Amlesh Sivanantham

3025 Royal Street, Los Angeles, CA 90007
samlesh@gmail.com • sivanant@usc.edu • (408) 219-6474 • zamlz

Skills

Languages: Python, C, C++, LaTeX, Bash, Zsh, Javascript, HTML

Libraries: TensorFlow, NumPy, OpenCV

Technologies: Linux, Unix, Git, Scrum, Vim

Education

University of Southern California — August 2017 - Present

Computer Science: Intelligent Robotics M.S.

University of California, Santa Cruz — September 2013 - June 2017

Computer Engineering B.S.
Computer Science B.S.

Experience

Graduate Research Assistant — September 2017 - Present

University of Southern California - Robotic Embedded Systems Laboratory

Perform graduate research in Deep Reinforcement Learning and it's application to Robotics. Work under a PhD student on a project.

Undergraduate Research Assistant — September 2016 - June 2017

University of California, Santa Cruz - Jack Baskin School of Engineering

Performed undergraduate research in Machine Learning and Deep Learning for the S.E.A.D.S. project to study ways to analyze time-series data.

Class Grader — April 2017 - June 2017

University of California, Santa Cruz - Jack Baskin School of Engineering

Graded homework for Computational Models (CMPS 130) and Analysis of Algorithms (CMPS 102).

Projects

Quadcopter Reinforcement Learning Agent - (*USC Robotics Embedded Systems Laboratory*) - Working on building an Reinforcement Learning agent that is capable of navigating quickly through a cluttered environment. Train the agent in simulation, and transfer the learnt policy to a real-world quadcopter. *IN PROGRESS*

Anomaly Detection in Time Series Data - (*Undergraduate Senior Thesis*) - Researched Deep Learning and implemented a long short-term memory network that identifies if a given time-series sequence of a particular time series system is anomalous or not. The dataset that I worked with was provided by my faculty advisor which corresponds to the energy usage of an electric meter on the circuit that provides power to the water pump. After training, the network was able to identify anomalies with an accuracy of 90%.

Who's Lazy? Not Eye - (*Hack UCSC 2017*) - A vision therapy program for people with lazy eye using a standard webcam. The app uses the webcam to constantly analyze the user's eyes and notifies them when their eyes drift away. Particularly, the client can pause any media application that the user has playing in the background and will only let them resume their application once they have focused their eyes. I worked on the algorithm that located the position of the pupils using machine learning and identified whether the pupils correlated with lazy eyes or not based on that position.

Othello (Reversi) for the PSoC 5LP - (*Final Project for the Microcontroller Syste Design Class*) - Implemented Othello using C and the Cypress API for the Othello PSoC 5LP. It was built using all the different concepts learned in class. Refer to the report in the documentation directory in the repository for more details.

HummusLite - (*Personal Project on Logic Design*) - A simple project I worked on over Summer of 2016. Goal was to build a simple CPU in Minecraft. The CPU supports 16 instructions and has a program data size of 256 bytes. Each instruction is a byte. Programming for the CPU requires using a punch board system that was also built from scratch in Minecraft.

Research Interests and Hobbies

I am interested in Artificial Intelligence and Robotics. Particularly, I want to focus on the field of Deep Learning and its application to cyberphysical and social problems. I am also very interested in Deep Reinforcement Learning such as AlphaGo. My other hobbies include a variety of things such as researching about Linux, Physics and Astronomy. I also practice the Violin and can solve a variety of different rubik's cubes.