SHIKHAR BAHL

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EDUCATION

Carnegie Mellon University, School of Computer Science *August 2019 -*
PhD (Robotics Institute)

University of California, Berkeley *August 2015 - May 2019*
B.A. Applied Mathematics Cumulative GPA: 3.96/4
B.A. Computer Science
Graduated with Highest Disctinction in General Scholarship (Summa Cum Laude)

RELEVANT COURSES

Adaptive Control and RL*, Learning for Manipulation*, Convex Optimization*, Advanced Machine Learning*, Kinematics*, Dynamics and Control*, Machine Learning, Probability and Stochastic Processes, Deep Reinforcement Learning*, Optimization Models, Operating Systems, Advanced Data Science, Numerical Analysis, Real Analysis, Complex Analysis, Advanced Linear Algebra
* *indicates graduate courses*

EXPERIENCE

Vision and Robot Learning Lab September 2019
Graduate Research

- Advised by Professors Abhinav Gupta and Deepak Pathak
- Work focuses on bridging the gap between Deep Reinforcement Learning for Robotics and traditional Control Methods
- Current project focusing on embedding structure from Dynamic Movement Primitives into deep network-based policies

Robotic and AI Learning Lab January 2018 - August 2019
Undergraduate Researcher

- Working under Professor Sergey Levine, as part of the Robotic AI Lab (RAIL) and under the mentorship of PhD student Ashvin Nair.
- Work focused on Deep Reinforcement Learning for continuous control, with an emphasis on novel ways of engineering reward functions.
- Collaborating with Siemens on a project that integrates hand-designed controllers with RL based control for robotic tasks such as insertion.
- Extensive work with large RL libraries and Rethink Sawyer Robots. Built my own Sawyer control (ROS-based) library.
- extensive experience implementing generative models and other vision based deep learning models using standard libraries such as PyTorch and Tensorflow.

UCSF - Savic Lab April 2017 - August 2017
Research Assistant

· Worked in Savic Lab, focusing on Pk/Pd models
· Conducted a sensitivity analysis on different drugs in different population models
· Used C++ and other programming skills to build tools for sensitivity analysis

PUBLICATIONS

Neural Dynamic Policies for End-to-End Sensorimotor Learning Shikhar Bahl, Mustafa Mukadam, Abhinav Gupta, Deepak Pathak. *In submission to NeurIPS 2020*

Contextual Imagined Goals for Self-Supervised Robotic Learning Ashvin Nair*, **Shikhar Bahl***, Alexander Khazatsky*, Vitchyr Pong, Glen Berseth, Sergey Levine. *CoRL 2019*

Visual Reinforcement Learning with Imagined Goals. Ashvin Nair*, Vitchyr Pong*, Murtaza Dalal, **Shikhar Bahl**, Steven Lin, Sergey Levine. *NeurIPS 2018* (Accepted as a spotlight paper)

Residual Reinforcement Learning for Robot Control. Tobias Johannink*, **Shikhar Bahl***, Ashvin Nair*, Jianlan Luo, Eugen Solowjow, Sergey Levine. *ICRA 2019*

State-Covering Self-Supervised Reinforcement Learning. Vitchyr Pong*, Murtaza Dalal*, Steven Lin*, Ashvin Nair, **Shikhar Bahl**, Sergey Levine. *NeurIPS 2018, Deep Reinforcement Learning Workshop, in submission to NeurIPS 2019*

Solving Industrial Automation Tasks with Natural Rewards Using Residual Reinforcement Learning. Gerrit Schoettler*, Ashvin Nair*, Jianlan Luo, Shikhar Bahl, Juan Aparicio Ojea, Eugen Solowjow, Sergey Levine. *IROS CoRL 2019*

Impact on inequities in health indicators: Effect of implementing the integrated management of neonatal and childhood illness programme in Haryana, India. S Taneja, **S Bahl**, S Mazumder, J Martines, N Bhandari, MK Bhan, *Journal of Global Health* 2015 Jun; 5(1): 010401. doi: 10.7189/jogh.05.010401

TEACHING

Teaching Assistant: Optimization Models (Fall 2018)

- Created homeworks and worked on exam questions
- Lead weekly homework parties of 50+ students
- Lead biweekly office hours

Reader: Algorithms (Spring 2018)

- Lead biweekly review sessions, creating problems and slides for students
- Graded homeworks
- Helped students at office hours

Reader: Discrete Math and Probability (Fall 2017)

- Graded homeworks and exams
- Helped students at office hours

AWARDS AND HONORS

Highest Disctinction in General Scholarship (Summa Cum Laude)

Phi Beta Kappa

Dean's Honors List, Fall 2015 to Fall 2018, UC Berkeley

Upsilon Pi Epsilon, CS Honor Society, UC Berkeley