Sushmita Bhattacharya
Research Assistant
Harvard University

https://sushmitab.github.io/
sushmita_bhattacharya@g.harvard.edu

Education

- **Harvard University** — Cambridge, MA, USA
  Ph.D. in Computer Science — *July 2020 - Present*
  Advisor: Dr. Stephanie Gil

- **Arizona State University** — Tempe, AZ, USA
  Ph.D. in Computer Science — *August 2018 - June 2020*
  Advisor: Dr. Stephanie Gil

- **Indian Institute of Technology Bombay** — Mumbai, India
  M.Tech. in Computer Science — *Fall 2013-Spring 2015*
  Advisor: Dr. N. L. Sarda

- **Indian Institute of Engineering Science and Technology Shibpur** — Howrah, India
  B.E. in Computer Science — *Fall 2007-Spring 2011*
  Advisor: Dr. Prasun Ghosal.

Research Interests

Reinforcement learning, Robotics, multi-agent systems, Machine learning, Deep learning.

Publication

Reinforcement Learning for POMDP: Rollout and Policy Iteration with Application to Autonomous Sequential Repair Problems, Sushmita Bhattacharya, Thomas Wheeler, Stephanie Gil, and Dimitri Bertsekas, in IEEE Robotics and Automation Letters (RA-L), 2020 (10.1109/LRA.2020.2978451).

Awards

Engineering Graduate Fellowship from Ira A. Fulton Schools of Engineering (Spring 2020) for extraordinary academic achievements.

Research Project

- I am working on Reinforcement Learning for Partially Observable Markov Decision Processes. I look closely at rollout and approximate policy iteration with the application to autonomous sequential repair problems.
- My research involves scalable rollout algorithm for multiagent reinforcement learning especially in the context of POMDP applications over infinite horizon.

Work Experience

- Research Assistant at Harvard University — *July 2020 - Present*
- Graduate Research and Teaching Assistant at Arizona State University — *August 2018 - June 2020*
- Software developer in Microsoft India Development Center. — *December 2016 - July 2018*
- Data Scientist in Honeywell Technology Solution Labs. — *July 2015 - December 2016*
- Teaching Assistant in Indian Institute of Technology Bombay — *July 2013 - June 2015*
- Developer in Cognizant Technology Solutions — *June 2011 - June 2013*

Teaching Assistantship

- CSE 691-Topics in Reinforcement Learning (Instructor: Dr. D. P. Bertsekas) *ASU Spring 2020*
- CSE 591-Coordination of Multi-Robot Systems (Instructor: Dr. S Gil) *ASU Fall 2019*
- CSE 691-Topics in Reinforcement Learning (Instructor: Dr. D. P. Bertsekas) *ASU Spring 2019*
- CSE 471-Introduction to Artificial Intelligence (Instructor: Dr. S Gil) *ASU Spring 2019*
- CSE 574-Planning and Learning Methods in AI (Instructor: Dr. S Gil) *ASU Fall 2018*
- CS 308 - Embedded Systems Lab (Instructor: Dr. Kavi Arya) *IITB Spring, 2014*
- CS 387 - Database and Information Systems Lab(Instructor: Dr. N. L. Sarda) *IITB Autumn 2014*

M.Tech. Project

Big Data Analysis in distributed streaming database*(Guide: Prof. N. L. Sarda)*

- Storing large amount of transaction data in a reliable key-value store (HBase). Predicting customers spending habits using regression analysis using offline Hadoop map reduce jobs. Online detection of anomalous transactions using data mining techniques on sorted data using Apache Storm. Continuous integration of the outlier data with the existing HBase data store.
- Experimentation used Hadoop distributed file system (HDFS), Hadoop Map reduce techniques, HBase key-value data store, Apache Storm online streaming engine. Analyzed relative performance of traditional RDBMS databases and key value store HBase.

Achievements & Extra Curricular Activities

- Secured All India Rank 57 among 2,24,160 candidates appeared in Graduate Aptitude Test in Engineering, 2013 CSE.
- Interests: painting, music.