

# Rupali Bhati

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<https://rupalibhati.github.io/>  
<https://github.com/RupaliBhati>

## EDUCATION

**Université Laval/ Mila**  
Masters, Computer Science (with thesis)  
• GPA: 4.2/4.0

Quebec, Canada  
Sep 2020 - Dec 2022 (Expected)

**Delhi Technological University**  
Bachelors, Electronics and Communication Engineering  
• Percentage: 72.29/100 (WES equivalent 3.55/4.0)

New Delhi, India  
Aug 2012 - May 2016

## 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, David Langelier, Anthony Reiman, Jonathan Greenland, Kristin Campbell, 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**.
- Institute of Intelligence and Data (IID) Laval 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	<b>Reinforcement Learning Consultant</b>	
	<i>Multiple Companies</i>	<i>Feb 2019 - Aug 2020</i>
	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Worked with CatapulZ to develop RL blue agents to Capture-The-Flag in cybersecurity applications.</li> <li>• Applied DQN to continually increase account equity for trading in the Foreign Exchange Market.</li> </ul>	
	<b>Domain Expert</b> <i>UpGrad</i> <i>Sep 2018 - Jan 2019</i> <ul style="list-style-type: none"> <li>• Developed an end-to-end solution for a model inventory management problem to meet next-to-next day demand using DDQN.</li> </ul>	
	<b>Data Analyst</b> <i>KPMG</i> <i>Jun 2016 - Aug 2017</i> <ul style="list-style-type: none"> <li>• 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%.</li> <li>• Researched use cases of predictive and descriptive analytics to provide business insights to various government organisations which helped them automate processes and boost efficiency.</li> </ul>	
	<b>TEACHING EXPERIENCE</b> <ul style="list-style-type: none"> <li>• <b>Teaching Assistant</b>, <i>GIF-7005: Introduction to ML, Université Laval</i> <i>Fall 2021</i></li> <li>• <b>Mentor</b>, Codementor <a href="#">[link]</a> <i>Fall 2019 - Summer 2020</i></li> <li>• <b>Teaching Assistant</b>, Coding Blocks <a href="#">[link]</a> <i>Summer 2018</i></li> <li>• <b>Teaching Assistant</b>, UpGrad <i>Fall 2018</i></li> </ul>	
SERVICE	<b>Reviewer:</b> <ul style="list-style-type: none"> <li>• Montreal AI Symposium 2022</li> <li>• ITSC 2018</li> </ul>	
	<b>Facilitator:</b> <ul style="list-style-type: none"> <li>• ICLR WiML UnWorkshop: Machine Learning for Physical Sciences 2022</li> </ul>	
TECHNICAL SKILLS	<b>Languages:</b> Python, L <sup>A</sup> T <sub>E</sub> X, SQL <b>Frameworks:</b> PyTorch, TensorFlow <b>Tools:</b> PyCharm, Tableau, Visual Studio, SQL Server Management Studio	
INTERNATIONAL EXPERIENCE	<b>Schooling:</b> From U.S.A., Slovakia, Mauritius and India <b>Languages:</b> English, Hindi, French (Intermediate level)	