Ravi Pandya

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Current Position

09/2019- **Data Scientist**, *Global AI Accelerator (GAIA) at Ericsson.*

Education

08/2015-
05/2019 **Bachelor of Science in Electrical Engineering and Computer Science (EECS)**, *University of California, Berkeley.*
Cumulative GPA: **3.86**/4.0, Graduated with Honors

Publications

[4] **R. Pandya***, S.H. Huang*, I. Huang*, A.D. Dragan, "Nonverbal Robot Feedback for Human Teachers," *Conference on Robot Learning (CoRL)*, 2019 **(oral, acceptance 5.3%)**. **equal contribution*

[3] **R. Pandya**, S.H. Huang, D. Hadfield-Menell, A.D. Dragan, "Human-AI Learning Performance in Multi-Armed Bandits," *AAAI/ACM Conference on Artificial Intelligence, Ethics and Society (AIES)*, 2019.

[2] A. Nagabandi, G. Yang, T.H. Asmar, **R. Pandya**, G. Kahn, S. Levine, R. Fearing, "Learning Image-Conditioned Dynamics Models for Control of Under-Actuated Legged Millirobots," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2018. ***(best paper award finalist)***

[1] A. Bestick, **R. Pandya**, R. Bajcsy, A.D. Dragan, "Learning Human Ergonomic Preferences for Handovers," *IEEE International Conference on Robotics and Automation (ICRA)*, 2018.

Research Experience

01/2018–
05/2019 **UC Berkeley Interact Lab**, *Undergraduate Researcher.*
- Ran simulations and user studies to characterize the effects of robot feedback on human teaching when robots are learning from demonstrations; found that feedback helps human understand the robot's capabilities and give better demonstrations
- Ran studies to characterize the performance of human-robot teams to understand how well people collaborate with different kinds of artificial intelligence (AI) assistants; found that agents' influence tends to be implicit rather than explicit

01/2018-
03/2018 **UC Berkeley Biomimetic Millisystems Lab**, *Undergraduate Researcher.*
- Worked to get VelociROACH hardware (small, legged robot) to learn to walk on different surfaces using a single model
- Trained neural network to represent dynamics function and added surface images as auxiliary input; our approach outperformed differential drive and naive model-based baselines using just 17 minutes of randomly collected data

11/2016-
09/2017 **UC Berkeley Human-Assistive Robotic Technologies Lab**, *Undergraduate Researcher.*
- Used Bayesian inference and particle filtering to infer a human ergonomic cost function for object handovers to make object handovers from robots comfortable for people
- Compared the performance of active and passive learning to select queries to learn from; found that active learns best but incurs relatively high ergonomic cost while exploring

Teaching

08/2018-
12/2018 **Intro to Robotics**, *Undergraduate Student Instructor.*
- Led labs for graduate-level course and got students familiar with kinematics/dynamics of robots
- Taught 120+ students to use Robot Operating System (ROS) for controlling Baxter, Sawyer and TurtleBot robotic platforms

06/2018- 08/2018 **Interact Summer Internship**, *Mentor*.
Each year, the Interact Lab offers a research internship to one Bay-Area high school girl; I was the student's mentor for the summer on a project about Inverse Reinforcement Learning.

01/2019- 05/2019 **Feedback Control Systems**, *Reader*.
- Helped students and graded assignments on classical controls topics such as root locus techniques, PID control, and Nyquist diagrams

01/2018- 05/2018 **Designing, Visualizing and Understanding Deep Neural Networks**, *Reader*.
- Helped students and graded assignments for graduate-level deep learning course
- Assignments included topics such as basics of convolutional neural networks (CNNs), style transfer, machine translation and deep reinforcement learning

Other Projects

02/2019- 05/2019 **Robustness Analysis of Nonlinear Controllers**.
Analyzed the robustness of nonlinear controllers under disturbances and model misspecification for a 2DOF Matlab simulated robot arm and a 7DOF Kinova Jaco in a C++ ROS framework utilizing Gazebo

01/2019- 05/2019 **Line-Following Car**.
Designed circuits and PCBs for motor drivers, encoders, and a line camera; wrote sensing and controls code to autonomously navigate a complicated track (`https://youtu.be/rVMG9ePgRYQ`)

03/2018 **Magnetic Levitation Controller**.
Designed and implemented a feedback controller for magnetic levitation of a small marble using Matlab and Simulink (`https://youtu.be/L54jl1FQOCU`)

08/2017- 12/2017 **Checkers-Playing Robot**.
Wrote software for sensing, planning and control of Baxter Robot to allow it to intelligently play a game of checkers against a human (`https://sites.google.com/view/ee-106a-check-this-out/`)

08/2017- 12/2017 **System for Learned Artificial Narrative Generation (SLANG)**.
Created a program that can write generate short fiction by using a Variational Autoencoder and Generative Adversarial Network (`https://github.com/mlberkeley/slang`)

01/2017- 05/2017 **Influx Framework**.
Created a graph-based stream computation framework utilizing Apache Spark (`https://github.com/noahgolmant/Influx`)

Work Experience

09/2019- Present **Ericsson (Global AI Accelerator)**, *Data Scientist*, Santa Clara, CA.
Working on machine learning for anomaly detection/prediction on time series data

Summer 2016 **Doximity**, *Software Engineering Intern*, San Francisco, CA.

Summer 2015 **Infosil**, *Software Engineering Intern*, El Dorado Hills, CA.

Awards and Honors

11/2019 Oral Presentation at CoRL 2019

05/2019 Graduated with Honors in Electrical Engineering and Computer Science from UC Berkeley

10/2018 Best Paper Award Finalist at IROS 2018

Fall 2016 Inducted into Eta Kappa Nu (HKN), National EECS Honor Society

Fa15-Sp17 UC Berkeley College of Engineering Dean's List

Patents

[1] **R. Pandya**, A. Pandya "Wireless charging system for vehicles." *U.S. Patent 8,030,888*, issued October 4, 2011.

Organizations

2017-2019 **Machine Learning at Berkeley**, *Project Member.*

2016-2019 **Eta Kappa Nu (HKN), EECS Honor Society**, *Member.*

Technical Skills

Languages	Python, MATLAB, C, Java, Ruby, Scala, Javascript, HTML/CSS, SQL, Scheme (Lisp), Linux / command line
Frameworks / Libraries	Numpy / Scipy, Pandas, Scikit-learn, Robot Operating System (ROS), OpenRAVE, Simulink, Robot Control Library, Tensorflow, Ruby on Rails, Apache Spark, Bootstrap, Amazon Mechanical Turk / PsiTurk, Amazon Web Services, Heroku
Hardware	Baxter/Sawyer Robots, Turtlebot, BeagleBoard