MARYAM TEBYANI

Passionate Researcher & Robotics Enthusiast

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PROFESSIONAL EXPERIENCE

Robotics Intern

NASA Jet Propulsion Laboratories

June 2018 – August 2018 Pasadena, CA

- Developed flight-like control software for a 5DOF robotic rover arm to demonstrate Cartesian movements and object visualization/ manipulation.
- Continued development of an autonomous vision algorithm using eye-in-hand pose detection of an April Tag, evaluated algorithm performance on a 6DOF robotic arm.

Undergraduate Researcher

DANSER Lab @ University of California, Santa Cruz

Dec 2014 – June 2018 Santa Cruz, CA

- Characterized materials used for robotic applications, ranging from adhesive polymers to compliant meta-materials.
- Simulated models quasi-statically using finite element method. Experimentally validated simulations with a system of linear stages, loadcells and photoelectric laser sensors.

Attitude Control Systems Intern

NASA Goddard Space Flight Center

June 2017 – August 2017 Greenbelt, MD

- Improved the fidelity and stability of a physics-based simulation of the Attitude Control System (ACS) for the PACE satellite.
- Compiled a mission wide Coordinate System Document for the RESTORE-L project, with a team interns.
- Examined the performance and transient response of the ACS for the Lunar IceCube; presented results at the mission-wide Critical Design Review.

Mechanical Systems Intern

NASA Jet Propulsion Laboratories

June 2016 – August 2016 Pasadena, CA

- Developed test beds to investigate cutting technologies for icy worlds exploration. Included integrating embedded software for sensor data acquisition and updating hardware components (motors, hermetic seals).
- Evaluated commercial-off-the-shelf thermal and visual imaging instrument performance under cryogenic vacuum for use in future test beds.

Academic Tutor

University of California, Santa Cruz

Sept – June 2016, Jan – March 2018 Santa Cruz, CA

- Tutored in small group sessions, private office hours and individuals in a large computer lab setting for Robot Automation, Solid Mechanics, Computer Systems & Assembly Language courses, respectively.

PUBLICATIONS

- Cramer N., Tebyani M., Stone K., Cellucci D., Cheung K.C., Swei S. and Teodorescu M. “Design and Testing of FERVOR: FlexiblE and Reconfigurable Voxel-based Robot”. 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2017), September 24-28, Vancouver, Canada

FAVORITE PROJECTS

Normal Modes of Digital Cellular Solids - Computational Physics Final
Used finite difference approximation to estimate the Hessian of the potential of a 2D lattice.

Fully Autonomous Bot - Mechatronics Final
Created and integrated electrical, mechanical, and software subsystems. Developed robust embedded software, prototyped analog filters, and iteratively modeled the mechanical body.

Into The Closet - HACK UCSC
Developed an autonomous background subtraction algorithm using RGB values and k-means clustering.

Caterpillar Inspired Robot - Bio-Inspired Locomotion Final
Designed a locomotive robot by combining rigid and visco-elastic materials. Modeled using finite element method to replicate pneumatic actuation.

STRENGTHS

Mechatronics | Algorithms | OpenCV | Numerical Methods | Rapid Prototyping

LANGUAGES

C
Matlab
Python
LabView
Java
C++
Assembly

EDUCATION

PhD in Computer Engineering

University of California, Santa Cruz

Jan 2019 – TBD

B.S. in Robotics Engineering

University of California, Santa Cruz

Sept 2014 – Dec 2018