Ashwin Balakrishna

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EDUCATION

UC BERKELEY
Aug 2018 - Present | Berkeley, CA
PhD in Electrical Engineering and Computer Science
Focus in AI / Robotics: Reinforcement and Imitation Learning | GPA: 4.0/4.0

CALTECH
BS in Electrical Engineering
Sep 2014 - Jun 2018 | Pasadena, CA
GPA: 3.9 / 4.0

SKILLS

PROGRAMMING
Python / R
C / C++
Java
Mathematica / MATLAB / Modelica

ML/DATA SCIENCE
Tensorflow/Keras
Pytorch
Scikit-Learn
NumPy/SciPy/Pandas

HARDWARE
Analog Circuits
Power Electronics
Embedded Systems

TEACHING AND OUTREACH
TA for Intro Signal Processing (Caltech)
Be a Scientist Volunteer (Berkeley)

COURSEWORK

GRADUATE
Deep Reinforcement Learning
Deep Unsupervised Learning
ML for Sequential Decision Making
Optimization and Approximation
Computer Vision

UNDERGRADUATE
Probability Models
Learning Systems
Machine Learning and Data Mining
Robotics: Navigation and Vision
Reinforcement and Imitation Learning
Distributed Computing
Digital Signal Processing
Error-Correcting Codes

RESEARCH

UC BERKELEY AUTOLAB | PhD Student Researcher
July 2018 – Present | Berkeley, CA

- Currently working on algorithm to leverage a small number of demonstrations from a suboptimal supervisor and then iteratively improve on its performance on sparse reward control tasks
- Contributing author to project on Mechanical Search, which involved developing algorithms to recognize a specific target object in a cluttered bin and plan a series of pushing and grasping actions to efficiently retrieve it (Under Review for ICRA 2019)

CALTECH CHOO LAB | Undergraduate Researcher
Jun 2015 – Sep 2015, Feb 2017 – Mar 2018 | Pasadena, CA

- Developed software system to analyze spectral data from optics-based intraocular pressure sensor to generate reliable intraocular pressure readout
- Worked on extracting high resolution heart-beat signals from time series oscillations in intraocular pressure sensor readout
- Built and tested initial prototype for a piezoelectric based energy harvester from vocal cord vibrations
- My work in the lab contributed to 6 conference/journal publications and is still being used for further work

CALTECH SEISMOLOGY LAB | Undergraduate Researcher
Mar 2017 – Jun 2017 | Pasadena, CA

- Worked on a team to reliably and rapidly determine whether ground motion signals from seismological stations throughout CA came from earthquakes or ambient noise processes
- My specific focus was on developing efficient prefiltering techniques and fast tree-based models
- Final system outperforms current CA earthquake early warning system (ShakeAlert) in terms of both false positive rate and computation time
- Accepted at NeurIPS 2018 Workshop and Journal of Geophysical Research

INDUSTRY EXPERIENCE

SPACEX | Avionics Software Intern
Jun 2017 – Sep 2017 | Hawthorne, CA

- Created software system to automate power simulation for Falcon 9 Rocket
- Built robust, high fidelity mathematical models for multiple electronic subsystems, with optimizations for real-time power electronics simulation

INTEL | Hardware Engineering Intern
Jun 2016 – Sep 2016 | Hawthorne, CA

- Performed power system analysis to determine necessary firmware changes for consistent power measurements for Integrated Sensor Hub

AWARDS AND HONORS

2018	National Fellowship	Recipient of NSF Graduate Research Fellowship
2017	Top GPA in EE at Caltech	Henry Ford Award For Electrical Engineering