RUPALI BHATI

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WORK EXPERIENCE

Fiverr   Feb 2019 - present
Freelancer   *[RL, Deep RL]*

· Teaching fundamentals of reinforcement learning to multiple working professionals. Helping them upskill and apply reinforcement learning to stock prediction and customer purchasing behavior.
· Worked on a Traffic Light Control problem using Actor-Critic algorithm in Simulation of Urban Mobility (SUMO) simulator (https://github.com/RupaliBhati/Traffic-Light-Control-using-Reinforcement-Learning)
· Hosted a workshop on reinforcement learning for employees at Adventum. Assisted them with applications of reinforcement learning to medical imaging problems.
· Successfully implemented 'A Reinforcement Learning Model for Solving the Folding Problem' [Czibula et. al] using Q-learning in python

UpGrad - An Online Education Platform   Sep, 2018 - Jan, 2019
Xpert   *[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.
· Designed assignments on dynamic programming, Monte Carlo methods & temporal difference learning
· Assisted students by taking TA sessions on reinforcement learning

Indraprastha Institute of Information Technology - Delhi   Sep, 2017 - Aug, 2018
Research Assistant (Advisor - Dr.Saket Anand)   *[RL]*

· 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.
· Learned in detail about dynamic programming, POMDPs, Monte-Carlo methods, function approximators and DDQN

Coding Blocks   Jun, 2018 - Jul, 2018
Teaching Assistant   *[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. (https://github.com/RupaliBhati/Perceptron_Summer_Noida_2018)
· Taught multiple lectures on topics including Introduction to RL, PCA, linear algebra, logistic regression, etc. to the 35+ students

KPMG   Jun, 2016 - Aug, 2017
Data Analyst   *[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. Successfully 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

- 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'. *Published at IEEE ITSC, 2018.* (https://ieeexplore.ieee.org/abstract/document/8569484)
- Reviewer for IEEE ITSC, 2018.

EDUCATION

Delhi Technological University, New Delhi, India   *2012 - 2016*
Bachelor of Technology - Electronics and Communication
Aggregate - 72.29% (WES equivalent 3.55/4). Awarded First Class.
<u>Relevant courses</u>: Mathematics-I (Calculus), Mathematics-II (Linear Algebra, Differential Equations), Programming Fundamentals, Probability and Stochastic Processes, Signals and Systems, Control Systems, Digital Image Processing, Robotics and Object Tracking

Reinforcement Learning Summer School, Lille, France (https://rlss.inria.fr)   *July, 2019*
Discovered the theory and practice of multi-arm bandits, dynamic programming, temporal difference learning and deep reinforcement learning.

PROGRAMMING LANGUAGES TOOLS

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

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*

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*)
- Schooling from U.S.A., Slovakia, Mauritius and India
- French (*Beginner level*)
- German (*Beginner level*)