

Arash Adel

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Dr. Arash Adel is an assistant professor of architecture at the University of Michigan's Taubman College of Architecture and Urban Planning. He currently teaches in the Master of Science in Digital and Material Technologies program and leads the program's Capstone Studio. He is also one of the core faculty members of the Ph.D. in Architecture program. Adel received his Master's in Architecture from Harvard University and his Doctorate in Architecture from the Swiss Federal Institute of Technology (ETH).

Adel's interdisciplinary research is at the intersection of design, computation, engineering, and robotic construction. He is particularly known for his work with novel integrative computational design methods coupled with robotic assembly techniques for manufacturing nonstandard multi-story timber buildings. In his doctoral research at ETH, he contributed to the widely-published DFAB HOUSE and led the computational design of its robotically-fabricated timber frame structure.

Adel's professional experience includes projects in Europe, China, the Middle East, and North America. He has lectured extensively, and his work has been on exhibit at various galleries, institutions, and events, including the AIA National Design Week in Spokane, the Museum of Arts at WSU, the Harvard Graduate School of Design, Third Gallery Idaho, and the Middle East Technical University in Ankara.

Education

- 2020 **Swiss Federal Institute of Technology (ETH) – Department of Architecture**, Zurich, Switzerland
Doctor of Sciences (Dr. sc. ETH Zurich)
Thesis: Computational Design for Cooperative Robotic Assembly of Nonstandard Timber Frame Buildings
Advisory Committee: Prof. Fabio Gramazio, Prof. Matthias Kohler, Prof. Nader Tehrani, Prof. Jan Willmann
- 2010 **Harvard University – Graduate School of Design**, Cambridge, MA, USA
Master in Architecture (Post-Professional Degree in Architecture)
Cross-Registered: MIT School of Architecture and Planning
- 2008 **University of Tehran – School of Architecture and Urban Design**, Tehran, Iran
Master of Urban Design
- 2004 **Azad University – School of Architecture and Engineering**, Mashhad, Iran
Master of Architecture (Professional Degree in Architecture)

Awards/Honors (Selected)

- 2019 **Postdoctoral Fellowship in Architecture**
Taubman College of Architecture and Urban Planning, University of Michigan, Ann Arbor, USA
- 2015 **Architecture & Technology Doctoral Fellowship**
Institute of Technology in Architecture (ITA), Department of Architecture, ETH, Zurich, Switzerland
- 2013 **Weller Research Fellowship in Architecture**
School of Design and Construction, Washington State University, Pullman, WA, USA

Academic Experience (Selected)

- Jul. 2020-Present **Assistant Professor of Architecture**
Taubman College of Architecture and Urban Planning, University of Michigan, Ann Arbor, USA
- Jan. 2021-Present **Founder and Director, AdR Laboratory**
Taubman College of Architecture and Urban Planning, University of Michigan, Ann Arbor, USA
- Jan. 2019-Jun. 2020 **Postdoctoral Fellow/Lecturer in Architecture**
Taubman College of Architecture and Urban Planning, University of Michigan, Ann Arbor, USA
- Sep. 2014-Dec. 2018 **Doctoral Research Fellow**
Institute of Technology in Architecture, Department of Architecture, ETH, Zurich, Switzerland
- Aug. 2013-Aug. 2014 **Weller Fellow in Architecture**
School of Design and Construction, Washington State University, Pullman, WA, USA
- Jul. 2013-Jan. 2014 **Lecturer in Architecture**
College of Environmental Design, University of California Berkeley, Berkeley, CA, USA

Publications (Selected)

- 2021 R. Craney and **A. Adel**, "Engrained Performance: Performance-Driven Computational Design of a Robotically Assembled Shingle Facade System," in *Distributed Proximities: Proceedings Catalog of the 40th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)*, 2021. (In Press)

- K. Graser, **A. Adel**, M. Baur, A. Thoma and D. Sanz Pont, "Parallel Paths of Inquiry: Detailing for DFAB HOUSE," *Technology | Architecture + Design*, vol. 5, no. 1, pp. 38-43, 2021.
- 2020 **A. Adel**, "Computational Design for Cooperative Robotic Assembly of Nonstandard Timber Frame Buildings," Ph.D. Thesis, ETH, Zurich, 2020.
- 2018 **A. Adel**, A. Thoma, M. Helmreich, F. Gramazio and M. Kohler, "Design of Robotically Fabricated Timber Frame Structures," in *Recalibration: On Imprecision and Infidelity: Proceedings Catalog of the 38th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)*, Mexico City, 2018.
- A. Thoma, **A. Adel**, M. Helmreich, T. Wehrle, F. Gramazio and M. Kohler, "Robotic Fabrication of Bespoke Timber Frame Modules," in *Robotic Fabrication in Architecture, Art and Design*, Zurich, 2018.
- 2017 **A. Adel**, "Architecture After Research," *Memar*, pp. 22-27, 2017.

Interviews/Press (Selected)

- 2021 **Taubman College of Architecture and Urban Planning, University of Michigan**
Adel: Ushering Architectural Design and Construction into the Automation Era
 Ann Arbor, MI, USA
- 2020 **Portico Magazine** (Issue Spring 2020)
 Under the article "Sustainability by Plan and Design"
 Ann Arbor, MI, USA
- 2018 **BBC 4Tech** (Mar. 21, 2018)
 Zurich, Switzerland
- 2016 **New Scientist Magazine** (Issue 3056, Jan. 19, 2016)
 Under the article "The House that Bots Built"
 London, UK

Lectures/Symposia (Selected)

- 2021 **Robotic Timber Assembly**
 Holzbau Netzwerk Deutschland (Timber Construction Network Germany, Virtual)
Keynote: Robotically Assembled [Timber] Architecture
 International Manufacturing Forum, Polytechnic of Leiria, Portugal (Virtual)
Robotic Construction, Opportunities and Challenges
 University of California Berkeley, Berkeley, CA, USA (Virtual)
Towards a New Mode of Architectural Production
 MODX Network Voices (Virtual)
- 2020 **Robotic Architecture**
 California College of the Arts, San Francisco, CA, USA (Virtual)
Engrained Performance
 ACADIA 2020 Conference (Virtual)
Human Agency in Computational Design and Robotic Fabrication
 College of Human Ecology, Cornell University, Ithaca, NY, USA
- 2019 **Towards a new Mode of Architectural Production**
 Taubman College of Architecture and Urban Planning, University of Michigan, Ann Arbor, MI, USA
- 2018 **Design of Robotically Fabricated Timber Frame Structures**
 ACADIA 2018 Conference
 Hilton Mexico City Reforma Hotel, Mexico City, Mexico
Robotic Fabrication of Bespoke Timber Frame Modules
 ROBJARCH 2018 Conference
 ETH, Zurich, Switzerland
- 2017 **Encoding Design**
 Interaction Design, Zurich University of the Arts, Zurich, Switzerland
Architecture, Code, and Machine
 Department of Architecture, Texas A&M University, College Station, TX, USA
Collaborative Robotic Spatial Timber Assembly
 TxA Emerging Design + Technology Conference
 Austin Convention Center, Austin, TX, USA
Towards a new Mode of Architectural Production (Poster Presentation and Lecture)
 Future Cities Laboratory 2nd Annual Conference: Future Cities / Transactions
 ETH, Zurich, Switzerland

- 2016 **Connection to Professionalism**
Schwerpunkte 5 Colloquium: Architecture and Professionalism
Werner Oechslin Library Foundation, Einsiedeln, Switzerland
- Site-Less vs. Site-Specific**
Contemporary Architecture Association, Tehran, Iran
- 2015 **Robotically Fabricated Housing**
Institute of Technology in Architecture, ETH, Zurich, Switzerland
- Computing Architecture**
School of Architecture, University of Tehran, Tehran, Iran
- Design Across Scales**
School of Architecture, Rice University, Houston, TX, USA
- Emerging Digital Technologies in Architecture**
College of Architecture and Planning, Ball State University, Muncie, IN, USA
- Design Computation | Practice and Pedagogy**
Faculty of Architecture and Urban Planning, Tarbiat Modares University, Tehran, Iran

Exhibitions/Installations (Selected)

- 2020 **Video Exhibition: Multi-Robotic Timber Assembly**
Association for Computer Aided Design in Architecture (ACADIA) Conference
- 2014 **Curator's Choice 2014**
Museum of Art at WSU, Pullman, WA, USA
- Research and Design Projects (Solo Exhibition)**
Third Gallery, Moscow, WA, USA
- Weller Research Fellowship Exhibition**
School of Design and Construction, Washington State University, Pullman, WA, USA
- AIA National Design Week**
River Park Mall, Spokane, WA, USA
- Oblique Interactions**
Artisans Barn Gallery, Uniontown, WA, USA
- Unbuilt Vision**
School of Architecture, Middle East Technical University, Ankara, Turkey

Grants

- 2021 **Adel A.** (2021/5 to 2022/12), University of Michigan, UMOR Grant: "Collaborative Construction: Robotic Construction and Mixed Reality-Assisted Human Intervention," (\$14,989)
- Adel A.** (2021/2 to 2022/12), University of Michigan, Center for Academic Innovation, XR Innovation Grant: "Bridge the Gap Between Digital Design and Physical Construction in Architecture Education with XR," (\$15,000)
- 2019 **McGee J. & Adel A.** (2019/12 to 2020/12), University of Michigan, UMOR Grant: "Computational Design and Robotic Manufacturing of Bespoke Timber Façade Components," (\$15,000)
- Adel A. & McGee J.** (2019/7 to 2021/8), University of Michigan, Taubman College of Architecture + Urban Planning, Prototyping Tomorrow Grant: "Computational Design and Robotic Manufacturing of Bespoke Timber Façade Components," (\$15,000)
- Adel A.** (2019/9 to 2020/12), University of Michigan, Taubman College of Architecture + Urban Planning, Postdoctoral Fellowship Grant, (\$40,000)

Service

- Taubman College**
- 2020-Present Director, Certificate in Computational Design
Member, Ph.D. in Architecture Advisory Committee
- 2019-Present Member, Ph.D. in Architecture Admission Committee
- 2019 Member, Master of Science in Digital and Material Technologies Admission Committee
- University of Michigan**
- 2020-Present Member, Laboratory and Research Safety Committee
- 2019-2020 Supervisor, Undergraduate Research Opportunity Program (UROP)

Scientific Committees

- 2021 Peer-review for conference papers, CAAD Futures
- 2020 Peer-review for conference papers, Association for Computer-Aided Design in Architecture (ACADIA)

Courses Taught (Selected)

University of Michigan

- 2021 ARCH 708: Systems Engagement
- 2020 ARCH 709: Computational Design
ARCH 739: MS-DMT Capstone
- 2019 ARCH 708: Systems Engagement
ARCH 333: Representation * Fabrication
ARCH 537: Fabrication

Washington State University

- 2014 ARCH 499: Digital Tectonics II
ARCH 403: Politics of Form (4th Year Undergraduate Design Studio)
- 2013 ARCH 496: Digital Tectonics I
ARCH 301: Types, Prototypes and Systems (3rd Year Undergraduate Design Studio)

UC Berkeley

- ARCH 100A: Fundamentals of Architectural Design (3rd Year Undergraduate Design Studio)

Guest Critic (Selected)

- 2020 University of Pennsylvania, Philadelphia, PA, USA (Online)
University of Virginia, Charlottesville, VA, USA (Online)
California College of the Arts, San Francisco, CA, USA (Online)
McGill University, Montreal, Canada
University of Oregon, Eugene, OR, USA
Penn State University, University Park, PA, USA
- 2019-Present University of Michigan, Ann Arbor, MI, USA
- 2014-2017 ETH Zurich, Zurich, Switzerland