# SAMIRA ZARE

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## *Education:*

**University of California, Santa Cruz** - Santa Cruz, California          *January 2016 – June 2023*
  Ph.D. in Computer Engineering

**Islamic Azad University of Karaj** - Karaj, Alborz          *2010 - September 2014*
  Bachelor of Computer Engineering

### *Related Coursework:*

- Python Programming
- Artificial Intelligence
- Machine Learning
- Feedback Control
- Algorithms
- Data Visualization
- Data Structure
- Bio-inspired Robotics
- Robotic Manipulation

## *Experience:*

**SIP Mentorship and Research Assistant in Smart Origami Robot** - UC Santa Cruz     July *17 – September 2023*
*Research Assistant and SIP Mentorship*
- Designed and developed 3D printed Self-lock origami with bi-directional movement and adaptability, and achieved about 295 degrees rotation and higher moment compared to hinged joint with pouch motor actuators
- Designed and Developed manipulators as the application and a pneumatic system to control the actuation
- Designed, Developed, and Simulated the Four-vertex origami using the Spherical mechanism system and Achieved about 8.4 times rotation while obtaining the flat-foldability property compared to hinged joints

**Research Intern in Integrating Federated Learning with Rehabilitation** - TieSet     *June 20 – September 2020*
*Research Intern*
- Designed and integrated Federated Learning framework with Rehabilitation framework
- Applied Reinforcement Learning algorithms to the rehabilitation devices
- Wrote a patent and achieved 98% success rate on the performance of rehabilitation devices

**Teaching Assistant for Applied Machine Learning, Python, Discrete Math, Probability, and Personal Computer Concepts Classes**- UC Santa Cruz          *January 16 – December 2022*
*Teaching Assistant*
- Graded and reviewed the work of over 400 students every week.
- Made the solutions for class assignments
- Tutored students for homework and quizzes.

**Research Assistant in Detecting Fraudulent Yelp Reviews** - UC Santa Cruz          *September 16 – April 2018*
*Research Assistant*
- Wrote and applied a Spike detection algorithm on the Reviews in Python.
- Cleaned and analyzed the data with Data Visualization algorithm and Pandas
- Integrated the algorithm with NLP algorithms to achieve 12% higher detection accuracy

## *Publications:*

- Zare, S., Spaeth, A., Suresh, S. and Teodorescu, M., 2023. Three-dimensionally printed self-lock origami: Design, fabrication, and simulation to improve performance of rotational joint. *Micromachines*, *14*(8), p.1649.
- Zare, S., Spaeth, A., Suresh, S. and Teodorescu, M., 2023. Modular self-lock origami: Design, modeling, and simulation to improve the performance of a rotational joint. *Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics*, p.14644193231216263.
- Zare, S. and Teodorescu, M., 2021. Design and analysis of plate angles of the four-vertex origami pattern and its impacts on movement of rotational joints. Smart Materials and Structures, 30(9), p.095012.
- Zare, S., 2023. *Design, Modeling, Simulation, and Fabrication of Origami to Improve Rotational Joint's Performance* (Doctoral dissertation, UC Santa Cruz).
- Trinh, V., More, V., Zare, S. and Homayon, S., 2020. Quarantine Deceiving Yelp's Users by Detecting Unreliable Rating Reviews. *arXiv preprint arXiv:2004.09721.*

## *Skills:*

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| **Programming languages**: | Python, C or C++, HTML, Assembly |
| **Software:** | PyCharm, Autodesk Inventor, PyTorch, Scikit-learn, MATLAB, Jupyter, Pandas, NumPy |
| **OS**: | MAC, Windows commands, Linux, Git |
| **Hardware:** | Arduino, 3D Printer, PCB Boards, Pneumatic Systems, OptiTrack, Pressure Sensors, Solder |