

Ali Ghazvinian, Ph.D.

Curriculum Vitae – August 2023

Assistant Professor of Architecture - Advanced Building Technology aghazvin@ttu.edu
Huckabee College of Architecture - Texas Tech University – ARCH 610 +1 (618) 425 5170

Education

- Ph.D. in Architecture

Penn State University – 2018-2023

Thesis Title: Form – Matter – Performance; Mycelium-based Composites for Architecture – **Awardee of Alumni Association Dissertation Award**

Thesis Advisor: Benay Gürsoy

- M.S. of Architecture (Architectural Technology – Bionics)

University of Tehran – 2015-2018

Thesis Title: Form variety assessment in high-rise buildings regarding the governing lateral load

Thesis Advisors: Mahmoud Golabchi, Matin Alaghmandan

- B.S. of Civil Engineering

University of Tehran – 2010-2015

- Certificate of Product Management

ProductHQ Online Certification – 2022

Capstone Project: MyBuddy App

Awards, Grants, and Honors

- **The Pennsylvania State University Alumni Association Dissertation Award** | 2023
- **The College of Arts and Architecture Sustainability Graduate Student Award** | 2023
- **SOM Foundation Research Prize** | Co-Principal Investigator | 2022

MycoKnit: Cultivating Mycelium-based Composites on Knitted Textiles for Large-Scale Biodegradable Architectural Structures

With: F. Davis, B. Gursoy, A. West, J. Pecchia & F. Oghazian

- **AIA Upjohn Research Initiative** | Collaborator | 2022

Fungal Biomaterials for Sustainable Architectural Acoustics

With: B. Gursoy, J. Pecchia, Dr. N. Brown, N. Walter, & A. Mohseni

- **Stuckeman School DEI Fellowship** | Diversity, Equity, and Inclusion Fellow | 2022

Stuckeman School at Penn State University DEI Fellow for 2022

- **A&A Sustainability Teaching Fellow** | College of Arts and Architecture Sustainability Teaching Fellow | 2022
- **Department of Architecture Service Award** | Department of Architecture Student Service Award | 2022
- **AIA Upjohn Research Initiative** | Co-Principal Investigator | 2021

From Waste to Biodegradable Structures with Local Fungal Species

With: B. Gursoy, J. Pecchia, A. Mohseni & N. Walter

- **E4C Fellowship** | Research Fellow – Habitat Sector | 2021
- **Pohland Fellowship** | Primary Investigator | 2021

Design and Fabrication of Large-Scale Architectural Prototypes with Mycelium-based Composites: A Biodegradable and Structural Alternative for Temporary Constructions

- **IEE at Penn State Seed Grant** | Ph.D. Student Collaborator | 2020

Mycelium-based bio-composites in architecture: A biodegradable and renewable alternative to construction

With: B. Gursoy, F. Rajabipour & J. Pecchia

- **SCDC Interdisciplinary Faculty Research Grant** | Ph.D. Student Collaborator | 2019

Mycelium-based bio-composites in architecture: A biodegradable and renewable alternative to construction

With: B. Gursoy, F. Rajabipour & J. Pecchia

- **Collaborative Design Research Center at Penn State Grant** | Ph.D. Student Collaborator | 2019

Designing for shape-change: Smart and bio-smart materials in architectural skins and structures

With: B. Gursoy, J. Duarte, C. Randall, C. Bull, M. Demirel & E. Vazquez

Publication

- **Journal Paper**

Ghazvinian A., Khalilbeigi A., Motaghi E. & Gursoy B. | The Design and Fabrication of MycoCreate: Spatial Structures Built with Load-Bearing Mycelium-Based Components | Journal of IASS | 2022

Ghazvinian A. & Gursoy B. | Basics of Building with Mycelium-Based Bio-Composites: A Review of Built Projects and Related Material Research | Journal of Green Building | 2022

Ghazvinian A. & Gursoy B. | Mycelium-based Composite Graded Materials: Assessing the Effects of Time and Substrate Mixture on Mechanical Properties | Biomimetics | 2022

Modanloo B., **Ghazvinian A.**, Matini M. & Andaroodi E. | Tilted Arch; Implementation of Additive Manufacturing and Bio-welding of Mycelium-based Composites | Biomimetics | 2021

- **Book Chapter**

Ghazvinian A. & Gursoy B. | Challenges and Advantages of Building with Mycelium-Based Composites: A Review of Growth Factors that Affect the Material Properties | Fungal Biopolymers and Biocomposites, Prospects and Avenues | 2022

- **Conference Proceeding**

Ghazvinian A., Khalilbeigi A., Motaghi E. & Gursoy B. | A Computational Framework for the Design and Fabrication of Spatial Structures with Mycelium-based Composites | IASS 2020-21 | Surrey, Wales, UK

Khalilbeigi A., Motaghi E., **Ghazvinian A.** & Kalantari S. | Con-Create; A geometrical approach to mitigate the use of high-tech machinery in irregular concrete structures | ACADIA 2020 | Virtual

Motaghi E., Khalilbeigi A., **Ghazvinian A.**, Salimzadeh S. & Azari K.T. | Low-tech geometry-based node design for spatial structures | ASA 2020 | Auckland, New Zealand

Ghazvinian A., Farrokhsiar P., Vieira F., Pecchia J.A. & Gursoy B. | Mycelium-based bio-composites for architecture: Assessing the effect of cultivation parameters on compressive strength | eCAADe/SIGraDi 2019 | Porto, Portugal

- **Symposia**

Ghazvinian A. | A sustainable alternative to architectural materials: Mycelium-based bio-composites | Divergence in Architectural Research Symposium 2020 | Atlanta, GA

- **Poster**

Ghazvinian A. | Conversion of mycelium-based bio-composites to the architectural context; How to eliminate construction waste | AEI Conference 2021 | Denver, CO

Ghazvinian A., Farrokhsiar P. & Gursoy B. | Mycelium-based bio-composites in architecture | Community Bio Summit 3.0 | Cambridge, MA

Teaching Experience

Instructor | Technology 1 – Matter | ARCH2351 | Texas Tech University | 2023

Instructor | Contemporary Issues in Architecture; What's the Matter? | ARCH3314 | Texas Tech University | 2023

Instructor | Architectural Structural Systems | AE422 | Penn State University | 2023

Instructor | Design Research Studio | ARCH431, ARCH536 | Penn State University | 2022

Instructor | Computational Design Workshop | DIGITALFUTURES One Planet 2022 | 2022

Teaching Assistant | Design Research Studio | ARCH431, ARCH536 | Penn State University | 2021

Instructor | Architectural Design Analysis | ARCH441, ARCH442 | Penn State University | 2019-21

Teaching Assistant | Basic Design and Research | ARCH 130 | Penn State University | 2020

Teaching Assistant | Visual Communications II | ARCH122 | Penn State University | 2019

Teaching Assistant | Introductory Structural Systems | University of Tehran | 2014-18

Teaching Assistant | Concrete Structures for Architecture | University of Tehran | 2016-18

Teaching Assistant | Interdisciplinary Studio for Architectural Engineering | University of Tehran | 2018

Teaching Assistant | Interdisciplinary Studio for Architectural Engineering | Pars University | 2018

Tutor | Digital Technologies (Software and Fabrication) | University of Tehran | 2018

Work Experience

- **E4C Research Fellow** | Engineering for Change, LLC

Project: Engineering Design Recommendations for Resilient Housing: A Case Study of Dar-Es-Salaam in East Africa | 2021

- **Research Assistant** | Penn State University

Project: MBC in Architecture (at forMat lab, Stuckeman Center for Design Computation) | 2018-2023

- **Project Coordinator** | Vraa Pajoohan Pooya

Project: Development of Water Resources Education | 2018

- **Project Coordinator** | Saba Engineering Events Association

Project: Tehran Biennale 2016 | 2016

Invited Lectures

Learning from Uncertainty in Making | Tarbiat Moddares University | 04-14-23
Lessons from a Directed Research Studio | with: Benay Gursoy, Felecia Davis, and Farzaneh Oghazain | Machine Knit Community | 03-23-2023
Teaching un-CERTAIN-ty | Sustainability Teaching Roundtable Series at A&A Sustainability at Penn State University | 11-01-2022
Mycelium-based Structures | School of Fine Arts University of Tehran | 05-07-2022
Mycoknit; Mycelium and Knitted Textile Interrelation | ARCINTEX Network | 04-07-2022
Research, Design, and Fabrication with Mycelium-based Composites | College of Architecture and Construction Management at Kennesaw State University | 03-02-2022
Mycelium: Biodegradable Structural Agents | School of Architecture at Portland State University | 02-03-2022
Mycelium-based Composites as an Alternative Construction Material | Microbiome Center at Penn State University | 09-03-2021
Mycelium Structures 101 | Mycology for Architecture at Hub for Biotechnology in the Built Environment (HBBE) | 08-19-2021

Peer Review Contribution

Journal of Architectural Engineering | ASCE | Reviewer | 2023
Scientific Reports | Nature | Reviewer | 2022
Cellulose | Nature | Reviewer | 2022
Journal of Green Building | College Publishing | Reviewer | 2021-22
Clean Technologies | Multidisciplinary Digital Publishing Institute (MDPI) | Reviewer | 2022
Processes | Multidisciplinary Digital Publishing Institute (MDPI) | Reviewer | 2022
Sustainability | Multidisciplinary Digital Publishing Institute (MDPI) | Reviewer | 2022
Circular Economy and Sustainability | Springer Nature | Reviewer | 2021
Biomimetics | Multidisciplinary Digital Publishing Institute (MDPI) | Reviewer | 2021

Service

Search Committee for the Stuckeman School Director | Member | Penn State University | 2022-23
Graduate Affairs Committee | Student Rep | Penn State University | 2021-23
Graduate Research and Innovative Design | Secretary | Penn State University | <https://sites.psu.edu/grid> | 2021-22
Graduate Research and Innovative Design | President | Penn State University | <https://sites.psu.edu/grid> | 2020-21
Iranian Student Association | Secretary | Penn State University | <https://sites.psu.edu/isapsu> | 2020-21
Iranian Student Association | Vice President | Penn State University | <https://sites.psu.edu/isapsu> | 2019-20
Center of Excellence in Architectural Technologies | Member | University of Tehran | <https://ceat.ut.ac.ir> | 2015-18
Scientific Association of Civil Engineering Students | Vice President | University of Tehran | 2012-15

Media Coverage

- Distinguished Doctoral Scholar at Penn State University
[Link to PSU News](#)
- forMat Lab MycoTeam Interview
[Link to YouTube 1](#), [Link to YouTube 2](#)
- Alumni Association Dissertation Award
[Link to PSU News 1](#), [Link to PSU News 2](#)
- SOM Foundation Research Prize (2022)
[Link to New York Times](#), [Link to SOM](#), [Link to PSU News](#), [Link to UrbanNext](#), [Link to e-flux](#)
- The Biomaterial Building Expo at UVA
[Link to PSU News](#), [Link to Archinect](#)
- The AIA Upjohn Research Initiative (2022)
[Link to PSU News](#), [Link to Archinect](#)
- The AIA Upjohn Research Initiative (2021)
[Link to AIA](#), [Link to PSU News](#)
- The E4C Fellowship
[Link to PSU News \(Fellowship\)](#), [Link to PSU News \(ASME Award\)](#)
- Research and Teaching at forMat lab
[Link to the Growing Impact Podcast](#), [Link to Stuckeman News](#)
- ACADIA 2020 Featuring our Work.
[Link to Archpaper](#)