POURIA VAKHSHOURI

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LinkedIn

» PORTFOLIO focusing on **ARCHITECTURE**, **CONSTRUCTION**, **ROBOTIC FABRICATION**, **ALGORITHMIC DESIGN**, and **DIGITAL MATERIALIZATION**

SKILLS

Visual Programming: Grasshopper

Programming: Python, C#

3D Modelling / Graphics / Analysis: Rhino3D, Unity, Fusion360, AutoCAD (2D&3D), Revit, KeyShot, Adobe Suite CC, CloudCompare

Industrial Robot Manufacturing: ABB RobotStudio, Robot ExMachina, Arduino, Robot I/O

Arts: Free-hand Sketching, Graphic Design, Product Design, Watercolor Painting, Drawing, Print Making

Languages: Persian (native), English (proficient), Arabic (advanced), German (beginner), Latin (beginner)

EDUCATION

University of Pennsylvania, Weitzman School of Design, Philadelphia, PA, MAY 2023
Master of Science in Design: Robotics and Autonomous Systems
Courses: Robotic and Design Labs, Robotic Programming, Experimental Tooling, Material Computation, Scientific Reading & Writing.
- Conducted, Documented, and Catalogued Robotic Experiments with ABB IRB 4600-60 and ABB IRB 120-5
  6-axis Industrial Robot Arms.
- Designed and Made Robot's End-of-Arm Tools.
- Made Large-Scale Robotically Fabricated Prototypes of Multiple Materials including EPS Foam, Carbon Fiber, and Clay.
- Designed and Made Robotic Tooling, and Pick-and-Place Experiments.
- Worked with Intel RealSense Depth Camera 435i, HTC Vive Virtual Reality System, and Unity Game Engine for Online and Real-time
  Robotic Design and Fabrication.
- Worked with Arduino Controllers, Sensors, and Actuators.
- Literature Reviewed Scientific Papers about Robotic Fabrication and Computational Design.

Azad University, Tehran, Iran, SEP 2016
Master of Architecture (M.Arch)
Thesis and Final Project: *"Chitgar's Interactive/Responsive Recreation Center"*

Azad University, Tehran, Iran, JUL 2011
Bachelor of Architecture (B.Arch)

RESEARCH EXPERIENCE

Material Agencies Robotic and Design Lab, University of Pennsylvania, Philadelphia, PA, JAN 2023 - MAY 2023
Research paper *"Ceramic Forest: Robotic Die-Extrusion Variable Forming for Architectural Ceramics"* Accepted in a Highly Selective Peer
Review for the 42nd ACADIA (Association for Computer-Aided Design in Architecture) Conference 2023, the Most Prestigious Conference
of the Field, by:
- *Literature Reviewing of Over 40 Scientific Papers about Robotic Fabrication, Robot's End-of-Arm Tool Design,*
  Mass-Customization, Mixed Reality, Digital Twin, and Real-time Control.
- *Conducting, Documenting, and Cataloguing Robotic Experiments with ABB IRB 4600-60 and 120-5 6-axis Robot Arms.*
- *Making and Assembling Large-Scale Robotically Fabricated Prototypes with the Help of Mixed-Reality Interface.*

WORK EXPERIENCE

University of Pennsylvania, Autonomous Manufacturing Lab + Polyhedral Structural Lab, Philadelphia, PA, SEP 2023 - NOW
field: Architectural Design Research + Structural Design Research + Robotic Fabrication, position: Design Researcher
description: Research and Design Development, Robotic Fabrication, and Research Documentation on Futuristic and Innovative Projects of AML + PSL. Designing and Conducting Robotic Experiments with ABB IRB 6640 for Concrete 3D-Printing, and ABB IRB 4600 for Hot-Wire Cutting.

Bood Design Bureau, Tehran, Iran, APR 2022 - AUG 2022
field: Architectural Design and Construction, position: Junior Architectural Designer
description: Architectural Feasibility Study, Concept Design, Design Development, Construction Documentation, Construction Administration, and Site Supervision for Residential and Interior Projects Mostly Constructed.

Spilat Construction Company, Tehran, Iran, JUN 2019 - JUL 2020
field: Construction, position: CAD Technician
description: Construction Documentation, Construction Administration, and Clients/Consultants Liaison for the Access Roads of IranMall Considered the Biggest Constructed Project in the Middle East.

V-SENSE Research Group, Trinity College Dublin, School of Computer Science, Dublin, Ireland, FEB 2019 - SEP 2019
field: Applied AI Research, position: Research Assistant
description: Conducting and Managing a Team of 15 Members for Labeling 260 Million Points Captured by LiDAR to Train and Verify Supervised Machine Learning Algorithms for "DublinCity" Research Project. It is still the biggest and densest source of Labeled LiDAR-captured pointclouds. Its associated Paper was presented at the esteemed 30th British Machine Vision conference and published in its proceedings.

DayaStudio Architecture and Design Office, Tehran, Iran, NOV 2013 - JAN 2016
field: Architectural Design and Construction, position: Junior Architectural Designer
description: Architectural Feasibility Study, Concept Design, Design Development, Construction Documentation, Site Supervision, and Clients/Consultants Liaison for a Diverse Range of Residentials, Interiors, and Office Projects Mostly Constructed and Awarded in Iran's Architecture Design Competitions.

ADDITIONAL TRAINING

Reinforcement Learning Workshop, P. Danahy: Instructor, MAR 2023

41st ACADIA Annual Conference 2022, OCT 2022

Geometric Structural Design Workshop, *"Hyperpoly: 3D Graphic Statics and Structural Form Finding"*,
M. Rahbar, H. Behmanesh: Instructors, MAY 2020 - JUN 2020

AI, Machine Learning, and Deep Learning Workshop, M. Rahbar: Instructor, OCT 2018 - MAY 2019

Computational Design and Digital Materialization Workshop, *"Random Symbiosis: Responsive Architecture"*,
M. Kiani: Instructor, FEB 2016 - JUN 2016

Design and Construct Workshop, M. Hadighi: Instructor, JUL 2014

HONORS / AWARDS

ACADIA Scholarship Award, Denver, CO, 2023

2nd Place in Residential Buildings, 2A Architecture Awards for Asia and Europe, Iran, 2022

2nd Place in Residential Buildings, 2A Architecture Awards for Asia and Europe, Iran, 2018

1st Place in Public Buildings, 7th Iran's Interior Design Awards, Iran, 2014

PUBLICATIONS

Proceedings of 42nd ACADIA Annual Conference 2023, Denver, Colorado, *Ceramic Forest* Research Project (In Press), 2023

"Architecture and Art Magazine" #49, Tehran, Iran, *White Cubes* Architectural Project, 2023

Proceedings of 30th British Machine Vision Conference, Cardiff, UK, *DublinCity* Research Project, 2019

"Architecture and Art Magazine" #23, Tehran, Iran, *Bitaa* Architectural Project, 2018

"Architecture and Construction Magazine" #40, Tehran, Iran, *Baa Ejaazeh* Architectural Project, 2014