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

Machine Learning (A)
Optimization Models (A+)
Probability and Stochastic Processes (A)
Deep Reinforcement Learning (A)
Algorithms (A)
Operating Systems (A)
Data Structures (A+)
Computer Architecture (A)
Real Analysis (A+)
Complex Analysis (A+)
Advanced Linear Algebra (A-)
Abstract Algebra (A+)
Numerical Analysis (A)
Discrete Math and Probability (A)
Multivariable Calculus (A)
Data Science (A+)

EXPERIENCE

Robotic and AI Learning Lab January 2018 - Present
Undergraduate Research

- Working under Professor Sergey Levine, as part of the Robotic AI Lab (RAIL) and under the mentorship of PhD student Ashvin Nair.
- Work focuses on Deep Reinforcement Learning for continuous control, with an emphasis on novel ways of engineering reward functions. Current project involves using unsupervised learning to create a latent representation of goals and accelerate reinforcement learning algorithms for real world tasks such as pushing, pick and place and door opening.
- 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

Berkeley Institute of Data Science January 2017 - August 2017
Undergraduate Research

· Collected and cleaning historical data for applicants to research programs at UC Berkeley
· Trained a Clustering algorithm by parsing Wikipedia text related to the research programs
· Created a supervised model to match applicants by first selecting important features from application data (PCA) and reduce dimensionality

PUBLICATIONS

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. *In Submission to 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

Phi Beta Kappa

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

Upsilon Pi Epsilon, CS Honor Society, UC Berkeley