

Mehrnaz Amouei

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PROFILE

Computational and industrial designer holding a Master of Design, focused on the design-to-fabrication process. I build parametric tools and geometry in Grasshopper and Rhino3D, write Python and JavaScript to generate, automate, and verify geometry, and translate design intent into computational logic that supports fabrication and documentation. Experienced with digital fabrication workflows, generative and interactive systems, and collaborating with end-users to refine UI/UX around tools. A systems thinker who offers reliable solutions to ambiguous problems and communicates computational ideas clearly to both technical and non-technical audiences.

SKILLS

- **Computational Design:** Grasshopper, Rhino3D, parametric and algorithmic geometry, parametric tool building, NURBS and mesh workflows, design-to-fabrication logic, systems thinking
- **Programming:** Python (incl. object-oriented programming), JavaScript, C#, Swift, Arduino, HTML/CSS; scripting to build and extend design tools; Git version control basics
- **Digital Fabrication:** Design-to-fabrication workflows, CAD/CAM, 3D printing, prototyping, geometry verification and machining review, tolerance-aware design
- **Creative Coding:** p5.js, p5Live, Processing, TouchDesigner, Hydra; generative, data-driven, and interactive systems; camera and sensor input; WebGL
- **3D & CAD:** Rhino, SolidWorks, Blender, 3ds Max, KeyShot; 3D interoperability across formats and paradigms
- **Collaboration & UI/UX:** End-user collaboration to optimize tool UI/UX; clear communication to technical and non-technical audiences; cross-functional work with engineering and research

COMPUTATIONAL & CREATIVE CODING PROJECTS

We Are All Numbers

Interactive Installation & Live-Coding Performance, 2024

- Built a projection-based generative installation and live-coding performance in which camera-based motion tracking, sensor input, and sound reshaped a code-generated world across multiple projected walls, exhibited at the UIC School of Design Coding + Form exhibition.
- Developed the camera-based capture and processing system that translated participants' bodies and movement into numeric and character-based visual forms, and contributed to the generative visual language and real-time interaction.
- Live-coded during performance, modifying variables for scale, density, rotation, color, repetition, and distortion so the environment responded in real time to movement, sound, and code changes.
- **Stack:** p5.js, p5Live, Hydra, Processing, TouchDesigner, camera motion tracking, sensor input, JavaScript

Parametric Grasshopper Systems

Design-to-Fabrication Form Development

- Shoe-sole form study: built a parametric sole in Grasshopper controlling length, width, arch height, heel-to-toe curvature, regional thickness, toe lift, cross-section transitions, and the scale and density of tread elements across pressure zones, treating the sole as a reusable system rather than a fixed sculpted object.
- POCO soft robotic companion: modeled a segmented parametric body of repeated surface plates whose spacing, curvature, and expansion/contraction created a breathing quality, letting me generate and compare many body variations from one definition.
- AGAR green-space tote and Reva Chair (fabricated and exhibited): drove repeated component systems and continuous geometry parametrically, then transferred selected directions into detailed CAD for structural resolution and fabrication into physical, assembled parts.
- **Stack:** Grasshopper, Rhino3D, parametric modeling, NURBS and mesh, CAD-to-fabrication

Generative & Automation Scripting

Python and JavaScript

- Wrote Python scripts in Rhino and Blender to generate geometry from numerical inputs, distribute and vary repeated components along curves and surfaces, batch-modify objects, and produce families of forms from one system, building reusable, tool-like automation rather than one-off models.
- Used JavaScript (p5.js, WebGL) for real-time animation, generative patterns, audio-responsive behavior, and camera-driven visuals; used Arduino to prototype touch-and-motion responses with capacitive sensors and servo motors.
- **Stack:** Python, JavaScript, C#, Arduino; Rhino and Blender scripting, WebGL

EXPERIENCE

Shieldwise

2026 – Present

Industrial Designer (Freelance), Chicago, IL

- Lead industrial design for an AI security startup across a multi-phase hardware contract from concept to production-ready design, using parametric CAD to explore and refine form toward fabrication and prototyping.
- **Tools:** Rhino, Grasshopper, SolidWorks, KeyShot, 3D printing

SO Dsgn LLC

Nov 2025 – Feb 2026

Product Designer, Chicago, IL

- Led product and mechanical design for consumer electronics, using parametric and procedural methods to explore form variations quickly and move designs toward production; reduced revision cycles by 40% through early cross-functional alignment.
- **Tools:** Rhino, Grasshopper, SolidWorks, KeyShot

Adobe

May 2026

Product Designer (Contract), Chicago, IL

- Developed early-stage concepts and geometry, integrating generative AI into ideation and exploration across fast sprint cycles.

UIC School of Design

Dec 2023 – Present

Adjunct Faculty, Chicago, IL

- Teach design, form, and computational fundamentals to 60+ students per semester, presenting technical concepts clearly and leading critique, the same knowledge-sharing the role calls for.

Insurance Navy Brokers

Jul 2025 – Nov 2025

Web & Digital Experience Designer, Chicago, IL

- Co-led a website redesign for a multilingual platform serving 45K+ monthly users, collaborating across marketing, development, and UX.

TheiaXR

May 2025 – Jul 2025

Product & Brand Designer (Remote)

- Created brand identity, visual system, and interface elements for a healthcare XR startup, translating concepts into a cohesive digital experience.

Sharif University of Technology

Mar 2021 – Mar 2022

Junior Industrial Designer (Nano/Bio Laboratory), Tehran, IR

- Produced technical geometry and documentation for lab equipment and medical devices, and used Python and Arduino for sensor integration and prototype data collection during device testing; reduced assembly errors by 18% through iterative prototyping.
- **Tools:** SolidWorks, Rhino, Python, Arduino

Vala Studio

Oct 2021 – Dec 2021

UI/UX Design Intern, Tehran, IR

- Designed UI and hardware for an NFC payment platform, lifting user satisfaction from 42% to 91% across three rounds of research-driven iteration.

EDUCATION

University of Illinois Chicago

2023 – 2025

Master of Design (MDes), Industrial Design, Chicago, IL

- Relevant coursework: Coding + Form (creative coding), Computational Design, Parametric Modeling, Human-Computer Interaction, Fabrication. Board of Trustees Fellowship and Larson Scholarship recipient.

Tehran University of Art

2018 – 2022

Bachelor of Arts, Industrial & Product Design, Tehran, IR

- Form and Space coursework included parametric shoe-sole study. Ranked 1st nationally in Master's Entry Exam; full scholarship across 4 years.

Portfolio with computational, parametric, and creative-coding work at mehrnazamouei.com.