

YASAMAN TAHOUNI

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EDUCATION

PhD in Architecture Institute for Computational Design and Construction, University of Stuttgart, Stuttgart, DE Advisor: Achim Menges	2018 - Present
Master of Science in Electrical Engineering and Computer Science Massachusetts Institute of Technology, Cambridge, MA, USA Advisor: Stefanie Mueller	2015 – 2018
Master of Science in Architectural Studies (SMArchs), Design and Computation group Massachusetts Institute of Technology, Cambridge, MA, USA Advisor: Terry Knight	2015 – 2018
Master of Science in Architectural Technologies University of Tehran, Tehran, Iran Advisor: Mahmoud Golabchi	2013 – 2015
Bachelor of Architecture University of Tehran, Tehran, Iran	2008 – 2013

RESEARCH EXPERIENCE

Institute for Computational Design and Construction (ICD), Stuttgart, Germany Research Associate Advisor: Prof. Achim Menges	2018 - present
Massachusetts Institute of Technology, MIT Design Lab, Cambridge, MA, USA Graduate Research Assistant Advisor: Prof. Federico Casalegno	2017 - 2018
MIT Media Lab, Tangible Media Group, Cambridge, MA, USA Graduate Research Assistant Advisor: Prof. Hiroshi Ishii, Jifei Ou	Summer 2016

TEACHING EXPERIENCE

M.Sc Course instructor ITECH M.Sc. program, University of Stuttgart Computational Design techniques and design thinking Co-taught with T. Schwinn, Prof. A. Menges	Fall 2022- present
M.Sc Course instructor ITECH M.Sc. program, University of Stuttgart	Spring 2022

Computational Design and Digital Fabrication

Co-taught with T. Schwinn, O. Bucklin, R. Doque, F.Kennenberg, Prof. A. Menges

Workshop Instructor | Digital Futures 2021 (Virtual)

June 2021

Autonomous Origami Workshop

Co-taught with T. Cheng, D. Wood

M.Sc Course instructor | ITECH M.Sc. program, University of Stuttgart

Fall 2020-2021

Computational Design techniques and design thinking

Co-taught with: T. Schwinn, Prof. A. Menges

Workshop Instructor | ACADIA 2020 (Virtual)

Nov. 2020

Dual Additive Manufacturing Workshop

Co-taught with: H. J. Wagner, D. Wood, T. Cheng, L. Orozco, H. Chai, Prof. A. Menges

M.Sc Course instructor | ITECH M.Sc. program, University of Stuttgart

Spring 2020

Computational Design and Digital Fabrication

Co-taught with T. Schwinn, O. Bucklin, M. Maierhofer, S. Leder, Prof. A. Menges

M.Sc Course instructor | ITECH M.Sc. program, University of Stuttgart

Spring 2019

Computational Design and Digital Fabrication

Co-taught with T. Schwinn, O. Bucklin, M. Yablonina, M. Alvarez, Prof. A. Menges

Teaching Assistant | Massachusetts Institute of Technology, IDC (International Design Center)

Jan. 2017

Making Spaces Workshop, Professor Terry Knight**Teaching Assistant | Massachusetts Institute of technology, MIT Media Lab**

Spring 2017

How to make [almost] anything, Professor Neil Gershenfeld**Teaching Assistant | Massachusetts Institute of technology, School of Architecture**

Fall 2016

Introduction to Design Techniques and Technologies, Professors Skylar Tibbits, Caitlin Mueller, Jessica Rosenkrantz

PEER-REVIWED PUBLICATIONS

Tahouni, Y., Cheng, T. Wood, D. Kliem, S., Benz, J. Bonten, J. Menges, A. 2022 „ **Co-design of biobased cellulose-filled filaments and mesostructures for 4D-printing humidity responsive smart structures**“. *3D Printing and Additive Manufacturing (Accepted, In press)* 2022

Moussavi, S. M., Svatoš-Ražnjević, H., Körner, A., Tahouni, Y., Menges, A., & Knippers, J. 2022. **Design based on availability: Generative design and robotic fabrication workflow for non-standardized sheet metal with variable properties**. *International Journal of Space Structures* 2022

Tahouni, Y., Krüger, F., Poppinga, S., Wood, D., Pfaff, M., Rühle, J., Speck, T. and Menges, A., 2021. "Programming sequential motion steps in 4D-printed hygromorphs by architected mesostructure and differential hygro-responsiveness." *Bioinspiration & Biomimetics*. 2021

- F. Krüger, R. Thierer, Y. Tahouni, R. Sachse, D. Wood, A. Menges, M. Bischoff, J. Rühle.: 2021, 2021
“Development of a material design space for 4D-printed bio-inspired hygroscopically actuated bilayer structures with unequal effective layer widths”. *Biomimetics*
- Cheng, T., Thielen, M., Poppinga, S., Tahouni, Y., Wood, D., Steinberg, T., Menges, A. and Speck, T., 2021. 2021
“Bio-Inspired Motion Mechanisms: Computational Design and Material Programming of Self-Adjusting 4D-Printed Wearable Systems”. *Advanced Science*.
- Qi, Y., Zhong, R., Kaiser, B., Tahouni, Y., Wagner, H.J., Verl, A. and Menges, A., 2021. 2021
“Augmented Accuracy-A human-machine integrated adaptive fabrication workflow for bamboo construction utilizing computer vision.” *eCAADe 2021*
- Tahouni, Y., Cheng, T., Wood, D., Sachse, R., Thierer, R., Bischoff, M. and Menges, A., 2020. 2020
„Self-shaping Curved Folding: A 4D-printing method for fabrication of self-folding curved crease structures”. In *ACM Symposium on Computational Fabrication (SCF'20)*
- Cheng, T., Tahouni, Y., Wood, D., Stolz, B., Mülhaupt, R. and Menges, A., 2020, November. 2020
„Multifunctional Mesostructures: Design and Material Programming for 4D-printing”. In *ACM Symposium on Computational Fabrication (ACM SCF 2020)*
- Kliem, S., Tahouni, Y., Cheng, T., Menges, A. and Bonten, C., 2020, November. 2020
„Biobased smart materials for processing via fused layer modeling ”. In *AIP Conference Proceedings*.
- Neuhaus, R., Zahiri, N., Petrs, J., Tahouni, Y., Siegert, J., Kolaric, I., Dahy, H. and Bauernhansl, T., 2020. 2020
„Integrating ionic electroactive polymer actuators and sensors into adaptive building skins–potentials and limitations”. *Frontiers in Built Environment*
- Tahouni, Y., Qamar, I.P. and Mueller, S., 2020, February. 2020
„NURBSforms: A Modular Shape-Changing Interface for Prototyping Curved Surfaces.” In *Proceedings of the Fourteenth International Conference on Tangible, Embedded, and Embodied Interaction (ACM TEI 2020)*

ADVISED MASTERS THESES

- Francesca Maisto, Lena Strobel, Irina Voineag, **“Autonomous material robotics: Passively-actuated auxetic metamaterials for robotic structures”**, M.Sc thesis, University of Stuttgart. Co-advisor: D. Wood, Supervisors: J. Knippers, A. Menges 2021
- Anahi Gonzalez, Jeongwoo Jan, Hooman Salyani. **“Actively passive: A hybrid system for user-controllable environmentally responsive architectural skins”**, M.Sc thesis, University of Stuttgart. Co-advisor: Jan Petrs, Supervisors: H. Dahy, A. Menges 2020
- James Hayward, Schu Chuan Yao, **“Augmented robotic craftsmanship: Enabling interactive robotic fabrication through mixed reality interfaces”**, M.Sc thesis, University of Stuttgart. Co-advisor: M. Maierhofer, Supervisors: J. Knippers, A. Menges 2020
- Yue Qi, Ruqing Zhong, **“Working with uncertainties: An adaptive fabrication workflow for bamboo structures”**, M.Sc thesis, University of Stuttgart. Co-advisor: H. J. Wagner, Supervisors: J. Knippers, A. Menges 2020

- Mobin Moussavi, Hana Svatos-Raznjevic, **“Design based on availability: Generative design and robotic fabrication workflow for non-standardized sheet metal leftovers”**, M.Sc thesis, University of Stuttgart. Co-advisor: A. Koerner, Supervisors: J. Knippers, A. Menges 2019
- Nima Zahiri, **“Electroactive skin: Towards bio-inspired soft responsive building envelopes”**, M.Sc thesis, University of Stuttgart. Co-advisors: J. Petrs, R. Neuhaus, Supervisors: H. Dahy, A. Menges 2019
- Samantha Melnyk, Tamara Rosales, Robert Faulkner, Naomi Tashiro, **“Haptic reality: Novel interfacing for informed assembly systems”**, M.Sc thesis, University of Stuttgart. Co-advisors: D. Wood, T. Cheng, Supervisors: A. Menges, K. Kuchenbecker 2019

INVITED TALKS

- Carnegie Mellon University, Morphing Matter Lab**, USA | hosted by Lining Yao 2022
- Hasso Plattner Institute**, Germany | hosted by Thijs Rouman 2022
- DigitalFUTURES.World/Talks**, Virtual event | hosted by Neil Leach 2022
- Florida International University**, USA | hosted by Neil Leach 2021
- University of Pennsylvania**, USA | hosted by Laia Mogas-Soldevila 2021
- Volkswagen Group**, Germany | hosted by Sacha Peters 2019

HONORS AND AWARDS

- Digital Future’s Young Award** July 2022
DigitalFUTURES 2022, Tongji University, China
- Norman Foster Foundation’s Robotics Atelier Scholarship** Nov. 2019
Norman Foster Foundation, Madrid, Spain
- Merit-based fellowship for graduate studies** 2015-2017
Dept. of Architecture, Massachusetts Institute of Technology, Cambridge, MA, USA
- Exceptional Talents scholarship for graduate studies** 2013 - 2015
University of Tehran, Tehran, Iran

PATENTS

- Sole of a shoe, particularly an athletic shoe.** European Patent office EP3790423B1, Granted 2021

REFERENCES

- Achim Menges**, Director, Institute for Computational Design and Construction (ICD), University of Stuttgart
- Terry Knight**, Professor of Design and Computation, Department of Architecture, Massachusetts Institute of Technology, MA, USA
- Stefanie Mueller**, Associate Professor, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, MA, USA