

Mania Aghaei Meibodi
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Assistant professor (tenure track)
Taubman College of Architecture and Urban Planning, University of Michigan

GENERAL INFORMATION

Education

(2016). *Doctor of Philosophy in Architectural Design and Technology*. Stockholm, Sweden: KTH Royal Institute of Technology.

[Dissertation: *Generative design exploration: Computation and material practice*. Stockholm: KTH Royal Institute of Technology. Stockholm: Universitetservice US-AB.]

(2012). *Doctor of Philosophy in Architectural Engineering*. Lulea, Sweden: Lulea University of Technology.

[Licentiate Thesis: *Manifested in form: Tensions between utility and form in the digital design of architecture*. Lulea University of Technology (LTU). Lulea: Universitetstryckeriet.]

(2009). *Post-Master in Urban Design of Architecture*. Stockholm, Sweden: Royal Institute of Art.

(2008). *Master of Architecture*. Stockholm, Sweden: KTH Royal Institute of Technology.

(2006). *Bachelor of Applied Science*. Perth, Australia: Curtin University of Technology.

Academic Appointments

(2019-present). *Assistant Professor of Architecture (tenure track)*. Ann Arbor, Michigan: University of Michigan.

(2017-2019). *Senior Researcher*. Zurich, Switzerland: ETH Zurich, Digital Building Technologies.

(2016-2019). *Postdoctoral Researcher*. Zurich, Switzerland: ETH Zurich, National Centers of Competence in Research (NCCR) Digital Fabrication (DFAB).

(2016-2019). *Tutor*. Zurich, Switzerland: Master of Advanced Studies ETH in Architecture and Digital Fabrication Program (MAS ETH DFAB), National Centers of Competence in Research (NCCR) Digital Fabrication (DFAB).

(2016-2019). *Project Lead, Senior Architect*. Zurich, Switzerland: ETH Smart Slab Project Digital Building Technologies.

(2016-2017). *Postdoctoral Researcher*. Zurich, Switzerland: ETH Zurich, Digital Building Technologies.

(2014-2016). *Project Lead*. Stockholm, Sweden: KTH School of Architecture, "Artifacts in the Making" funded by "Architecture in the Making".

(2013-2016). *Lecturer*. Stockholm, Sweden: KTH Royal Institute of Technology.

(2013-2016). *Ph.D. Researcher Representative*. Stockholm, Sweden: Swedish Research School in Architecture (ResArc).

(2013-2014). *Visiting Researcher*. Toronto, Ontario: University of Toronto.

(2012-2013). *Visiting Researcher*. Ottawa, Ontario: Carleton University.

(2010-2015). *Digital FABLab Director*. Lulea, Sweden: Lulea University of Technology (LTU).

(2010-2015). *Founding Director of Design and Making (D&M) Studio*. Lulea, Sweden: Lulea University of Technology (LTU), Graduate Studies.

Professional Experience

(2013-present). *Founder, Senior Designer*. Toronto, Canada: meonia.

(2009-2014). *Founding Partner, Senior Architect*. Stockholm, Sweden: Meonia Handelsbolag.

(2008-2009). *Intern Architect*. Stockholm, Sweden: Artolek KB.

Registration and Professional/ Honorary Societies

(2009-2019). *Registered Architect*. Stockholm: Swedish Association of Architects (Sveriges Arkitekter).

SCHOLARLY WORK

Honors and Awards for Research, Practice, or Scholarship

Dillenburger, B., Aghaei Meibodi, M., Jipa, A., Bernhard, M., Medina, J., Shammass, D., Giesecke, R., Leschok, M., & Mezari, M. (2021). Planning and construction of “Smart Slab” and the DFAB HOUSE. *Architekturpreis Beton (Architectural Award Concrete), Beton Suisse 21 Awards*. Zurich, Switzerland: Beton Suisse.

Aghaei Meibodi, M. (2022). Leaders and Visionaries for the Construction Institute’s 2022 Visionaries Forum. Hartford: The Construction Institute.

Professional Journal Articles (Non-peer reviewed)

Aghaei Meibodi, M., & Mcgee, W. (2021). Plastic architecture: 3D printing building envelope. *Gradient Journal*.

Aghaei Meibodi, M. (2018). Digital metal: Using 3D printing to cast metal parts in architecture. *TCT Magazine*.

Aghaei Meibodi, M. (2018). Digital Metal: 3D printing sand mold to produce unimaginable and affordable cast metal parts in architecture. *RuMoer 69: Digital Making*, 69, pp.32 - 37.

Academic or Professional Conference Papers

Lin, Y., **Aghaei Meibodi, M.**, & Bayramvand, A. (2023). Developing Toolpath Strategies and a 3D Concrete Printing Method for Topology Optimized Parts. To be presented in *DigitalFUTURES*. (Abstract accepted).

Klemmt, C., **Aghaei Meibodi, M.**, Beaucage, G., & Mcgee, W. (2022). Large-scale Robotic 3D Printing of Plant Fibre and Bioplastic Composites. To be presented in *eCAADe 2022: Co-creating the Future: Inclusion in and through Design* (in proceeding). Ghent: KU Leuven Technology Campus. [Link](#)

Aghaei Meibodi, M., Mcgee, W., & Bayramvand, A. (2022). Robotic 3D Printing Multilayer Building Envelope. To be presented in *ACADIA 2022: Hybrids & Haecceities*. Philadelphia: University of Pennsylvania. [Link](#)

Zidek, J., Aman, L., Li, X., Alhashemi, J., & **Aghaei Meibodi, M.** (2022). Integrative Green Building Envelope: Large Scale Robotic Additive Manufacturing. To be presented in *ACADIA 2022: Hybrids & Haecceities*. Philadelphia: University of Pennsylvania. [Link](#)

Aghaei Meibodi, M., Craney, R., & Mcgee, W. (2021). Robotic Pellet Extrusion:

3D Printing and Integral Computational Design - Reinforced Thin Shell System Formwork for Sandwich Concrete Walls. Presented in *ACADIA 2021: Realignments: Toward Critical Computation* (in proceeding). Virtual Event: ACADIA. [Link](#)

Aghaei Meibodi, M., Odaglia, P., & Dillenburger, B. (2021). Min-Max: Reusable 3D Printed Formwork for Thin-shell Concrete Structures. Presented in *CAADRIA 2021: Projections* (743-752). Virtual Event, organized from Hong Kong: CAADRIA. [Link](#)

Aghaei Meibodi, M., Voltl, C., & Craney, R. (2020). Additive Thermoplastic Formwork for Freeform Concrete Columns. Presented in *ACADIA 2020: Distributed Proximities* (516-525). Virtual Event: ACADIA. [Link](#)

Aghaei Meibodi, M., Kladeftira, M., Kyttas, T., & Dillenburger, B. (2019). Bespoke Cast Facade, Design and Additive Manufacturing for Aluminum Facade Elements. Presented in *ACADIA 2019: Ubiquity and Autonomy* (100-109). Austin: The University of Texas at Austin. [Link](#)

Aghaei Meibodi, M., Giesecke, R., & Dillenburger, B. (2019). 3D Printing Sand Molds for Casting Bespoke Metal Connections. Presented in *CAADRIA 2019: Intelligent & Informed* (133-142). Wellington: Victoria University of Wellington. [Link](#)

Aghaei Meibodi, M., Jipa, A., Giesecke, R., Shammass, D., Bernhard, M., Leschok, M., & Dillenburger, B. (2018). Smart Slab: Computational Design and Digital Fabrication of a Lightweight Concrete Slab. Presented in *ACADIA 2018: Re/calibration: On Imprecision and Infidelity* (434-443). Mexico City: Universidad Iberoamericana. [Link](#)

Aghaei Meibodi, M., Giesecke, R., & Dillenburger, B. (2018). Digital Metal: Additive Manufacturing for Cast Metal Joints in Architecture. Presented in the *1st International Conference on 3D Construction Printing (3DcP)* (1-9). Melbourne: Swinburne University of Technology. [Link](#)

Jipa, A., **Aghaei Meibodi, M.**, Giesecke, R., Shammass, D., Leschok, M., Bernhard, M., & Dillenburger, B. (2018). 3D-Printed Formwork for Prefabricated Concrete Slabs. Presented in *1st International Conference on 3D Construction Printing (3DcP)* (1-9). Melbourne: Swinburne University of Technology. [Link](#)

Ruffray, N., Bernhard, M., Jipa, **Aghaei Meibodi, M.**, A., de Taisne, N., Stutz, F., & Dillenburger, B. (2017). Complex Architectural Elements From HPFRC and 3D Printed Sandstone. Presented in *AFGC-ACI-fib-RILEM International Symposium on Ultra-High Performance Fibre-Reinforced Concrete, UHPFRC 2017* (135–144). Montpellier: UHPFRC. [Link](#)

Aghaei Meibodi, M., Bernhard, M., Jipa, A., & Dillenburger, B. (2017). The Smart Takes from the Strong: 3D Printing Stay-in-place Formwork for Concrete Slab Construction. Presented in *Fabricate 2017: Rethinking Design and Construction* (210-217). Stuttgart: Institute for Computational Design and Construction at the University of Stuttgart. [Link](#)

Jipa, A., Bernhard, M., **Aghaei Meibodi, M.**, & Dillenburger, B. (2016). 3D-Printed Stay-in-Place Formwork for Topologically Optimized Concrete Slabs. Presented in *TxA Emerging Design + Technology 2016* (97-107). Forthworth: Texas Society of Architects. [Link](#)

Tessmann, O. & **Aghaei Meibodi, M.** (2015). Formwork Performance – On Concrete/Formwork Interaction. Presented in *ISOFF 2015: Future Visions - Symposium on Flexible Formwork* (1-11). Amsterdam: International Association for Shell and Spatial Structures (IASS). [Link](#)

Aghaei Meibodi, M. & Tessmann, O. (2014). Hy[perbolic] Par[aboloid]: Matter and Geometry in a Generative Dialogue. Presented in *ENHSA, EAAE International Conference: What's the Matter: Materiality and Materialism at the Age of Computation* (679-690). Barcelona: COAC, ETSAB, ETSAV. [Link](#)

Aghaei Meibodi, M. & Aghaiemeybodi, H. (2013). Architectural “Making” Modes in Relation to Prototype Notions: The Stripe Pavilion - Progression from a Bespoke to a Parametric-Algorithmic Mode. Presented in *Design Modelling Symposium: Rethinking Prototyping* (503-516). Berlin: University of the Arts Berlin. [Link](#)

Aghaei Meibodi, M. & Aghaiemeybodi, H. (2012). The Synergy Between Structure and Ornament: A Reflection on the Practice of Tectonic in the Digital and Physical Worlds. Presented in *eCAADe 2012: Digital Physicality | Physical Digitality* (245-254). Prague: Czech Technical University in Prague. [Link](#)

Aghaei Meibodi, M. & Aghaiemeybodi, H. (2012). Symbiosis of Structural & Non-structural Properties in Building: Integrating Structural Behaviour in the Generative Computational Process Goes Beyond Instrumentality. Presented in *SIGraDi 2012: FORM(In)FORMATION* (602-606). Fortaleza: The Federal University of Ceará. [Link](#)

Aghaei Meibodi, M. (2012). Technological Advances in Design and Construction: Bridging the Gap between the Conception Stage and the Manufacturing Process. Presented in *Annual International Conference on Construction* (103-118). Athens: Athens Institute for Education and Research (ATINER). [Link](#)

Academic or Professional Lectures or Presentations

Aghaei Meibodi, M. (February 2023). 3D Concrete Printing Home. PERI 3D *Construction 2023*, USA Headquarter. Houston: PERI. [Invited speaker].

Aghaei Meibodi, M. (September 2022). Sustainability goals with digital construction. Presented at *AU 2022: Achieving 2030 Sustainability Goals with Better Construction*. New Orleans: Autodesk University. [Invited speaker].

Aghaei Meibodi, M. (2022). Robotic construction. Presented at *The Construction Institute's Visionaries Forum*. Hartford: Construction Institute. [Invited speaker].

Aghaei Meibodi, M. (2022). Disruptive digital design & hybrid robotic construction to material innovations. Presented at *co.de.D (Computational Design Detroit)*. Detroit: AIA Detroit Technology in Architectural Practice. [Invited speaker].

Aghaei Meibodi, M. (2022). Future construction: Robotics & additive manufacturing. Presented at *Teulo Talks*. Virtual Event: Teulo. [Invited speaker].

Aghaei Meibodi, M. (2021). Min-Max: Reusable 3D printed formwork for thin-shell concrete structures. Presented at *CAADRIA 2021 - Projections*. Hong Kong: CAADRIA.

Aghaei Meibodi, M. (2021). Digital fabrication. Presented at *Digital Fabrication Roundtable*. New York: The Cooper Union. [Invited speaker].

Aghaei Meibodi, M. (2021). Digital architecture and research technologies. Presented at *Built Environment Additive Manufacturing Symposium (BE-AM 2021)*. Virtual Event: The Technical University of Darmstadt. [Keynote speaker and moderator].

Aghaei Meibodi, M. (2021). Integral computation and robotic construction. Presented at *The Office Talk*. Detroit: INFORM Studio. [Invited lecture].

Aghaei Meibodi, M. (2021). The future of robotic construction. Presented at *University of Tennessee, College of Architecture and Design*. Virtual Event: University of Tennessee Knoxville. [Invited talk].

Aghaei Meibodi, M. (2021). Robotic additive manufacturing. Presented at *Additive Tectonics Studio, University of Virginia School of Architecture*. Virtual Event: University of Virginia. [Invited lecture].

Aghaei Meibodi, M. (2020). 3D printing furniture. Presented at *MillerKnoll Global Research & Insights Group*. Virtual event: MillerKnoll. [Invited speaker].

Aghaei Meibodi, M. (2020). Additive manufacturing for high-definition concrete structures. Presented at *AU 2020 Theater Talks*. Las Vegas: Autodesk University. [Invited speaker].

Aghaei Meibodi, M. (2020). Additive thermoplastic formwork for freeform concrete columns. Presented at *ACADIA 2020: Distributed Proximities*. Virtual Event: University of Pennsylvania Weitzman School of Design.

Aghaei Meibodi, M. (2020). Rethinking building materials: Generatively designing lightweight precast concrete elements. Presented at *Autodesk, Webinar series: What's Happening in Education?*. Virtual Event: Autodesk Inc. [Invited lecture].

Aghaei Meibodi, M. (2019). Rethinking building elements: Large-scale additive manufacturing. Presented at *AU 2019 Theater Talks*. Las Vegas: Autodesk University. [Invited speaker].

Aghaei Meibodi, M. (2019). Additive manufacturing for lightweight reinforced concrete structures. Presented at *ACI-Quebec & Eastern Ontario 2019: Progress in Concrete*. Montreal: American Concrete Institute. [Invited speaker].

Aghaei Meibodi, M. (2019). Architectural research in the digital age. Panel discussion at *How to Build a House*. New York: Frederick P. Rose Auditorium at The Cooper Union. [Panelist].

Aghaei Meibodi, M. (2019). 3D printing architecture. Presented at *How to Build a House*. New York: Frederick P. Rose Auditorium at The Cooper Union. [Invited speaker].

Aghaei Meibodi, M. (2019). Additive manufacturing for concrete elements. Presented at *From Lab to Site: Innovation in Concrete Symposium*. Ann Arbor: University of Michigan. [Symposium presenter].

Aghaei Meibodi, M. (2018). Artificial intelligence: Unseen form with high-resolution details. Presented at *Lucerne School of Engineering and Architecture*. Lucerne: University of Lucerne. [Invited talk].

Aghaei Meibodi, M. (2017). 3D Printing+. Presented at *ULI Toronto Symposium 2017*. Toronto: Urban Land Institute (ULI). [Invited talk].

Aghaei Meibodi, M. (2017). Artificial intelligence and additive manufacturing. Presented at *TSA & DFZ Forum: New Design and Technology Synergies*. Toronto: Toronto Society of Architects (TSA). [Invited talk].

Aghaei Meibodi, M. (2017). Digital metal. Presented at *SUSAS 2017: ThisCONNECTION: Sharing a Future Public Space*. Shanghai: Pudong Minsheng Port. [Invited talk].

Aghaei Meibodi, M. (2017). Out of order: Computing architecture with no historical reference. Presented at *College of Architecture and Urban Planning*. Shanghai: Tongji University. [Invited talk].

Aghaei Meibodi, M. (2017). 3D Printing +: Additive Manufacturing for Architecture. Presented at *HKU Shanghai Study Center: 2017 Fall Seminar Series*. Shanghai: University of Hong Kong, Faculty of Architecture. [Invited talk].

Aghaei Meibodi, M. (2017). Smart takes from the strong: Composite of 3D printed sandstone and UHPFR concrete. Presented at *Fabricate 2017: Rethinking Design and Construction*. Stuttgart: Institute for Computational Design and Construction at the University of Stuttgart. [Conference presentation].

Aghaei Meibodi, M. (2017). Conversation at Archi-Union. Panel discussion at *Panel discussion with Benjamin Dillenburger and Mania Aghaei Meibodi*. Shanghai: Archi-Union, organized by Philip Yuan. [Panelist].

Aghaei Meibodi, M. (2016). 3D printing technologies for high resolution architecture and complex parts. Presented at *Arup Office Talk*. Amsterdam: Arup Amsterdam Office. [Invited talk].

Aghaei Meibodi, M. (2016). Hybrid processes: Synergy of 3D printing and CNC milling. Presented at *Arup Office Talk*. Amsterdam: Arup Amsterdam Office. [Invited talk].

Aghaei Meibodi, M. (2016). Architecture that contains not a single straight line. Presented at *Lucerne School of Engineering and Architecture*. Lucerne: University of Lucerne. [Invited talk].

Aghaei Meibodi, M., Kwon, H., Bernhard, M. & Dillenburger, B. (2016). Design and additive manufacturing of functionally graded lightweight structural elements based on multi-material extrusion. Presented at *Advances in Architectural Geometry 2016*. Zurich: ETH Zurich. [Poster presentation].

Aghaei Meibodi, M., Jipa, A., Bernhard, M., Dillenburger, B. (2016). Powder-based 3D printing for building components. Presented at *Advances in Architectural Geometry 2016*. Zurich: ETH Zurich. [Poster presentation].

Aghaei Meibodi, M. (2015). Undrawable architecture: An invitation to curiosity. Presented at *Chalmers University of Technology, School of Architecture*. Gothenburg: Chalmers University of Technology. [Invited talk].

Aghaei Meibodi, M. (2014). "Ought we build it?". Presented at *Chalmers University of Technology, School of Architecture*. Gothenburg: Chalmers University of Technology. [Invited talk].

Aghaei Meibodi, M. (2013). Architectural design intelligence. Presented at *The CulturePlex Laboratory*. London: Faculty of Arts and Humanities at the University of Western Ontario. [Invited talk].

Aghaei Meibodi, M. (2012). Digital technology for attractive cold climate cities. Presented at *Cold Climate Cities*. Kiruna: Kiruna Municipality. [Invited talk].

Aghaei Meibodi, M. (2011). Architecture as a creative material practice. Presented at *Kulturens Hus Lulea*. Lulea: Kulturens Hus Lulea. [Invited talk].

Exhibited Work

Aghaei Meibodi, M. (2022, March - 2022, September). Medial Surface. In K. Velikov (curator), *On Air Faculty Work 2020-2021*. Ann Arbor, Michigan: The Liberty Research Annex Gallery. Mixed Media (Interactive Video, Architectural Presentation Boards, 1:1 Built Prototypes)

Aghaei Meibodi, M. (2022, March - 2022, September). MinMax: Ultra Lightweight Concrete Envelope. In K. Velikov (curator), *On Air Faculty Work 2020-2021*. Ann Arbor, Michigan: The Liberty Research Annex Gallery. Mixed Media (Interactive Video, Architectural Presentation Boards, 1:1 Built Prototypes).

Aghaei Meibodi, M. (2022, March - 2022, September). 3D Printed Multi-layered Plastic Envelope. In K. Velikov (curator), *On Air Faculty Work 2020-2021*. Ann Arbor, Michigan: The Liberty Research Annex Gallery. Mixed Media (Interactive Video, Architectural Presentation Boards, 1:1 Built Prototypes).

Aghaei Meibodi, M. (2022, March - 2022, September). 3D Printed Topologically Optimized Plastic Envelope. In K. Velikov (curator), *On Air Faculty Work 2020-2021*. Ann Arbor, Michigan: The Liberty Research Annex Gallery. Mixed Media (Interactive Video, Architectural Presentation Boards, 1:1 Built Prototypes).

Aghaei Meibodi, M. (2022, January - 2022, January). GFRC Building Envelope. In MCH Swiss Exhibition Ltd. (organizer), *Swissbau 2022*. Switzerland: Swissbau. 1:1 Scale Prototype.

Aghaei Meibodi, M. (2021, May - 2021, November). The Smart Slab. In Hashim Sarkis (curator) *How Will We Live Together?*. Venice: 17th Venice Architecture Biennale. Mixed Media (Video, Architectural Presentation Boards, Physical Models, 1:1 Built Prototypes).

Aghaei Meibodi, M. (2019, November). Smart Slab. In University of Michigan Taubman College of Architecture + Urban Planning and the University of Michigan College of Civil and Environmental Engineering (co-organizers), *From*

Lab to Site: Innovation in Concrete Symposium. Ann Arbor, Michigan: Liberty Research Annex gallery. Mixed Media (Video, Architectural Presentation Boards, Physical Models, 1:1 Built Prototypes).

Aghaei Meibodi, M. (2019, September - 2019, October). Smart Slab of DFAB House. In Mayer, H. & Schneider, S. (co-curators), *How to Build a House*. New York: The Cooper Union. Mixed Media (Video, Architectural Presentation Boards, Physical Models, 1:1 Built Prototypes).

Aghaei Meibodi, M. & Dillenburger, B. (2019, June - 2019, September). Flow Table. In Rinke, M. (curator), *The Bones of Architecture*. Lisbon: Belém Cultural Center. Mixed Media.

Aghaei Meibodi, M. (2019, March - 2019, June). Smart Slab of DFAB House. In Mayer, H. & Schneider, S. (co-curators), *How to Build a House: Architectural Research in the Digital Age*. San Francisco: Swissnex San Francisco. Mixed Media (Video, Architectural Presentation Boards, Physical Models, 1:1 Built Prototypes).

Aghaei Meibodi, M., Bernhard, M., & Jipa, A. (2019, March). Smart Slab. In Bärnthaler, C. (curator), *BETON – Material für die Zukunft*. Vorarlberg, Austria: Messe Dornbirn Halle 10. Mixed Media (Video, Architectural Presentation Boards, Physical Models, 1:1 Built Prototypes).

Aghaei Meibodi, M. & Dillenburger, B. (2017, October - 2017, December). Digital Metal. In Xiangning, L., Boeri, S., & Zhenning, F. (curators), *SUSAS 2017: ThisCONNECTION: Sharing a Future Public Space*. Shanghai, China: Pudong Minsheng Port.

Aghaei Meibodi, M. (2016, September). 3D Printed Slabs. In Swiss National Centre of Competence in Research (NCCR) (organizer), *Advanced Architectural Geometry Conference*. Zürich, Switzerland: ETH Zurich.

Curated Exhibitions

Aghaei Meibodi, M., & Mcgee, W. (co-curators). (10/2021-11/2021). *Plastic Architecture*. New York: The Cooper Union. Mixed Media (Video, Architectural Presentation Boards, Physical Models, 1:1 Built Prototypes).

Publications Written by Others about your Work

Jenks, J. (2023). Shell Wall, Groundbreaking project at Taubman College involving novel 3D concrete printing method, *University of Michigan News*.

Fast Company/Co.Design (2023). Shell Wall. March 2023

Murphy, R. Shell Wall *Local/Today, Michigan News*. March 20, 2023.

Patrick Walsh, N. (2023) University of Michigan researchers merge 3D printing with computational design to create 'ultra-lightweight, waste-free concrete'. *Architect News*. March 21, 2023.

Shell Wall: New method of Robotic 3D concrete printing (2023), Dezeen.

Novel Computational design and non-planar Robotic 3D concrete printing (2023), Designboom.

Schoof, J. (2022). HiRes Concrete Slab in the Empa NEST Dübendorf. *Detail*.

Girgin C. Z. (2021). DFAB HOUSE : Geçmişin Dijital Yorumu ile Geleceğe Bakış. *Arrademento Mimarlık, November–December(349)*, 38-43.

Rudolph, K. (2021). Druck das (H)aus!. *Frankfurter Allgemeine Quarterly*, (1), 115-120.

Bolliger, R. (2020). Leichtbaudecke "Digital Betoniert". *Haustech, January–February(3)*, 28-31.

Hahn, D. & Rüb, C. (2019). Projekt Bauhaus: Can Design Change Society?. *ARCH+*.

Schoof, J. (2019). Gedruckte Architektur [Printed Architecture]. *Detail*, (1/2), 84-91.

Dillenburger, B. (2019). 3D Printed Formwork for Optimized Concrete Slab. *Concrete Plant International*, February 2019, 146-151.

Jipa, A. (2018). Marca K. *Igloo, October – November 2018 (186)*, 62,64.

Stevens, P. (2018). This digitally fabricated 'smart slab' is half the weight of a conventional concrete ceiling. *Designboom*.

Aouf, R. S. (2018). ETH Zurich makes lightweight concrete ceilings using 3D sand-printing. *Dezeen*.

Watkin, H. (2018). ETH Zurich Uses 3D Sand Printed Formwork to Build Concrete Smart Slab. *All 3DP*.

Thomas. (2018). ETH Zurich uses sand 3D printing to build 80m2 concrete Smart Slab for DFAB House. *3Ders.org*.

Boschung, P. (2018). Smart Slab: Kombination aus Beton und 3D-Druck. *Baublatt*.

Pestalozzi, M. (2018). The Smart Slab has landed. *World Architects*.

Stevenson, K. (2018). Design Of The Week: Smart Slab. *Fabbaloo*.

Michelle. (2018). "Smart Slab": 80 m2 große Beton-Decke für DFAB House. *3DRUCK*.

Zieler, J. (2018). ETH Zürich fertigt mit „Smart Slab“ eine smarte Hausdecke mit einem Sand-3D-Drucker. *3D Grenzenlos Magazin*.

Herold, I. (2018). Wie gerechnet, so ausgedruckt. *die Baustellen, July – August*, 51-52.

Herold, I. (2018). Wo struktur und ornamentik verschmelzen. *der Bauingenieur*, 60-64.

Herold, I. (2018). Wo Struktur und Ornamentik verschmelzen. *opusC*, (4), 4-6.

Grants

Kira Barton (PI), Emily Mower Provost (CoPI), Mania Aghaei Meibodi (CoPI), Judy Jin (CoPI). Machine Learning (Submitted internally). Cyber-Human-Centric Cyber-Physical Systems for Robotic and 3D Printing Construction. *Future Manufacturing Seed Grants (FMSG)* (Submission date to NSF 2023 /04 / asking \$500,000).

Aghaei Meibodi, M. (PI), Zhu, H. (Co-PI), & Mcgee, W. (Co-PI). (Completed / editing stage). Dual Nozzle Additive Spraying of Slurry Concrete and Fiber. *National Science Foundation (NSF) Advanced Manufacturing (AM) Program*. (2023 /05 Submission date to NSF asking \$700,000).

Aghaei Meibodi, M. (PI) (2023/03). Revolutionizing Concrete Slabs: Combining Robotic 3D Printing and Topology Optimization Techniques for Efficient Lightweight Designs. *UM, Research Catalyst and Innovation (RCI) Award for Small Scale and Preliminary Projects* (\$15,000).

Aghaei Meibodi, M. (PI), Kira Barton (Co-PI) (2023/02), Robotic and Additive Construction (RAC), *Research Accelerator Program: Bold challenges. University of Michigan*. OVPR. (Interview Stage/ asking \$250,000)

Ahlquist, S. (PI) & Aghaei Meibodi, M. (Co-PI). (2022/08 - 2023/12). Collective tinkering: Building infrastructures for inclusive space-making through engagement, workshops, and events combining art and architecture, U-M students, local educators, and diverse learners. *The Arts Initiative of University of Michigan* (\$13,400).

Pannier, C., & Mohanty, P. , Aghaei Meibodi, M. (Co-PI) (2022/06). Developing a large-scale 3D metal printing base on water-binding and sinter-welding. *UM Graham Sustainability Institute, Carbon Neutrality Acceleration Program* (Submitted and Advanced to the Second Round).

Aghaei Meibodi, M. (Co-I), Carol C. Menassa (PI), Vineet R. Kamat, Min Deng. (2022/06). Understanding Impediments to Carbon Neutral Buildings Through Human-Centric Energy Consumption Models of Post-Pandemic Flexible Spatio-Temporal Workspaces. *UM Graham Sustainability Institute, Carbon Neutrality Acceleration Program* (Submitted).

Aghaei Meibodi, M. (PI). 3D Concrete Printing for Lightweight Structures. *Pressing Matters, UM Taubman College of Architecture and Urban Planning, The Alan and Cynthia Berkshire Fund for Prototyping Tomorrow* (Submitted/not accepted).

Aghaei Meibodi, M. (PI), Mcgee, W., Menassa, C., Okwudire, C., & Kamat, V. (2022/04 - 2022/09). Future construction: Human-in-the-loop cyber-physical systems (CPS) in construction. *Research Accelerator Program: Bold challenges. University of Michigan* (\$25,000 (Team formation)+ 25,000 (Incubation) + 75,000 (Nurture)). OVPR.

Aghaei Meibodi, M. (PI). (2022). Robotic 3D printing of carbon fiber reinforced plastic. *UM, Research Catalyst and Innovation (RCI) Award for Small Scale and Preliminary Projects* (\$17,000).

Aghaei Meibodi, M. (Co-PI), Klemmt, C., Mcgee, W., & Beaucage, G.(2021/11). Large-scale, low-viscosity additive manufacturing with wood composites. *National Science Foundation (NSF) Advanced Manufacturing (AM) Program*. (Revision).

Aghaei Meibodi, M. (PI). & Zhu, H. (2021). Robotic additive spraying (RAS) reinforced concrete structures: Carbon neutrality for future manufacturing in civil infrastructure design and construction. *Pressing Matters, UM Taubman College of Architecture and Urban Planning, The Alan and Cynthia Berkshire Fund for Prototyping Tomorrow* (\$20,000).

Aghaei Meibodi, M. (2021). *UM Provost's Early Tenure-Track Faculty Research Support Initiative* (\$3,000). OVPR.

Aghaei Meibodi, M. (PI). & McGee, W. (2021). Robotic 3D printing thermoplastic building envelope. *UM Exhibition Production, Research, and Creative Practice* (\$9,450).

Aghaei Meibodi, M. (Co-PI), NG. T., Newell, C., McGee, W., Ahlquist, S., Wilcox, G., Rule, J., Griffiths, C., Del Campo, M., Sanchez, J., Adel, A., Von Buelow, P., Meier, M., & Velikov, K. (2021). *Get It Together, UM Taubman College of Architecture and Urban Planning* (\$5,000).

Aghaei Meibodi, M. (PI)., Li, V., & McGee, W. (2020). Additive Formwork for Lightweight Concrete. *University of Michigan Office of Research Faculty Grants and Award Program* (\$15,000).

Aghaei Meibodi, M. (2020). 3D graphic room (3DGR): Real-time 3D graphic platform. *UM Taubman College Spatializing Digital Pedagogies RFP* (\$5,000).

Aghaei Meibodi, M. (2020). Rethinking concrete slabs: Additive formwork and material optimization to fabricate lightweight and functionally integrated concrete slab. *Johnson & Johnson Women in STEM2D Scholars Program, Design Category* (Institutional nominee).

Aghaei Meibodi, M. (2018). 3D printing dissolvable formwork. *PERI Group Industrial-Research Funding* (\$ confidential).

Aghaei Meibodi, M. (2018). Two fully funded Ph.D. positions at Digital Building Technologies, ETH Zurich. *National Centre of Competence in Research (NCCR) Digital Fabrication* (\$ confidential).

Aghaei Meibodi, M. (2018). Deep Façade Project. *DGS Druckguss-Systeme AG* (\$17,000).

Aghaei Meibodi, M. (2018). Cast Metal Chair. *DGS Druckguss-Systeme AG* (\$7,000).

Aghaei Meibodi, M. (2017). Liquid Pavilion. *Shanghai Urban Space Art Season (SUSAS)* (\$50,000).

Aghaei Meibodi, M. (2017). Smart Slab Project Segmental Prototype. *National Centre of Competence in Research (NCCR) Digital Fabrication* (\$20,000).

Aghaei Meibodi, M. (2017). Liquid Pavilion and Digital Metal Research. *DGS Druckguss-Systeme AG, Aluminium-Laufen AG Liesberg & Aluminium-Verband Schweiz* (\$50,000).

Aghaei Meibodi, M. (2017). Designing an building a demonstrator for NCCR Site Visit. *National Centre of Competence in Research (NCCR) Digital Fabrication* (\$16,000).

Aghaei Meibodi, M. (2017). Construction, Supervision, and Post-Tensioning of Smart Slab Project. *Frutiger AG and Stahlton AG*. (\$ confidential).

Aghaei Meibodi, M. (2016). Smart Slab Project Segmental Prototype. *National Centre of Competence in Research (NCCR) Digital Fabrication* (\$6,000).

Aghaei Meibodi, M. (2015). Generative design exploration. *Lars Erik Lunbergs Scholarship Foundation* (\$23,000).

Aghaei Meibodi, M. (2014). Artifact in the Making. “*Architecture in the Making*” *Research Environment* (\$35,000).

Aghaei Meibodi, M. (2014). Generative design exploration. *Lars Erik Lunbergs Scholarship Foundation* (\$23,000).

Aghaei Meibodi, M. (2013). Generative design exploration. *Lars Erik Lunbergs Scholarship Foundation* (\$23,000).

Aghaei Meibodi, M. (2012). Prototyping material for Honeycomb Pavilion. *Samhällsbyggnadsinstitutionen at Lulea University of Technology (LTU)* (\$10,000).

Aghaei Meibodi, M. (2012). Building material for Robotic Timber Pavilion. *Norrbottnens byggmästareförening, XL Bygg Stenvalls , Jord Proffset AB, Sundsvalls Profildekor AB, Biltema, Laitis* (\$19,000).

Aghaei Meibodi, M. (2012). Generative design exploration. *Lars Erik Lunbergs Scholarship Foundation* (\$16,000).

Patents

Aghaei Meibodi, M. *Hybrid 3D Concrete Printing: Extrusion and Spraying Based 3D Concrete printing*. UM Invention No. 2023-427; (Under Evaluation). 2023/03/16

Aghaei Meibodi, M. *Aggregate-Based Multi-Nozzle Automated Additive Spraying of Concrete*. UM Invention No. 2023-385. (Under Evaluation). 2023/02/14

Aghaei Meibodi, M., Marji, Z., & Bindlish, S. *3D Printed Formwork Assembled in Compression-only Form and Sequential Cast-in-Place to Create Concrete Structures*. UM Invention No. 2023-425;. (Under Evaluati). 2023/03/15

Aghaei Meibodi, M., Lin, Y., & Bayramvand, A. *3D Concrete Printing of Topology Optimized Parts: Geometrically informed toolpath and variable material deposition*. UM Invention No. 2023-379;. (Under Evaluation). 2023/02/14

Aghaei Meibodi, M., Zidek, J., Aman, L., Elhashemi, J., & Li, X. *The Bio-Diverse Green Building Envelope*. UM Invention No. 2023-382; U.S. (Under Evaluation). 2023/02/14

Aghaei Meibodi, M. *Multi-Nozzle Automated Additive Spraying And Methods Of Additive Spraying To Form Fiber-Reinforced Concrete*. UM Invention No. 2022-425; U.S. Patent No. (63/426,887). 2022/11/21

Aghaei Meibodi, M. (in process). *Multi-Nozzle Robotic Additive Spraying of Fiber-Reinforced CO₂-Infused Concrete for Innovation and Deployment of Carbon-Neutral and Carbon-Capture Manufacturing Technology in Building Construction*. UM Invention No. 2022-428; U.S. Patent No. (63/426,895). 2022/11/21

Organized Workshops

Aghaei Meibodi, M. (organizer) & Mitropoulou, I. (guest). (2023). *Nonplanar Layered Morphologies*. Taubman College of Architecture and Urban Planning.

Aghaei Meibodi, M. (2023). *Exhibition of Robotic Workshop: "How to Draw."* Taubman College of Architecture and Urban Planning.

Academic Design-Built Projects

Aghaei Meibodi, M. (project lead). (2020-2021). *MinMax: Ultra Lightweight Concrete Envelope*. Ann Arbor: University of Michigan.

Aghaei Meibodi, M. (project lead). (2016-2019). *Smart Slab Project of DFAB HOUSE*. Zurich: Swiss National Centre of Competence in Research (NCCR).

Aghaei Meibodi, M. (project lead). (2017-2019). *Digital Metal Project*. Zurich: ETH Zurich.

Aghaei Meibodi, M. (project lead). (2018). *Digital Metal 2018: Deep Façade*. Zurich: ETH Zurich.

Aghaei Meibodi, M. (project lead). (2017). *Digital Metal 2017: Liquid Pavilion*. Zurich: ETH Zurich; Shanghai: Shanghai Urban Space Art Season (SUSAS).

Aghaei Meibodi, M. (project lead). (2016). *3D Printed Slab: Topology Optimization*. Zurich: ETH Zurich.

Aghaei Meibodi, M. (project lead). (2014). *Hyperbolic Parabolic Showcase*. Stockholm: KTH School of Architecture.

Aghaei Meibodi, M. (project lead). (2013). *Strobometric*. Lulea: Lulea University of Technology (LTU).

Aghaei Meibodi, M. (project lead). (2012). *Strip Pavilion*. Lulea: Lulea University of Technology (LTU).

Aghaei Meibodi, M. (project lead). (2012). *Modular Pavilion*. Lulea: Kulturens Hus Lulea.

Aghaei Meibodi, M. (project lead). (2011). *Honeycomb Pavilion*. Lulea: Kulturens Hus Lulea; Lulea University of Technology (LTU).

Commissioned Architecture Work

Aghaei Meibodi, M. (lead architect) and Aghaiemeybodi, H. (2018). *17 Standly Residential House*. Toronto: Freelance work.

Aghaei Meibodi, M. (lead architect) and Aghaiemeybodi, H. (2017). *18 Burlington Residential House*. Toronto: Freelance work.

Aghaei Meibodi, M. (lead architect, digital fabrication lead), Aghaiemeybodi, H., Kretzer, M. and Sachs, H. (2016). *Manta at Facebook*. Toronto: Facebook Canada Headquarter.

Aghaei Meibodi, M. (lead architect) and Aghaiemeybodi, H. (2014). *120 Hope Residential House*. Toronto: Freelance work.

Aghaei Meibodi, M. (lead architect) and Aghaiemeybodi, H. (2012). *Svartensgatan Unit*. Toronto: Freelance work.

Aghaei Meibodi, M. (lead architect), Aghaiemeybodi, H. and Ceder, M. (2010). *Kungsholmen Residential Unit*. Stockholm: Freelance work.

Aghaei Meibodi, M. (lead architect) and Ceder, M. (2009). *Tunelgatan Residential Unit*. Stockholm: Freelance work.

TEACHING

Courses Taught

A. Alfred Taubman College of Architecture and Urban Planning at the University of Michigan, Ann Arbor.

(2023, Winter) *ARCH 793: DMT Capstone.*
(2023, Winter) *ARCH 600: Independent Study: HangPrinter*
(2022, Fall) *ARCH 708: Systems Engagement.*
(2022, Fall) *ARCH 709: Advanced Computational Geometry.*
(2022, Fall) *ARCH 825: Doctoral Area Seminar - BT (Advanced Computational Geometry).*
(2022, Winter) *ARCH 709: Advanced Computational Geometry.*
(2022, Winter) *ARCH 825: Doctoral Area Seminar - BT (Advanced Computational Design).*
(2021, Fall) *ARCH 509: Computational Geometry.*
(2021, Fall) *ARCH 707: Material Engagement.*
(2021, Winter) *ARCH 571: Advanced Digital Fabrication.*
(2021, Winter) *ARCH 825: Doctoral Area Seminar - BT Material Engagement.*
(2020, Fall) *ARCH 537/301: Fabrication.*
(2020, Fall) *ARCH 707: Material Engagement.*
(2020, Winter) *RCH 571: Advanced Digital Fabrication.*
(2019, Fall) *ARCH 707: Material Engagement.*

Master of Advanced Studies ETH in Architecture and Digital Fabrication (MAS ETH DFAB), National Centre of Competence in Research (NCCR) Digital Fabrication at the ETH Zurich, Zurich.

(2018, Winter) *MAS ETH DFAB: Thesis.*
(2018, Winter) *MAS ETH DFAB: Digital Metal: Deep Facade.*
(2017, Winter) *MAS ETH DFAB: Thesis.*
(2017, Winter) *MAS ETH DFAB: Digital Metal: Shaping Liquid.*
(2017, Winter) *Doctoral Area Seminar: Designerly Modes of Research.*

KTH School of Architecture and The Built Environment, Stockholm, Sweden.

(2014, Fall-2016, Fall) *Impregnate Material: Making Discipline and Material Practice in Architecture.*

(2015, Fall-2016, Fall) *Digital Design and Making Graduate Studio.*

Lulea Technical University (LTU), Lulea, Sweden.

(2010, Fall-2015, Winter) *GU 345: Digital Design and Making Graduate Studio.*

(2010, Fall-2015, Winter) *Graduate Thesis.*

SERVICE

Dissertation/ Thesis/ Review Committees

(2022-present). *Ph.D. Dissertation Committee* (main advisor). University of Michigan. Yuxing Lin.

(2020-present). *Ph.D. Dissertation Committee* (main advisor). University of Michigan. Christopher Voltz.

(2017-present). *Ph.D. Dissertation Committee* (co-advisor). ETH Zurich. Hyunchul Kwon.

Juries

(2021). *Final Review: COBOTIC MATTERS*. Anhalt University of Applied Sciences: Dessau Department of Design and Dessau Institute of Architecture.

(2020). *UG Thesis Final Review: Advanced Technologies and Material Practices*. University of Virginia: School of Architecture.

(2018). *Final Review: Architectural Design Studio 5*. University of Toronto: Daniels School of Architecture.

(2018). *Final Review: MAS Thesis - Neuronal Stool*. ETH Zurich: Master of Advanced Studies ETH in Architecture and Digital Fabrication, Department of Architecture.

(2018). *Final Review: MAS Thesis - FEA Simulation of Glass Cast*. ETH Zurich: ETH Zurich: Master of Advanced Studies ETH in Architecture and Digital Fabrication, Department of Architecture.

(2018). *Final Review: MAS Semester 2*. ETH Zurich: ETH Zurich: Master of Advanced Studies ETH in Architecture and Digital Fabrication, Department of Architecture.

(2017). *Final Review: MAS Studio - Digital Metal*. ETH Zurich: ETH Zurich: Master of Advanced Studies ETH in Architecture and Digital Fabrication, Department of Architecture.

(2017). *Final Review: MAS T2*. ETH Zurich: ETH Zurich: Master of Advanced Studies ETH in Architecture and Digital Fabrication, Department of Architecture.

(2016). *Final Review: Digital Fabrication Elective: Composite Assemblies - Physical and Digital Process Artifacts in Architectural Design*. KTH University.

Competition Juror

(2020). *LOOP Design Awards*.

(2016). *Panel Review: SukkahVille International Design Competition*. Toronto: Sukkahville 2016 Design Competition and Exhibition.

Committees

Program

(2021-present). *Architecture Ph.D. Finance*. Ann Arbor: Taubman College.

(2021). *MS_DMT Admissions*. Ann Arbor: Taubman College.

(2020-present). *Ph.D. Advisory Committee*. Ann Arbor: Taubman College.

(2020-present). *Committee Review of Ph.D. Annual Reports*. Ann Arbor: Taubman College.

(2020-present). *Doctoral Admissions*. Ann Arbor: Taubman College.

(2020). *MS_DMT Admissions*. Ann Arbor: Taubman College.

College

(2020-present). *Digital Architecture Technologies (DART)* (director). Ann Arbor: Taubman College.

(2020-2022). *Research Policy Committee* (member). Ann Arbor: Taubman College.

(2020-2021). *Additive Futures Symposium: Conversations on the Future of Additive Manufacturing in Architecture* (organizer, moderator). Ann Arbor: Taubman College.

(2020). *Urban Technology Faculty Working Group "New Urban Technology Degree Program"*. Ann Arbor: Taubman College.

(2016-2019). *Master of Advanced Studies ETH in Architecture and Digital Fabrication* (lead instructor). Zurich: ETH, Zurich.

(2016-2019). *Digital Building Technology Group* (supervisor). Zurich: ETH, Zurich.

Service Organizations

Review for National Science Foundation's Project

(2023) *panel member and external evaluator, NSF PrinTimber* (<https://printimber.org/>), University of Idaho, NSF - EPSCoR RII Track-2 program (4-year, \$6M project)

Academic/Professional Organizations

(2022). Scientific Committee (member). Construction Robotics (Journal).

(2022). Scientific Committee (member). International Webinar on Civil Engineering and Architectural Design (CEAD Webinar).

(2022). *Scientific Committee* (peer review committee). ACADIA Conference.

(2021). *Scientific Committee* (member). SimAUD.

(2021). *Scientific Committee* (peer review committee). ACADIA Conference.

(2021). *Scientific Committee* (peer review committee). eCAADe Conference

(2017). *Scientific Committee* (peer review committee). ACADIA Conference.

(2018). *Scientific Committee* (peer review committee). ACADIA Conference.

(2019). *Scientific Committee* (peer review committee). ACADIA Conference.

(2020). *Scientific Committee* (peer review committee). ACADIA Conference.

(2014). *Scientific Committee* (peer review committee). ACSA Toronto.

(2008). Search Committee (peer review search committee for a professor of sustainable construction). The University of Antwerp.

Other Activities

2023/03 WEMU 89.1 FM podcast interview Mania Aghaei Meibodi and Cathy Shafran (Host/All Things Considered), Robotic 3D Printing Concrete

2022/08 - 2023/02

Multiple presentations, meetings, and workshops with the following industries for collaboration on Robotic 3D Printing Concrete:

PERI 3D Construction GmbH (Dr. Fabian Meyer-Brötz Geschäftsführer / Managing Director)

Quikrete Holdings, Dr. Bing Tian, Director of Research & Development

Sika Cooperation, Gary Boon, VP, Cementitious Technology

brick & mortar Ventures, Curtis Rodgers, Partner

Baumit Bauminator

2023/02

Presentation to enable collaboration on Robotic 3D Printing concrete:

Dr. Petros Sideris, Ph.D. Assistant Professor, Zachry Department of Civil and Environmental Engineering, Texas A&M University

Dr. Zachary Grasley, Professor, Civil & Environmental Engineering, Zachry Chair in Construction Integration