CURRICULUM VITAE · ACADEMIC

SEYED MOJTABA MOHAMMADI

Engineer, Architectural Designer & Researcher

Computational morphogenesis · Structure–form integration



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PROFILE

Engineer and architectural designer pursuing professional licensure as an architect, trained in civil engineering, bionic architectural technology, building engineering and architecture across Iran, Italy and the United States. My research explores computational morphogenesis through form-finding: rather than designing a shape and engineering it afterwards, I let forces, material behavior and growth rules generate the geometry — through digital simulation, active bending, topology optimization and differential growth, tested with physical models — so that structure and form emerge together. The work extends to biological fabrication and AI in architecture. Five semesters of university teaching in structures, CAD and design studio.

INTERESTS

Computational morphogenesis / Structure–form integration / Bionic & biomimetic design / Topology optimization / Form-finding / Generative systems / AI in architecture

01
EDUCATION

Master of Architecture (M.Arch) 2025 – 2028
Syracuse University, School of Architecture · Syracuse, NY, USA
Three-year professional degree, expected May 2028 · Graduate Teaching Assistant · Research Intern · Future Professoriate Program

M.Sc. Building and Architectural Engineering 2023 – present
Politecnico di Milano · Milan, Italy
GPA 27.53 / 30 (as of Dec 2024) · Coursework: Building Renovation Studio, Urban Design Studio, Building Physics, Workshop on Project Management

M.Sc. Bionic Architectural Technology 2017 – 2020
Pars University of Architecture and Art · Tehran, Iran
GPA 18.12 / 20 · Thesis: *Digital Simulation of Natural Morphogenesis Process in order to Integrate Structure and Form in a Bridge Design* · Supervisor Dr. Mohammadreza Matini · Advisor Dr. Morteza Rahbar

B.Sc. Civil Engineering 2011 – 2016
University of Science and Art · Yazd, Iran · GPA 16.16 / 20

02 RESEARCH

Research Intern Sep – Dec 2026
School of Architecture, Syracuse University · Faculty mentor: Prof. Junho Chun
Selected for the School's faculty-mentored research internship program; contributing to ongoing research through weekly mentor meetings.

M.Sc. Thesis Research — TOPO Bridge 2019 – 2020
Pars University of Architecture and Art · Dr. Mohammadreza Matini, Dr. Morteza Rahbar
Simulated natural morphogenesis with FEM-based topology optimization to integrate structure and form, applied to a 254 m pedestrian bridge linking Chitgar Lake and Chitgar Forest Park, Tehran.

Studio Research — Insect-Built Nest Structures Fall 2026
ARC 606 Graduate Design Studio, Syracuse University
Investigating insect-built nests as biological fabrication, with the insects themselves as builders; developing a living physical prototype rather than a digital simulation.

03 TEACHING

ARC 311 Structures II — Graduate Teaching Assistant Fall 2025, 2026
School of Architecture, Syracuse University · Instructor: Prof. Sinéad Mac Namara

- Lead recitation sections and weekly office hours for undergraduate architecture students.
- Grade assignments with shared rubrics; review exams for timing and clarity with the instructional team.
- Coordinate undergraduate peer assistants within assigned sections.

ARC 211 Structures I — Graduate Teaching Assistant Spring 2026
School of Architecture, Syracuse University · Instructor: Prof. Junho Chun

- Supported lectures and recitations; guided student teams through structural projects on framing, deflection and truss-bridge design.
- Graded project submissions and helped administer the final exam.

CEE 198 CAD Design and Modeling — Teaching Assistant Spring 2026
Civil & Environmental Engineering, Syracuse University · Instructor: Dr. Michael Ammoury

- Assisted instruction in AutoCAD-based drafting and modeling for undergraduate engineering students.

Bionic Design Studio (M.Sc.) — Teaching Assistant 2020 – 2021
Pars University of Architecture and Art, Tehran · Instructor: Dr. Mohammadreza Matini

- Assisted the graduate bionic architecture design studio over two semesters.

04 SELECTED PROJECTS

TOPO Bridge 2019
M.Sc. thesis · Chitgar Lake, Tehran · Dr. M. Matini, Dr. M. Rahbar
Pedestrian and cycling bridge whose organic structure is generated by topology optimization, as a digital analogue of natural morphogenesis.

ESTA — Aggregated Pedestrian Bridge 2018
Bionic Design Studio 03 · Norheim, Norway · Dr. M. Matini
Bridge assembled from loose, star-thistle-inspired interlocking modules, with thorn-inspired buttresses; tested in physical experiments and 3ds Max MassFX simulation.

VOXGROWTH — Differential-Growth Design 2021
Computational design workshop · Dr. M. Rahbar
Differential-growth algorithms generating coral-like forms for lighting and product design.

TSUNAWE — Tranquil Suspended Seaport 2017
Jacques Rougerie Foundation competition entry · Dr. M. Golabchi, Dr. K. Taghizadeh
Sea village suspended on magnetic levitation so that tsunami waves pass beneath it, powered by wave, tidal, wind and solar energy.

Iran Pavilion, Expo 2020 Dubai Concept
Bionic Design Studio 02 · Dr. M. Golabchi, Dr. K. Taghizadeh
Root- and bone-inspired porous structure proposed for large-format 3D printing in bamboo–PLA filament.

05 CERTIFICATES & TRAINING

IPMA Italy Introductory Certificate in Project Management Jun 2026
IPMA Italy (ANIMP) · Certificate No. 7932
Passed the IPMA Introductory certification exam; listed in the IPMA Italy official register, with no expiry.

Course of Project Management (ANIMP – IPMA) Jun 2026
Politecnico di Milano · Dr. Alice Paola Pomè
Four lessons and two project-work sessions on project management (3 CFU).

Certificate in University Teaching (CUT) In progress · 2027
Future Professoriate Program, Syracuse University · Mentor: Prof. Junho Chun
Four CUT pedagogy seminars completed; teaching portfolio and independent mentored teaching experience in progress.

Leadership Workshop 2023
Center for Leadership Development, Politecnico di Milano

06 WORKSHOPS & COURSES

2022 **Computational Form-Finding** · Dr. Morteza Rahbar
2021 **Voxgrowth 02 Winter School** · IUST International Academy & Shanghai Institute of Visual Arts
2021 **Philosophy of Technology and Design** · University of Twente (FutureLearn)
2020 **2nd Optimization Online Course** · Dr. Morteza Rahbar
2019 **Artificial Intelligence in Architecture** · Iran Architecture Center
2018 **Python Scripting** · Iran Architecture Center · Dr. Morteza Rahbar
2018 **Grasshopper Parametric Design** · Dr. Morteza Rahbar
2017 **Active-Bending Gridshell Workshop** · University of Tehran · Dr. M. Matini
2016 **Rhino 3D Modeling** · Tehran Institute of Technology
2015 **AutoCAD 2D Design** · Pars University
2015 **SAFE & ETABS Structural Analysis** · ACECR, Yazd

07 PROFESSIONAL EXPERIENCE

Construction Supervisor — Residential Buildings Yazd, Iran
Site supervision for the construction of three residential buildings.

3D Visualization — Freelance Iran
Independent 3D modeling and photorealistic rendering projects for a range of clients.

Secretary — Film & Photo Institute 2013 – 2015
Yazd University Film and Photo Institute · Yazd, Iran

08 SKILLS

Rhino		Climate Studio	
Grasshopper		Photoshop	
Revit		InDesign	
AutoCAD		Illustrator	

Scripting & analysis	Python / GhPython, Topos (topology optimization), ETABS, SAFE, Pathfinder, 3ds Max MassFX
AI in architecture	Claude (Anthropic) for research, writing, scripting and workflow automation; AI-assisted design exploration
Methods	Form-finding, topology optimization, differential growth and aggregation; physical modeling, prototyping and load testing
Photography	Advanced, independent practice — composition and post-production
Other	Lumion, Microsoft Office, project management (IPMA)

09 LANGUAGES

Persian	Native
English	Full professional proficiency · IELTS 7.5 (Feb 2023)
Italian	Elementary