for digital craft</i>
05.2024	ROBARCH 2024 Robots in Architecture University of Toronto (UofT), Toronto Metropolitan University (TMU), and the University of Waterloo (UW) <i>Workshop on augmented reality strategies for collaborative robotics</i>
09.2023	Future of Construction 2023 Symposium on Human-Machine Teams for Design and Sustainable Construction TU Munich <i>Workshop on augmented reality strategies for collaborative robotics</i>

- 07.2022 **XOVER** | Direct Tomorrow Lab | Angewandte and Tongji University Shanghai | Shanghai, China
Workshop on interactive design methodologies
- 06.2022 **Future of Construction 2022** | Symposium on Construction Robotics and Computational Design for Sustainable Construction | ETH Zurich
Workshop on augmented reality strategies for architects
- 06.2022 **Playing Models: Architectural AI and Storytelling** | University of Florida | Orlando, USA
Workshop on artificial intelligence, augmented reality and narration
- 04.2022 **Robot see, robot do** | MRAC, IAAC | Barcelona, Spain
Human-machine collaboration workshop in mixed reality
- 12.2019 **[Human : Computer]** | Die Angewandte | Vienna, Austria
Computer vision, interactive systems and creative coding workshop

SELECTED INVITED LECTURES & PANELS

- 01.2025 **Co-Creating Machines** | Keynote | “Human-Machine synergies” | AI in Design and Construction for a Changing Planet 2024 | Munich, Germany
- 01.2025 **Goldsmiths College and Konstanz University** | Keynote | “Rethinking Tools in Digital Fabrication: A Dialogue Between the Human Hand and the Robotic Grip” | Symposium on Embodied Agents in Contemporary Visual Art (EACVA): How Robotics and A.I. Could Influence Creativity | Berlin, Germany
- 01.2025 **TU Vienna** | Keynote | “XR and the future of construction” | Vienna, Austria
- 10.2024 **Michigan University** | Keynote | “Humans : Machines : Materials” | Tectonics Seminar 2024 | Michigan, USA
- 10.2024 **Princeton University** | Keynote | “Rethinking digital construction: a collaborative future of humans, machines, and craft” | Princeton Robotics Seminar 2024 | Princeton, USA
- 07.2024 **Kyoto Institute of Technology** | Keynote | “Extended Reality in Architecture” | Kyoto Design Lab | Kyoto, Japan
- 06.2024 **ETH Zurich** | Keynote | “COMPAS XR - opensource library for extended reality in AEC” | COMPAS XR release event | Zurich, Switzerland
- 03.2024 **ETH Zurich** | Keynote | “Strange Comfort: Intuitive Machines and Robotic Gardeners” | Design++ Lecture Series 2024 | Zurich, Switzerland
- 09.2023 **TU Vienna** | Keynote | “Augmented Human and Extended Machine” | Symposium on Geometry and Computational Design (GCD) | Vienna, Austria
- 04.2023 **Future of Construction Symposium** | Keynote | “Adaptive Digital Fabrication” | Symposium on Human-Machine Teams for Design and Sustainable Construction | TU Munich | Munich, Germany
- 03.2023 **Kyoto Institute of Technology** | Keynote | “Adaptive Digital Fabrication” | Digital Fabrication Lab | Kyoto, Japan
- 04.2023 **Zürcher Hochschule der Künste (ZHdK)** | Keynote | “On Degrees of Life” | lecture series on “Immersive bodies, spaces and environments” | Immersive Arts Space | Zurich, Switzerland
- 11.2022 **Formnext** | Keynote | “Soil 3D Printing” | BE-AM symposium | Frankfurt, Germany
- 06.2022 **University of Florida** | Keynote | “Workmanship of Synthesis” | lecture series on “Playing Models: Architectural AI and Storytelling” | Orlando, USA
- 04.2022 **TU Delft** | Keynote | “Human-machine collaboration in architecture and digital fabrication” | panel discussion on Human-Robot Interaction for Post-Carbon Architecture | Delft, The Netherlands
- 04.2022 **Tongji University** | invited lecture on “Inside ETH” | “Human-machine collaboration in computational design and robotic fabrication” | DigitalFUTURES | Shanghai, China
- 04.2022 **UCL Bartlett** | invited lecture on “Synchronous Gardens” | Bio-Integrated Design Seminar | London, UK

12.2021	University of Brno invited lecture on “The Magic Queen: New Perspectives Between Architecture and Ecology” Brno, Czech Republic
11.2021	Stadtmuseum Bruneck Keynote on “ALPINE SPACE - The Future” Bruneck, Italy
09.2021	Venice Biennale Angewandte Research Sessions Panel discussion Venice, Italy
07.2021	Melbourne School of Design (MSD) invited lecture on “90 tons, 656 hours, 51 elements, and 20 people” Melbourne, Australia
05.2021	Tongji University invited lecture for “DigitalFUTURES” Shanghai, China
12.2020	University of Innsbruck invited lecture for “Independent Architecture Research Colloquia” Innsbruck, Austria
06.2020	University of Applied Arts invited lecture on “Alien Life: Between Brains, Bacteria, and Matter 2020” Vienna, Austria
12.2019	University of Applied Arts Vienna invited lecture on “Co-Corporeality: Responsive spaces in the era of Biomediality -Architecture, Artificial Intelligence, Biomaterial” Vienna, Austria

EXHIBITIONS / PERFORMANCES

05 - 11.2025	Milan Triennale Interactive bacteria-machine garden Milan, Italy
12.02 - 30.05.2024	Delft University Robotic gardens SHErobots exhibition Delft, Netherlands
08.06 - 08.07.2023	Collegium Helveticum Degrees of Life Data Alchemy exhibition Zurich, Switzerland
23.02 - 11.03.2022	Zentrum Fokus Forschung Degrees of Life University of Applied Arts Vienna, Austria
04.11 - 05.11.2021	FELT conference E.Feeder performance Oslo, Norway
12.10 - 22.10.2021	Princess of Asturias Awards Sylva Asturia, Spain
16.09 - 31.10.2021	Seoul Biennial “Re-mediated Zone” Seoul, South Korea
18.06 - 04.07.2021	Werkleitz Festival “The Eye of the Other” Werkleitz, Germany
22.05 - 31.07.2021	Venice Biennial (Arsenale) “Magic Queen” Venice, Italy
26.11 - 20.12.2020	Onassis Stegi “The Eye of the Other” Athens, Greece
17.09 - 03.10.2020	Kontejner “The Eye of the Other” TOUCH ME FESTIVAL Zagreb, Croatia
09.09 - 13.09.2020	Art workshop Lazareti “The Eye of the Other” “Quarantine” Exhibition Dubrovnik, Croatia
21.06 - 23.06.2020	Angewandte Festival “Co-Corporeality” Vienna, Austria
03.01 - 18.01.2020	Bandes Images “The Eye of the Other” Bourges, France
03.11 - 28.11.2019	Tokyo University of the Arts “Co-Corporeality” Tokyo, Japan
19.10 - 27.10.2019	Dutch Design Week Stone 3D printing Eindhoven, The Netherlands
02.06 - 16.06.2019	MAK Vienna “Co-corporeality” Vienna, Austria
05/2019	RHS Royal Chelsea Flower Show “Terrestrial Reef - Pahoehoe Beauty” London, UK
2019	ARS ELECTRONICA “The Eye of the Other” Linz, Austria
2018	ARS ELECTRONICA “Pahoehoe beauty- 3D printed soil habitat” Linz, Austria
12/2017-04/2018	NGV TRIENNAL “The Savage Mind” Melbourne, Australia
2016	FIELD 2A “The Savage Mind” Tyrol, Austria
2015	Archiprix 2015 “Category Four” Worlds best graduation projects, travel exhibition Worldwide

PROJECTS

Most projects integrate cutting-edge technologies like **extended reality, machine learning, robotic fabrication, and computational design** to create innovative architectural designs and interactive systems that enhance human augmentation and human-machine collaboration, particularly in architecture, engineering, and construction. These projects emphasize adaptive and novel workflows, such as interactive human-machine processes and robotic gardens, while exploring the dynamic interplay between humans, machines, and advanced biological materials.

2025, 2026	Princeton University / XAIA Lab: Robotic Territories Interactive human and machine performance using AR, machine learning and motion tracking augmented reality, robotic fabrication, machine learning, motion tracking
2025	MAEID: Daphne (artificial ecologies series) Interactive bacterial and robotic garden using machine learning and machine vision robotic fabrication, machine learning, bacteria
2024	Princeton University / XAIA Lab + TU Munich / TT Professorship Digital Fabrication: Augmented Timber Assembly: human machine interaction in mixed reality Interactive human-machine collaborative workflow using phone-based augmented reality robotic fabrication, augmented reality, human-machine collaboration
2022, 2023	ETH Zürich / Gramazio Kohler Research + TUM / TT Professorship Digital Fabrication: Collaborative Augmented Assembly: human machine collaboration with augmented reality Interactive human-machine collaborative workflow using phone-based augmented reality robotic fabrication, augmented reality, human-machine collaboration
2022	ETH Zürich / Gramazio Kohler Research + TUM / TT Professorship Digital Fabrication: Tie a Knot: human-robot cooperative workflow with augmented reality human-robot cooperative workflow for assembling wooden structures using rope joints robotic fabrication, augmented reality, human-machine collaboration
2021	ETH Zürich / Gramazio Kohler Research: Teleoperated construction site: Virtual and mixed reality system for collaborative design and holographic-assisted on-site fabrication augmented reality, virtual reality
2021	ETH Zürich / Gramazio Kohler Research: IRoP: Interactive robotic plastering: Augmented interactive design and fabrication system for on-site robotic plastering robotic fabrication, augmented reality, human-machine collaboration
2021	MAEID: Sylva (artificial ecologies series) Interactive robotic garden using machine learning and machine vision robotic fabrication, machine learning, bio-materials
2021	MAEID: Magic Queen (artificial ecologies series) Soil 3D printed interactive robotic installation robotic fabrication, machine learning, bio-materials
2021	Co-Corporeality + MAEID: Degrees of Life Interactive Environment using eye-tracking device to controll biotech machines machine learning, human-computer interaction, bio-materials
2020	Co-Corporeality + MAEID: E-Feeder Interactive zoom installation using machine learning to detect emotions in visitors to instruct a machine to feed bacteria machine learning, human-computer interaction, bio-materials
2019	ETH Zürich / Gramazio Kohler Research: Augmented Bricklaying: Human-machine interaction for in situ assembly of complex brickwork using object-aware augmented reality augmented reality, human-computer interaction

- 2019 **MAEID:**
The Eye of the Other II
Creation of artificial flowers using machine learning
machine learning, computational design
- 2019 **MAEID:**
The Eye of the Other I: Echolocation - GAN
Using machine learning to generate bat echolocations to generate artificial flowers
machine learning, computational design
- 2018 **MAEID and University of Innsbruck:**
Pahoehoe Beauty (artificial ecologies series)
robotic fabrication, bio-materials
- 2018 **MAEID:**
HayHouse
Spatial representation of digital emotions and intangible cultural heritage
computational design, bio-materials
- 2018 **MAEID and Technical University Vienna:**
Nanoscale 3D-printed House
3D-printed nano-castle onto the tip of a pencil
computational design