Ashwin Balakrishna

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EDUCATION

UC Berkeley, Berkeley, CA — 2018-Present
Ph.D. in Computer Science
Advisor: Ken Goldberg

California Institute of Technology, Pasadena, CA — 2014-2018
Bachelor of Science in Electrical Engineering — GPA: 3.9/4.0
Advisor: Steven Low, Hyuck Choo

EXPERIENCE

UC Berkeley AUTOLAB, Ph.D. Student Researcher — 2018-Present
SpaceX, Avionics Software Intern — 2017
Intel, Power Electronics Intern — 2016
Caltech Choo Lab, Student Researcher — 2015-2017

PREPRINTS

[4] Katherine Li*, Michael Danielczuk*, **Ashwin Balakrishna***, Vishal Satish, Ken Goldberg. Accelerating Grasp Exploration by Leveraging Learned Priors 2020.

[3] Shivin Devgon, Jeffrey Ichnowski, Ashwin Balakrishna, Harry Zhang, Ken Goldberg. Orienting Novel Objects using Self-Supervised Rotation Estimation 2020.

[2] Aditya Ganapathi, Priya Sundaresan, Brijen Thananjeyan, **Ashwin Balakrishna**, Daniel Seita, Jennifer Grannen, Minho Hwang, Ryan Hoque, Joseph E. Gonzalez, Nawid Jamali, Katsu Yamane, Soshi Iba, Ken Goldberg. Learning to Smooth and Fold Real Fabric Using Dense Object Descriptors Trained on Synthetic Color Images 2020.

[1] Daniel Seita, Aditya Ganapathi, Ryan Hoque, Minho Hwang, Edward Cen, Ajay Kumar Tanwani, **Ashwin Balakrishna**, Brijen Thananjeyan, Jeffrey Ichnowski, Nawid Jamali, Kastu Yamane, Soshi Iba, John Canny, Ken Goldberg. Deep Imitation Learning of Sequential Fabric Smoothing Policies 2020.

PUBLICATIONS

[17] Ryan Hoque*, Daniel Seita*, **Ashwin Balakrishna**, Aditya Ganapathi, Ajay Kumar Tanwani, Nawid Jamali, Katsu Yamane, Soshi Iba, Ken Goldberg. VisuoSpatial Foresight for Multi-Step, Multi-Task Fabric Manipulation. *Robotics: Science and Systems (RSS)* 2020.

[16] Brijen Thananjeyan*, **Ashwin Balakrishna***, Ugo Rosolia, Joseph E. Gonzalez, Aaron Ames, Ken Goldberg. A Sample-Based Learning MPC Algorithm for Stochastic Dynamical Systems with Controller Domain Expansion and Goal Set Adaptation. *Workshop on the Algorithmic Foundations of Robotics (WAFR)* 2020.

[15] 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. *Robotics and Automation Letters (RA-L), International Conference on Robotics and Automation (CRA), and NeurIPS Deep Reinforcement Learning Workshop* 2020.

[14] Priya Sundaresan, Jeniffer Grannen, 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, *International Conference on Robotics and Automation (ICRA)* 2020.

[13] **Ashwin Balakrishna***, Brijen Thananjeyan*, Jonathan Lee, Felix Li, Arsh Zahed, Joseph E. Gonzalez, Ken Goldberg. On-Policy Robot Imitation Learning from a Converging Supervisor, *Conference on Robot Learning (CoRL) - Oral and International Conference on Machine Learning (ICML) Sequential Decision Making Workshop* 2019.

[12] 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, *International Conference on Robotics and Automation (ICRA)* 2019.

[11] Zisu Dong, Sanjay Krishnan, Sona Dolasia, **Ashwin Balakrishna**, Michael Danielczuk, and Ken Goldberg. Automating Planar Object Singulation by Linear Pushing with Single-point and Multi-point Contacts, *Conference on Automation Sciences and Engineering (CASE)* 2019.

[10] Jeong Oen Lee, Vinayak Narasimhan, **Ashwin Balakrishna**, Marcus R. Smith, Juan Du, David Sretavan, and Hyuck Choo. Fabry–Perot Optical Sensor and Portable Detector for Monitoring High-Resolution Ocular Hemodynamics. *IEEE Photonics Letters* 2019.

[9] Men-Andrin Meier, Zachary E Ross, Anshul Ramachandran, **Ashwin Balakrishna**, Suraj Nair, Peter Kundzicz, Zefeng Li, Jennifer Andrews, Egill Hauksson, Yisong Yue. Reliable Real-Time Seismic Signal/Noise Discrimination With Machine Learning. *Journal of Geophysical Research: Solid Earth and Machine Learning for Geophysical and NeurIPS Geochemical Signals Workshop* 2018.

[8] Jeong Oen Lee, Haeri Park, Juan Du, **Ashwin Balakrishna**, Oliver Chen, David Stretavan, Hyuck Choo. A microscale optical implant for continuous in vivo monitoring of intraocular pressure. *Microsystems and Nanoengineering* 2017.

[7] Frank L Brodie, David A Ramirez*, Sundar Pandian*, Kelly Woo, **Ashwin Balakrishna**, Eugene De Juan, Hyuck Choo, Robert H Grubbs. Novel positioning sensor with real-time feedback for improved postoperative positioning: pilot study in control subjects. *Clinical Ophthalmology* 2017.

[6] Jeong Oen Lee, Haeri Park, Juan Du, Vinayak Narasimhan, **Ashwin Balakrishna**, Oliver Chen, David Stretavan, Hyuck Choo. In vivo Intraocular Pressure Monitoring using Implantable Optomechanical Sensor. *International Symposium on Optomechatronic Technology* 2016.

[5] Jeong Oen Lee, Haeri Park, Juan Du, Vinayak Narasimhan, **Ashwin Balakrishna**, Oliver Chen, David Stretavan, Hyuck Choo. Validation of sensor for postoperative positioning with intraocular gas. *Clinical Ophthalmology* 2016.

[4] Hyunjun Cho, **Ashwin Balakrishna**, Yuan Ma, Joen Oen Lee, Hyuck Choo. Efficient Power Generation from Vocal Fold Vibrations for Medical Electronic Implants. *International Conference on Micro Electro-Mechanical Systems (MEMS)* 2016.

[3] **Ashwin Balakrishna**, Oliver Chen, Jeong Oen Lee, Hyuck Choo. A Neural Network Approach to Monitor Intraocular Pressure for Glaucoma Diagnosis. *PIERS (Oral Presentation)* 2016.

[2] Sophia Chen, Jeff Rosenberg, **Ashwin Balakrishna**, Grace Ma, Hyunjun Cho, Jeong Oen Lee and Hyuck Choo. On-Demand Power Source for Medical Electronic Implants: Acousto-Mechanical Vibrations from Human Vocal Folds. *NAPA Institute Workshop on Enabling Future Health Care: the Role of Micro and Nano Technologies* 2015.

[1] **Ashwin Balakrishna**. Optimal Control Strategies for Trajectory Optimization with Applications to Continuous Solar Flight. *Oral Presentation at INFORMS Annual Meeting, E=mc2 High School Mathematical Science Journal, Intel Science Talent Search Semifinalist* 2013.

TEACHING

Teaching Assistant, California Institute of Technology 2017
EE 111: Signal-Processing Systems and Transforms

AWARDS & HONORS

National Science Foundation Graduate Research Fellowship 2018-2021
Henry Ford II Scholar Award (Top GPA in EE at Caltech) 2017

PROFESSIONAL ACTIVITIES

Paper Reviewing:
IEEE International Conference on Robotics and Automation (ICRA) 2020
IEEE International Conference on Intelligent Robots and Systems (IROS) 2020
IEEE Conference on Automation Sciences and Engineering (CASE) 2019, 2020
Conference on Neural Information Processing Systems (NeurIPS): Machine Learning for the Physical Sciences Workshop 2019
Services:
Berkeley AI Research Admissions Reader 2019
Berkeley Be a Scientist Program Volunteer 2019