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https://github.com/RupaliBhati

Rupali Bhati

Education

Université Laval/ Mila — *Quebec, Canada*
Masters, Computer Science (with thesis) — *Sep 2020 - Dec 2022 (Expected)*
• GPA: 4.2/4.0

Delhi Technological University — *New Delhi, India*
Bachelors, Electronics and Communication Engineering — *Aug 2012 - May 2016*
• Percentage: 72.29/100 (WES equivalent 3.55/4.0)

Research Experience

Graduate Research Assistant, Université Laval & Mila
Supervisor : Audrey Durand — *Sep 2020 - Present*

• Addressed the problem of performative prediction in time-series data for predicting cancer-related fatigue and pain and quantified the consequent increase in prediction error.
• Formulated agent abstraction in the multi-agent setting and showed how it can help disentangle non-stationarity in the game of Diplomacy and achieve higher compression.
• Implemented a risk-averse reinforcement learning method termed Conditional value-at-risk Adversarial Reinforcement Learning (CARL) by formulating it as a zero-sum Stackelberg Game.

Research Assistant, Indraprastha Institute of Information Technology - Delhi
Supervisor : Saket Anand — *Sep 2017 - Aug 2018*

• Trained an autonomous vehicle to smartly adapt communications and planning actions, while achieving large driving utilities using Q-learning.

Publications

Performative Prediction in Time Series: A Case Study [link]
Rupali Bhati, Jennifer Jones, Audrey Durand
***NeurIPS 2022** Workshop on Learning from Time Series for Health*

Summarizing Societies: Agent Abstraction in Multi-Agent Reinforcement Learning [link]
Amin Memarian, Maximilian Puelma Touzel, Matthew D Riemer, **Rupali Bhati**, Irina Rish
***ICLR 2022** From Cells to Societies: Collective Learning across Scales Workshop*

Interpret Your Care: Predicting the Evolution of Symptoms for Cancer Patients [link]
Rupali Bhati, Jennifer Jones, Audrey Durand
***AAAI 2022** Trustworthy AI for Healthcare Workshop*

CARL: Conditional-value-at-risk Adversarial Reinforcement Learning [link]
Mathieu Godbout, Maxime Heuillet, Sharath Chandra, **Rupali Bhati** & Audrey Durand
***AAAI 2022** Safe AI Workshop*

A Reinforcement Learning Approach to Jointly Adapt Vehicular Communications and Planning for Optimized Driving [link]
Mayank K. Pal, **Rupali Bhati**, Anil Sharma, Sanjit K. Kaul, Saket Anand & P.B.Sujit
IEEE ITSC, 2018

Awards

• **Google CSRMP 2022**: Selected for Google Computer Science Research Mentorship Program with mentor Wenhao Yu
• Second place at Rendez-Vous IA Quebec 2022 with a cash prize of **$1,000**.
• IID Artificial Intelligence Tuition Scholarship of **$20,000**.
• **Stanford ASES Entrepreneurial Summit**: Selected as one of the 35 delegates across the Asia-Pacific region to attend prestigious summit on entrepreneurship at Stanford.
• **Shell Eco-Marathon Asia at Manila, Philippines**: As Vice-President at Team DTU Supermileage, helped the team secure position in the top 10 in its category in Asia.

Professional Experience

Reinforcement Learning Consultant
Multiple Companies *Feb 2019 - Aug 2021*

- At Bert Labs, applied RL to increase the energy efficiency of a HVAC system. For a leading global FMCG company's headquarters building, using DQN, increased efficiency of their Air-Handling Unit system by over 70% as compared to classical PID logic.
- Conducted a week long workshop to teach fundamentals of RL to employees at Adventum. Consulted on application of RL to improve segmentation in medical images.
- Worked with CatapulZ to develop RL blue agents to Capture-The-Flag in cybersecurity applications.
- Applied DQN to continually increase account equity for trading in the Foreign Exchange Market.

Domain Expert
UpGrad *Sep 2018 - Jan 2019*

- Developed an end-to-end solution for a model inventory management problem to meet next-to-next day demand using DDQN.

Data Analyst
KPMG *Jun 2016 - Aug 2017*

- In collaboration with Microsoft, developed an algorithm using policy iteration for automating 'Dynamic Pricing of Tickets' to maximise revenue and help reduce human effort by upto 70-80%.
- Researched use cases of predictive and descriptive analytics to provide business insights to various government organisations which helped them automate processes and boost efficiency.

Teaching Experience

- **Teaching Assistant**, *GIF-7005: Introduction to ML, Université Laval* *Fall 2021*
- **Mentor**, Codementor [link] *Fall 2019 - Summer 2020*
- **Teaching Assistant**, Coding Blocks [link] *Summer 2018*
- **Teaching Assistant**, UpGrad *Fall 2018*

Service

Reviewer:

- Montreal AI Symposium 2022
- ITSC 2018

Facilitator:

- ICLR WiML UnWorkshop: Machine Learning for Physical Sciences 2022

Technical Skills

Languages: Python, LaTeX, SQL
Frameworks: PyTorch, TensorFlow
Tools: PyCharm, Tableau, Visual Studio, SQL Server Management Studio

International Experience

Schooling: From U.S.A., Slovakia, Mauritius and India
Languages: English, Hindi, French (Intermediate level)