NEELI TUMMALA

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EDUCATION

University of California, Santa Barbara — Jun. 2020 - 2023 (Expected)
Ph.D. Electrical and Computer Engineering
Advisor: Prof. Yon Visell

University of California, Santa Barbara — Sep. 2018 – Jun. 2020
M.S. Electrical and Computer Engineering, GPA: 4.0/4.0

University of California, Berkeley — Aug. 2014 – May 2018
B.S. Electrical Engineering and Computer Science, GPA: 3.4/4.0

RESEARCH EXPERIENCE

UC Santa Barbara: ReTouch Lab — Jan. 2020 – Present
Graduate Research Assistant, Advisor: Prof. Yon Visell

- Investigating wave-mediated haptic technologies and computational tactile sensory encoding using neural simulations and high-resolution scanning laser vibrometry.
- Adapting computational results to design breakthrough haptic technologies for VR, robotics and prosthetics, and new biomedical devices.

UC San Francisco Department of Surgery: Wang Lab — Aug. 2017 – May 2018
Undergraduate Research Assistant, Advisor: Dr. Rong Wang

- Investigated effects of genetic modifications and potential treatments on brain arteriovenous malformations (BAVMs) in mice through two-photon, brightfield, and fluorescence microscopy.

MIT Lincoln Laboratory: Communication Systems Division — Jun. 2017 – Aug. 2017
Tactical Networks Intern, Advisor: Dr. Brian Proulx

- Improved C++ packet level simulator for MIMO communication system by adding routing, delay characterization, and automatic re-transmission and analyzed system performance via MATLAB visualization.

Naval Postgraduate School: Small Satellites Laboratory — Jun. 2016 – Aug. 2016
Engineering Research Intern, Advisor: James Horning

- Headed a multi-disciplinary team on a guided high altitude balloon research project.
- Programmed a Raspberry Pi in Python to function as the main flight computer and perform autonomous tasks as well as receive commands through radio communication.

Naval Research Laboratory: Marine Meteorology Division — May 2015 – July 2015
Computer Science Research Intern, Advisors: Dr. Juli Rubin and Dr. Peng Xian

- Improved and restructured the Naval Aerosol Analysis and Prediction System (NAAPS) and developed analysis tools for system outputs using Fortran and Python.

PROFESSIONAL EXPERIENCE

FLIR Systems — Jun. 2019 – Dec. 2019

Image/Video Signal Processing and Algorithms Intern

- Developed algorithms for future products, analyzed various denoising algorithms for thermal cameras, and evaluated signal processing issues in current camera builds.

TEACHING EXPERIENCE

University of California, Santa Barbara – Graduate Teaching Assistant

- Feedback Control Systems: Theory and Design — Fall 2018, Fall 2019, Fall 2020
- Digital Control — Winter 2019. Winter 2020
- Signal Analysis and Processing — Spring 2019, Spring 2020

ACADEMIC PROJECTS

Don't Drop the Scalpel – dontdropthescalpel.wordpress.com — Jan. 2018 – May 2018

- Detected object slippage in a grasp, dynamically adjusted the grip force while minimizing object deformation, and classified the rigidity of objects using an underactuated Reflex Takktile hand mounted on a Baxter robot.

Doctor Sawyer – doctorsawyer.wordpress.com — Aug. 2017 – Dec. 2017

- Programmed a 7-DOF Sawyer robot arm and microcontroller with a team to perform basic medical diagnostic tasks: pulse detection, temperature measurement, and elementary tumor detection using force sensing.

El Animal: Racing Car Robot — Jan. 2017 – May 2017

- Constructed circuits and created PCB schematics for motor control, Bluetooth and debugging capabilities, CPU and sensor interaction, and vehicle power.
- Developed and implemented algorithms for line following and control strategies for steering.
- Participated and successfully completed the track in the UC Davis NATCAR 2017 Race.

HONORS & ACTIVITIES

UC Santa Barbara Outstanding ECE Teaching Assistant Award — Jun. 2019, Jun. 2020

UC Berkeley Regents and Chancellors Scholar — Aug. 2014 – May 2018

Institute of Electrical and Electronics Engineers (IEEE), UC Berkeley Branch

- President — Sep. 2017 – May 2018
- Industrial Relations Director — Sep. 2016 – May 2017
- Industrial Relations Officer — Jan. 2015 – May 2016

Volunteer – Hearts Therapeutic Equestrian Center — Mar. 2019 – Present

TECHNICAL SKILLS

Programming Languages: Python, MATLAB, C/C++, Java, Fortran

Tools and Open Source Libraries: Git, LaTeX, Simulink, ROS