RUPALI BHATI

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19 September, 1993

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Research Interests

- Machine Learning (ML)
- Deep Learning (DL)
- Reinforcement Learning (RL)
- Artifical Intelligence (AI)

Programming Languages & Tools

- Python: PyTorch, Keras
- SQL, SQL Server Management Studio
- R
- MATLAB
- LaTeX
- Tableau

International Experience

One of the 35 delegates at ASES Entrepreneurial Summit at **Stanford University** | April, 2016

As Vice-President and Head of Electronics at Team DTU Supermileage, represented the team at **Shell Eco-Marathon Asia** at Manila, Philippines. The team stood in the **top 10** in its category. | February, 2016

French | Beginner level
German | Beginner level

Extra-Curricular Activities

Captain,
IIITD Basketball Team
2017 - 2018

Captain,
DTU Basketball Team
2015 - 2016

Social Responsibility

Volunteer,
Kisan Majdur Aadrash Inter Enter Higher Secondary School | 2016 - present

Founder and President,
Women in Science and Engineering (WiSE) - DTU | 2015 - 2016

Purpose

A strong headed individual with an exposure of growing up in four different continents. Enthusiastic about teaching and an experienced independent researcher.

Work Experience

Sep, 2018-Present — **Xpert, UpGrad - Online Education Platform** **[RL, Deep RL]**

- Independently formulated and developed an end-to-end solution using Q-learning as well as DQN for a model inventory management problem, wherein the demand follows a Poisson distribution (different lambda for each day of the week) and delivery time is 24 hours
- Results showed that the predicted order size matched the mean demand (lambda) of the next-to-next day. Improved the results of the DQN algorithm using Replay Memory, Prioritised Sweeping & DDQN.
- The same will be taught on UpGrad.com by faculty from International Institute of Information Technology - Bangalore (IIITB)

Sep, 2017-Aug, 2018 — **Research Assistant, IIITD (Advisor- Dr.Saket Anand)** **[RL]**

- At Indraprastha Institute of Information Technology - Delhi, trained an autonomous vehicle to learn optimal behaviour using Q-learning. The vehicle demonstrated the ability to smartly adapt communications and planning actions, while achieving large driving utilities. The publication for the same has been accepted at IEEE ITSC, 2018.
- Learnt in detail about Dynamic Programming, POMDPs, Monte-Carlo methods, function approximators and DDQN

Jun, 2018-Jul, 2018 — **Teaching Assistant, Coding Blocks (CB)** **[ML, DL, RL]**

- Assisted undergraduate and postgraduate Computer Science engineering students at the 'Advanced ML & AI' classroom course with hands-on training of algorithms like KNN, DT, ANN, Auto-encoder, RNN, LSTM, etc. and projects like Inceptionism (Deep Dream), text generation, face-detection, etc.
- Taught multiple lectures on topics including Introduction to RL, PCA, Linear Algebra, Logistic Regression, etc. to the 35+ students

Jun, 2016-Aug, 2017 — **Data Analyst, KPMG** **[Data Analysis, RL]**

- In collaboration with Microsoft, developed an algorithm using python, R and SQL for automating 'Dynamic Pricing of Tickets' to maximise revenue using Policy Iteration. Sucessfully indicated increase in revenue and helped 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

Publications and Peer Review

1. Mayank K. Pal, **Rupali Bhati**, Anil Sharma, Sanjit K. Kaul, Saket Anand and P.B.Sujit - A Reinforcement Learning Approach to Jointly Adapt Vehicular Communications and Planning for Optimized Driving. *Accepted at IEEE ITSC, 2018*.
2. Reviewer for IEEE ITSC, 2018.

Education

Undergraduate — **Delhi Technological University, New Delhi, India**
B.Tech - Electronics and Communication (2012-2016)
Aggregate - 72.29% (WES Equivalent of 3.55/4). Awarded First Class.
Relevant courses: Mathematics-I (Calculus), Mathematics-II (Linear Algebra, Differential Equations), Programming Fundamentals, Probability and Stochastic Processes, Signals and Systems, Information Theory and Coding, Digital Signal Processing, Control Systems, Digital Image Processing, Soft Computing, Robotics and Object Tracking

Completed Courses

Classroom
Advanced Machine Learning and AI at Coding Blocks

Online
- Reinforcement Learning Explained at edX.org
- Machine Learning by Stanford University at coursera.org
- Introduction to Python for Data Science at edX.org