

# Shreyas Chaudhari

University of Massachusetts Amherst

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## Education

### University of Massachusetts Amherst

*PhD in Computer Science*

Advisors: Profs. Bruno da Silva and Phil Thomas

Research Interests: Reinforcement Learning and Uncertainty Quantification

Sept '21 - Present

### Carnegie Mellon University

*Master of Science in Electrical and Computer Engineering*

MS Project: Off-Dynamics Reinforcement Learning

GPA: 3.96/4.00

Aug '19 - Dec '20

### Indian Institute of Technology Madras

*Bachelor of Technology in Electrical Engineering, Minor: Machine Learning*

Thesis: Second-Order Methods for Policy Search in Reinforcement Learning

CGPA: 8.89/10.00

Jul '15 - May '19

## Professional Experience

### Uber

*Software Engineer I, Search Quality Team*

• Developed and migrated a tree-based model for ranking the places suggested by the autocomplete services in the Uber app

• Productionized a co-ranking model that aggregated results from multiple providers and ranked them to provide a consolidated output

San Francisco, CA

March - August '21

### Uber Advanced Technologies Group

*Software Engineering Intern, Perception/Prediction Team*

• Derived loss functions for confidence-calibrated neural network predictions for image classification and object detection

• Shifted from two-step post-processing calibration methods, benchmarking one-stage object detectors (FAIR's RetinaNet)

• Achieved improved calibration scores on image classification along with occasional improvement in model performance [report]

Pittsburgh, PA

June - August '20

### Goldman Sachs

*Securities Strategist Intern, Franchise Analytics Strategy & Technology team*

• Analyzed the trade data for European markets post MiFID II regulation, gauging the monetary value of the dataset

• Conducted trade volume and market share driven analysis indicating ~40% increase in market coverage by the data

• Modeled quoting patterns with GMMs using pre-trade data feed to draw correlations across aggressiveness of quoting

Bengaluru, India

May - July '18

## Publications and Reports

\* - indicates equal contribution

### Conferences and Journals

○ [Off-Dynamics Reinforcement Learning: Training for Transfer with Domain Classifiers](#)

Ben Eysenbach\*, **Shreyas Chaudhari\***, Swapnil Asawa\*, Ruslan Salakhutdinov, Sergey Levine

Conference: *International Conference on Learning Representations (ICLR) 2021*

Workshop: *Spotlight Presentation at Challenges of Real-World RL workshop at NeurIPS 2020*

○ [Multi-Armed Bandits with Correlated Arms](#)

Samarth Gupta, **Shreyas Chaudhari**, Gauri Joshi, Osman Yağan

Journal: *IEEE Transactions on Information Theory 2021*

Workshop: *Theoretical Foundations of RL workshop at ICML 2020*

○ [A Unified Approach to Translate Classical Bandit Algorithms to the Structured Bandit Setting](#)

Samarth Gupta, **Shreyas Chaudhari**, SSubhojyoti Mukherjee, Gauri Joshi, Osman Yağan

Journal: *IEEE Journal on Selected Areas of Information Theory: Estimation and Inference 2021*

Conference: *IEEE ICASSP 2021*

○ [Energy-Delay-Distortion Problem](#)

Rahul Vaze, **Shreyas Chaudhari**, Akshat Choube, Nitin Aggarwal

Conference: *National Conference on Communications 2018*

### Relevant Research and Project Reports

◇ [Training objective functions for confidence-calibrated predictions from neural networks](#)

S. Chaudhari, G. Meyer

Internship Report, Uber Advanced Technologies Group

◇ [Learning Augmentation Policies for Speech Recognition](#)

S. Chaudhari, S. Deshmukh, G. Gare, Revanth B.N.

Course: *Speech Recognition and Understanding*

◇ *Off Policy Meta-Reinforcement Learning*

K. Yadav, S. Chaudhari, V.Pandit, S. Long  
Course: *Probabilistic Graphical Models*

◇ *Second-Order Methods for Policy Search in Reinforcement Learning*

S. Chaudhari, L.A. Prashanth  
*Bachelor's thesis, IIT Madras*

◇ *Multi-Hop Question Answering using Graph Convolutional Networks*

S. Ramnath, S. Chaudhari  
*Research project, IIT Madras*

## Scholastic Achievements

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- Selected for the Danaher Scholarship Program, 2018 by Scholarship America to fund undergraduate education
- AIR 18 in IIT-JEE Mains, 2015; AIR 356 in IIT-JEE Advanced, 2015 - In top 0.02% of 0.15 million students
- Awarded KVPY scholarship (2014) - AIR 118 - by Department of Science and Technology, Government of India
- Qualified for national level of Indian National Astronomy Olympiad (2015 and 2013) - In top 400 across the country
- Qualified for national level of Indian National Junior Science Olympiad (2013) - In top 400 across the country

## Teaching Experience

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- Reasoning Under Uncertainty (COMPSCI 240), *Teaching Assistant* UMass
- Deep Reinforcement Learning and Control (10-703), *Teaching Assistant* CMU
- Introduction to Machine Learning (18-661), *Teaching Assistant* CMU

## Talks and Posters

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- ◇ Off-Dynamics Reinforcement Learning: Training for Transfer with Domain Classifiers (spotlights) *Challenges of Real-World RL workshop, NeurIPS 2020; BIG in RL workshop, ICML 2020* Slides
- ◇ Energy-Delay-Distortion Problem *Communication Networks track at National Conference of Communications 2018* Slides

## Skills

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**Programming languages:** *Advanced:* Python; *Intermediate:* Java, MATLAB, C++; *Basic:* C

**Tools:** PyTorch, Tensorflow, Keras, docker, scikit-learn, openCV, CoreNLP, NumPy, Matplotlib, git, SQL, Spark, Hive

## Relevant Graduate Coursework

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- Deep Reinforcement Learning & Control
- Multi-Armed Bandits
- Foundations of Cloud & ML Infrastructure
- Advanced Deep Learning
- Game Theory
- Reinforcement Learning
- Introduction to Machine Learning
- Image and Video Processing
- Computational Neuroscience
- Probabilistic Graphical Models
- Speech Recognition & Understanding
- Data Structures & Algorithms

## Positions of Responsibility

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- Member of the IEEE-Eta Kappa Nu (HKN) society, CMU chapter
- Academic Mentor for three freshmen, Saathi, IIT Madras
- Head of the Sponsorship and Public Relations Team for 52<sup>nd</sup> Inter IIT Sports Meet
- Member of the Sports Organizing Committee at IIT Madras

## Extra-curricular Activities

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- Sports
  - ◇ Member of the IIT Madras Athletics team: won a bronze medal at the 51<sup>st</sup> Inter IIT Sports Meet
  - ◇ Won 13 medals in inter-hostel Athletics competitions; hostel team captain for two years
- Sci-tech
  - ◇ Member of the IIT-Madras team that finished third in the regionals of NASA Space Apps Hackathon challenge
  - ◇ Part of the hostel team which finished 1<sup>st</sup> in Inter Hostel Technical Meet (TechSoc) 2017 and 3<sup>rd</sup> in 2016
  - ◇ Hackathons: AWS Deep Learning Hackathon (runner up), AmEx Big Data Challenge (runner up)