# Mostafa Akbari

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For worksamples please visit the website : https://www.mostafaakbari.net

## Education

**2019-Now** — **University of Pennsylvania** — PA , USA
PhD in Architeture - Computational Design and Advanced Manufacturing
**Winner of full merit-based scholarship based on excellence qualifications**

**2017-2018** — **University of Pennsylvania** — PA , USA
Master of Advanced Architectural Design - Computational Design Concentration
MSD - AAD — G.P.A. 3.9/4
**Winner of the highest Merit-based scholarship based on excellent qualifications**

**2013 - 2016** — **Shahid Beheshti University (SBU)** — Tehran , Iran
Master of Architecture (Graduated with honors) — M. Arch — G.P.A. 3.9/4
Thesis : Marine Passenger Terminal Design based on optimization of qualititative aspect of circulation utilizing pedestrian simulation

**2008 - 2013** — **University of Tehran** — Tehran , Iran
Bachelor of Architecture (Graduated with honors) — B. Arch — G.P.A. 3.9/4

## Academic Experience

**2018 - Now** — **Research Assistant - PSL Lab** — University of Pennsylvania
Computational form finding and structural design utilizing Graphic Statics, Developing novel, efficient algorithmic tools for structual shell designs with complex morphologies
(UPENN, Prof. Masoud Akbarzadeh)

**2018 - Now** — **Part time Lecturer , Material Formation, Teaching Assistant**
Robotic Clay Printing and Shells Topology optimization based on structural analysis -Teaching Assistant
(UPENN, Prof. Robert Stuart Smith)

**2018 - 2019** — **Part time Lecturer , Advanced Robotic Fabrication in Architecture, Teaching Assistant** — Robotic Wire-cutting Detail and Micro Structure Design
(UPENN, Prof. Masoud Akbarzadeh)

**2018 - 2019** — **Part time Lecturer , Advanced Structural Design Studio, Teaching Assistant**
(UPENN, Prof. Masoud Akbarzadeh)

**2018** — **Research Assistant - IK Studio** — Autodesk Build Space
Working on a 3d Hologram Drawing codes which will be presented at CooperUnion - Interior Design proposal for an exhibition in MIT
(Prof. Simon Kim)

**2018** — **Graduate Assistant - Philip Ryan** — UPENN
Profesional Practice 2 - Graduate Design Program

**2018 - 2019** — **Graduate Assistant - Mike Avery** — UPENN
Laboratory Assistant - Maker Bot 3D printers Hardware & Software Specialist

**2017** — **Collaborating with Sigma Research Group** — UPENN
Cecil Balmond Research - Sigma 9 and its affect to developing mathematical geometries
(Prof. Cecil Balmond)

**2014 - 2015** — **Teaching Assistant - Architectural Design 3 and 4** — SBU
Bachelor's Program - Structural Design Studio
(Prof. H. Khoei)

## Publications

**2018 - Now** — Akbari M. , Akbarzadeh M. , Bolhasani M. ,2019. **Translating cellular polyhedral geometry to shellular minimal surface microstructure,** International Assosiation for Shell and Spacial Structures, IASS, Barcelona, Spain , work in progress

**2016** — Akbari M. , Safamanesh K. , Bahrami L. ,2016. **Optimization of Qualitative and Motional Aspects of Marine Passenger Terminal Based on Innovative Approach for Pedestrian Simulation** International Conference on Civil Engineering, Architecture and Cityscape, ICCACS, Istanbul, Turkey

**2016** — Akbari M., Bahrami L. ,2016. **Tehran's Garden and Impact of their Developement on the City,** International Conference on Modern Research in Civil Engineering, Architectural and Urban Development , Singapore

## Research Objectives and Research Experiences

I am interested in Structural form finding utilizing 3 dimensional Graphic Statics and specially focused on Shellular Minimal Surface Micro-structure Design. I am also interested and done research for many years in Digital Fabrication background, computational design and human-computer interaction. Developing pertinent design processes to achieve optimized outcomes through the use of advanced tools and technology is my other vision to design research. I have developed several projects using parametric tools for circulation optimization, innovative form finding ways, complex morphology generation, environmental analysis and fabrication ease. I aspired to collaborate with experts from varied disciplines of Bioengineering, Materialsciences, Structural engineering and Fabrication to develop a comprehensive understanding of Computational Design domain

Clay 3D printing via ABB robotic arm, Agent-based design and object-oriented programmig - Foam wire-cutting via ABB robotic arm, Complex morphology detail design - 3-Dimensional compression form finding to design a geometrical bridge structure - Simulating 3 dimentional fractal pattern in nature and space-filling curve - Continiues gyroid minimal surface design and fabrication via polyester resin - Design and fabrication of kinetic interactive sculpture - Emergent behavior research of paraffin and its interaction with water - Optimization of qualitative aspects of circulation system in a terminal utilizing pedestrian simulation - Analytical physical research model of Tehran, concentrating on public spaces - Studying a vector-based long-span structure in order to propose a novel language of structural design - Interactive experience in virtual reality simulating one of the Archigeram's projects

## Honors

2019 Winner of the full merit based scholarship of the university of pennsylvania school of design based on excellent qualifications - PhD in Architecture - Technology track

2017 Winner of the highest merit based scholarship of the university of pennsylvania school of design based on excellent qualifications

2017 Winner of Digital Design Competition in Digital Design workshop - MSDAAD -3rd Place

2013 National full scholarships for graduate studies
Shahid Beheshti University - Tehran - Iran

2013 Ranked 21 among more than 50 thousands applicants on the national university entrance exam for graduate study in architecture

2014 Honored as the best project in the Fashion Parametric Workshop by the juries (Hooman Talebi from Zaha Hadid Architects)
Held by International Institute for Strategic Studies in Iranian Architecture

2008 National full scholarships for undergraduate studies
University of Tehran - Tehran - Iran

## Workshops and Events

2018 Interactive Sound Electronics Workshop, Nicole Lhuillier, MIT , Media Lab, University of Pennsylvania

2018 Structural Efficiency, Philadelphia, PA - PSL Lab

2012 Domus Academy, Italy
Exhibition Design Workshop held at University of Tehran
Focused on Designing a proposal for Expo Milan 2015 based on innovative technologies and traditional customs

2013 The Architectural Association School of Architecture,England(AA)
AA visiting School - Tehran Global School
Computing the Anatomy of Tehran Concentrating on Public Spaces

2014 Parametric Fashion Design
In Collaboration with Institute for Advanced Architecture of Catalonia (Iaac)
(Honored as the best project)

2014 CRAFT Workshop
Computational Rethinking of Architecture and Fabrication Technologies
Designing and Fabricating a Pavilion in 1:1 Scale
Mathematical Minimal Surfaces (Gyroid) and Material Research

2015 Emergent Prototyping
In Collaboration with Institute for Advanced Architecture of Catalonia
Understanding Emergent Behavior in Material System
Proposing an Innovative way of 3d Printing in water Utilizing Paraffin

2016 Designing and Fabricating Kinetic-Interactive Sculpture for IUST (Iran University of Science and Technology) Utilizing Arduino kits
Interdisciplinary Event- In collaboration with Mechanical Engineering students

2014 Computational Design and Research(REASIGN) Conference held by Iranian Architectural Center - Tehran - Iran
Alternative Strategies in Architectural Design and Education

2014 Towards a New Material Culture Conference - Prof. Achim Menges held by AA Visiting School in Tehran - Iran
HygroSkin-Meteorosensitive Pavilion

2013 4th International Architectural Conference Held by 2A Magazine
New Standards in Today's Architecture
In collaboration with Academy of Fine Arts Vienna

2010 Novel Cladding Festival
12hrs workshop held at University of Tehran

## Professional Experience

2018 **Gensler** CA, USA
**Professional Architecture Summer Intern**
Designing,Digital rendering, Advanced 3d modeling, Building Information Modeling with Revit, Rhino and Sketch up
working on various large-scale projects such as Calimesa Senior Housing and Laguna Multifunctional Complex
Attending Evolo Competition as part of Internship program

2015 - 2017 **Intelligent Design Studio** Tehran , Iran
**Chief Architect, Computational Designer**
Designed and supervised execution of tight-budget dental office project within strict deadline that recently was published in Architecture and Construction magazine
Designing and supervising execution of an office which is under construction

2013 - 2014 **Diargah Consultant** Tehran , Iran
**Junior Architect/Parametric Design Architect**
Designing, Digital rendering, Advanced 3d modeling, Building Information Modeling and product designing

2002 - 2003 **Worked with U.N. Agencies such as UNESCO and WHO as a young registered member**

2002 - 2003 **Worked with Family Health Association of Iran**

2010 - 2015 **Volunteer Graphic designer at CRC.SBMU**
Cancer Research Center of Shahid Beheshti Medical Sciences University

## Competitions

2018 Evolo Idea Competition
2018 HOK Future Design Challenge
2014 The Gugenheim Helsinki Museum Design
2015 Kish Parkway and International Square Design
2015 Mirmiran Bionic Conceptual Design

## Sports

2008 **Table Tennis** (Professional)
The 2nd place team competition held at University of Tehran
**Squash**

## Languages

Persian (Native)
English (Fluent)
French (Intermediate)
Arabic (Intermediate)

## Digital Skills

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|---|---|
| Scripting | Python, Java, C, Grasshopper, Processing, Arduino |
| Robotics | ABB Robot Arm Clay Printing and Wire-cutting |
| Fabrication | 3D Print, CNC Milling, Vacum Machine, Waterjet and Lasercutting, Molding and Casting, Composites |
| 3D Modeling | Maya, Rhino, Revit, 3DMax, AutoCad, Sketch up |
| Presentation | Latex, Adobe Suite, Keyshot, Vray |
| Others | VR HTC Vive, Pedestrian Dynamics, Firefly, Marvelous Designer |

## References

**Masoud Akbarzadeh**
Assistant Professor of Architecture, Head of PSL lab UPENN
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**Robert Stuart Smith**
Assistant Professor of Architecture, Head of AML lab UPENN
Email: rssmith@design.upenn.edu Phone: +1 215-573-0327

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Full Professor of Architecture, Director of MSDAAD program UPENN
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