Ashwin Balakrishna

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EDUCATION

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

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
Advanced Robotics
Robust Statistics
Combinatorial Algorithms
Theoretical Statistics

UNDERGRADUATE
Probability Models
Learning Systems
Machine Learning and Data Mining
Robotics: Navigation and Vision
Reinforcement and Imitation Learning

RESEARCH

UC BERKELEY AUTOLAB | PhD Student Researcher
July 2018 – Present | Berkeley, CA
Developing imitation and reinforcement learning algorithms for safe robot learning.

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 pressure readouts

CALTECH SEISMOLOGY LAB | Undergraduate Researcher
Mar 2017 – Jun 2017 | Pasadena, CA
Worked on creating a system to rapidly determine whether ground motion signals from seismological stations in CA came from earthquakes or ambient noise

INDUSTRY EXPERIENCE

SPACEX | Avionics Software Intern
Jun 2017 – Sep 2017 | Hawthorne, CA
Created software system and mathematical models of electronic subsystems to automate power simulation for Falcon 9 Rocket

INTEL | Hardware Engineering Intern
Jun 2016 – Sep 2016 | Folsom, 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

RECENT PUBLICATIONS AND PREPRINTS

Brijen Thananjeyan*, **Ashwin Balakrishna***, Ugo Rosolia, Felix Li, Rowan McAllister, Joseph E. Gonzalez, Sergey Levine, Francesco Borrelli, Ken Goldberg. ***Safety Augmented Value Estimation from Demonstrations (SAVED): Safe Deep Model-Based RL for Sparse Cost Robotic Tasks***. Accepted at *Deep Reinforcement Learning Workshop, NeurIPS 2019* and under review at *RAL/ICRA 2020*.

Priya Sundaresan, Brijen Thananjeyan, **Ashwin Balakrishna**, Michael Laskey, Kevin Stone, Joseph E. Gonzalez, Ken Goldberg. ***Learning Interpretable and Transferable Rope Manipulation Policies Using Depth Sensing and Dense Object Descriptors***. Under review at *ICRA 2020*.

Ashwin Balakrishna*, Brijen Thananjeyan*, Jonathan Lee, Felix Li, Arsh Zahed, Joseph E. Gonzalez, Ken Goldberg. ***On-Policy Robot Imitation Learning from an Improving Supervisor***. Accepted at *Conference on Robot Learning 2019* (**Oral**) and *Real World Sequential Decision Making Workshop, ICML 2019*.

Michael Danielczuk*, Andrey Kurenkov*, **Ashwin Balakrishna**, Matthew Matl, David Wang, Roberto Martin Martin, Animesh Garg, Silvio Savarase, Ken Goldberg. ***Mechanical Search: Multi-Step Retrieval of a Target Object Occluded by Clutter***. Accepted at *ICRA 2019*.