Gauri Jain

Personal Info

Research Interests: AI for social good, public health, machine learning, optimization
Email: gauri.g.jain@gmail.com
Website: gjain234.github.io

Education

Harvard University August 2022 - Present
Ph.D. Computer Science

- Advised by Elisabeth Paulson, Teamcore Lab led by Milind Tambe, Berkman Klein Scholar

Cornell University August 2016 - December 2019
B.S. Computer Science, GPA: 3.764

- Magna Cum Laude, Tau Beta Pi member, Deans List all Semesters

Publications

2) **Gauri Jain**, Pradeep Varakantham, Haifeng Xu, Aparna Taneja, Prashant Doshi, Milind Tambe. IRL Making a Difference "IRL": Inverse Reinforcement Learning for Restless Multi-Armed Bandits with Applications in Maternal and Child Health.

- PRICAI - 2024 ***Runner-up Best Paper**

2) Sean R. Sinclair, **Gauri Jain**, Siddhartha Banerjee, Christina Lee Yu. Sequential Fair Allocation: Achieving the Optimal Envy-Efficiency Trade-off Curve.

- Informs 2022 - Operations Research

3) Sean R. Sinclair, Tianyu Wang, **Gauri Jain**, Siddhartha Banerjee, Christina Lee Yu. Adaptive Discretization for Model-Based Reinforcement Learning.

- NeurIPS 2020

Workshop Papers + Posters

1) **Gauri Jain***, Pradeep Varakantham, Haifeng Xu, Aparna Taneja, Milind Tambe. Inverse Reinforcement Learning for Restless Multi-Armed Bandits with Application to Maternal and Child Health.

- Accepted as paper at IJCAI Workshop on Bridge-AI: from Climate Change to Health Equity (2023)

1) Ziwei Gu*, **Gauri Jain***, Hongwen Song*, Isak Diaz, Margaux Masson-Forsythe, Jorge Valdes. BiomeAzuero2022: A Fine-Grained Dataset and Baselines for Tree Species Classification with Ground Images.

- Accepted as poster at AAAI Workshop on AI for Social Good (2023)

2) Sean R. Sinclair*, **Gauri Jain**, Siddhartha Banerjee, Christina Lee Yu. Sequential Fair Allocation of Limited Resources under Stochastic Demands.

- Accepted at Harvard CRCS Workshop on AI for Social Good (2020)
- Accepted at Mechanism Design for Social Good Workshop (2020)

3) Sean R. Sinclair*, Tianyu Wang*, **Gauri Jain**, Siddhartha Banerjee, Christina Lee Yu. Adaptive Discretization for Model-Based Reinforcement Learning.

- Accepted at ICML Workshop on Theoretical Foundations of Reinforcement Learning (2020)

3) **Gauri Jain***, Audrow Nash, Katelyn Swift-Pong, Maja Mataric. Toward a Pose Detection Robot System for Physical Rehabilitation (Poster).

- Presented at University of Southern California Summer NSF Research Symposium (2018)

4) **Gauri Jain***, Alexis Crawshaw, Nathan Gugel. Assessing the Vibrational Effectiveness and Design Constraints of Sensitivity-Modified Transducers on a Vibrotactile Music Suit.

- Submitted at the 2015 Research Mentorship Program at University of California Santa Barbara. Accompanied by a 10 minute presentation to audience of 100 faculty, researchers, and parents (2015)

Work Experience

Facebook 2020 Aug. - 2022 Aug.
Software Engineer - Marketplace Discovery + Integrity Experiences: Inform Team

- *Integrity*: Use Hack to build back-end platform for 90 election and vaccination labels seen by 3.5 billion Facebook Users
- *Marketplace*: Worked on 8 member team with software engineers, machine learning engineers, data scientists, and designers to build a new recommendation system on marketplace
- *Marketplace*: Designed, tested, and deployed experiments to 20 million Facebook Marketplace users testing different ranking backends and implemented front-end designs for better user experience

Reinforcement Learning Lab 2019 Oct. - 2020 June
Research Assistant

- Received Engaged Cornell grant to work with Operations Research Professors Siddhartha Banerjee and Christina Lee Yu as well as Ph.D. mentor Sean Sinclair.
- Collaborated with Food Bank for the Southern Tier of New York to design fair algorithm for food bank distribution in online settings using variations of Nash Welfare function. Implemented and ran experiments for two expectation based algorithms that produced less waste and were more fair than food banks current distribution
- Developed for separate project discretizing continuous state-action spaces in tree structures to efficiently store Q and Value functions. Implemented algorithm in 2 dimensional space, and adapted to ambulance placement and pendulum balancing problems.

Cornell Prison Education Program 2020 Jan. - 2020 June
Technical Consultant

- Developed Ruby on Rails application that would help coordinators keep track of over 200 students in prisons in terms of facility movement, release dates, and recidivism
- Wrote proposal detailing potential computer lab setups at the prison and gave important advice about what server and client hardware to use.

- Improved organization's website and automated future TA Application processes using Zapier and Google Sheets

AdmitHub 2018 Nov. - 2019 Feb
Software Engineering Intern

- Built an interfacing tool using Flask, Vue, and Bootstrap to allow company employees to more easily parse through chatbot mistakes in database to give students more accurate information through school chatbots
- Worked remotely with one other intern and two company engineers to build and present web-app
- Incorporated a more intuitive search function in existing mistake-finding scripts

Projects

Cornell Hack4Impact 2020 Jan. - 2020 June
Developer

- Worked with team of 5 other students to design and build better bus prediction for Ithaca bus system
- Used Google Transit API to access training data and designed data matrix that could consolidate data from bus routes of different sizes
- Used Random Forest algorithm to classify and adjust the current predictions for the service with a 92.5% accuracy

Interaction Lab - University of Southern California 2018 June - 2018 August
Research Assistant

- Received NSF Summer Undergraduate Experiences Grant to work with Professor Maja Mataric and 2 Ph.D. mentors
- Used ROS and Python to program a socially-assistive-robot that encourages habit-formation in elderly adults to exercise every day.
- Worked on software involved in deployment including webcam camera script and ROS action servers and clients

Teaching And Volunteer Experience

Code In Place - Stanford University 2020 March - 2021 June
Section Leader

- Part of a teaching team for Code in Place, offered by Stanford during COVID-19 pandemic, with 10,000 global students and 900 volunteer teachers participating from around the world.
- Prepared and taught a weekly discussion section of 10-12 students to supplement professors' lectures in a 5-week introductory online Python programming course based on material from the first half of Stanford's introductory programming course, CS106A

Breakthrough Middle School Summer Program 2020 June - 2020 August
Teaching Fellow

- Develop lesson plans for 6 week Computer Science, Algebra A, and Algebra B courses for middle schoolers at virtual summer program
- Taught courses with 8-15 students over Zoom, wrote/graded HW, planned online scavenger hunts, jeopardy games, and other engaging activities to overcome online program
- In CS course, had students build their own personalized games on Scratch and taught them about one emerging technology per day: Boston Dynamics robots, graphics in animated movies, reinforcement learning in gaming competitions, stable matching algorithms, etc.

Cornell Prison Education Program 2019 Aug. - 2020 March
Physics/Computer Lab TA

- Worked as TA for 12 students at Auburn Correctional Facility at update New York
- Created printouts of HW answer keys for all students with detailed explanations to acommodate for low resources in the prison
- Ran review sessions and help students in an office hours format.

Women in Computing at Cornell 2018 August- 2020 May
Faculty and Alumni Director

- Organize weekly events connecting faculty and alumni in computing with students
- Plan Alumni networking event, Faculty Lightning Talk, and lunch with faculty members and underclassmen

Skills and Coursework

Coursework AI for Social Impact, Inverse Reinforcement Learning for Healthcare Applications,Graduate Algorithms, Machine Learning, Language and Information,Computer Vision, Natural Language Processing, Object Oriented Programming and Data Structures, Functional Programming, Operating Systems, Discrete Structures, Probability and Inference, Linear Algebra

Programming Python, Numpy, Jupyter, Matplotlib, Pandas, Java, C/C++, OCaml, Javascript/CSS/HTML, SQL, React, Hack, Ruby on Rails

Languages English, Hindi

About Me

I enjoy playing music (piano, guitar, singing) and also love exercising, playing sports, and being outdoors! I also adore pitbulls and feel most at peace with a cup of chai in hand.