AMANDEEP RATHEE

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Education

- **Duke University, Durham, NC**
  Master of Science in Interdisciplinary Data Science; GPA: 3.8/4.0 *August 2019 – May 2021*
  Teaching assistant for two graduate courses: *Data Visualization* and *Healthcare Analytics*.
- **Visvesvaraya Technological University, Bengaluru, India**
  Bachelor of Engineering in Computer Science and Engineering *August 2013 – June 2017*

Relevant Work Experience

- **Machine Learning Intern, LifeOmic Inc.** Morrisville, NC; May 2020 - August 2020
  - **Quantization**: Reduced the inference time and model size of a fax-denoising convolutional neural network by 4 times.
  - **Intelligent Document Router**: Implemented a machine learning model that uses fast-Fourier transform and other computer vision algorithms to predict noise in clinical faxes.
  - **Leveraged knowledge** in Python, CI/CD, cloud computing, test-driven development, deep learning for computer vision, neural network quantization, signal processing, and setting up and implementing a supervised learning problem.
- **Data Science Intern, Duke Computational Biology Center** Durham, NC; Nov 2019 - May 2020
  - **RPhenoscape**: Developed a feature for an open-source R package that computes mutual exclusivity among various phenotypes from different species based on information extracted from unstructured ontology-based data.
  - **Leveraged knowledge**: in working with unstructured data, collaborative development using Git, and unit and integration testing your code.
- **Data Science and ML Content Strategist, Upgrad Inc.** Bengaluru, India; Jul 2017 - May 2019
  - **Telecom Churn**: Created machine learning models for predicting customer churn and for making inferences about drivers of churn for India's largest telecom company Bharati Airtel.
  - **Data Science, Machine Learning & AI Graduate Programs**: Created modules on data science, machine learning, deep learning, and natural language processing that increased revenue of these one-year online programs by $500,000, drove the net promoter score from +25% to +60%, and helped them become top online AI programs in India.
  - **Leveraged knowledge** in CRISP-DM framework, data analysis, visualization, machine learning, and AI by creating projects such as *Patient Readmission Prediction*, *Neural Network Story Generator*, and *Email Spam Detection*.

Skills

- **Supervised Machine Learning**: regression, decision trees, random forest, gradient boosting machines, support vector machines, k-nearest neighbors, neural networks, transfer learning, ensemble methods, model stacking, and quantization.
- **Unsupervised Machine Learning**: K-means clustering, hierarchical clustering, and principal component analysis.
- **Reinforcement Learning**: Policy-based learning, value-based learning, actor-critic methods, and trust region policy optimization.
- **Experience in**: statistical analysis, machine learning, deep learning, reinforcement learning, natural language processing, computer vision, data analysis, and data visualization.
- **Languages**: Strong in Python, R, Java, C++, and SQL.
- **Tools**: Pytorch, tensorflow, keras, scikit-learn, pandas, numpy, matplotlib, tidyverse, and Tableau.
- **Certifications and Technologies**: AWS Certified Cloud Practitioner, CI/CD pipeline, agile development, Git, and CLI.

Projects and Achievements

- **[Graduate Capstone] Solving Vehicle Routing Problem Using Reinforcement Learning:** Coming up with heuristics using attention-based reinforcement learning methods to solve a NP-hard vehicle routing problem.
- **[Undergraduate Capstone] Helmet Detection on Two-wheeler Riders Using Machine Learning:** Trained an ML model that detects riders riding a two-wheeler without a helmet. Also published as a paper in the IJAECS journal.
- **Playstation vs Xbox:** Conducted statistical analysis to determine that PlayStation games have 30% higher sales than Xbox games.
- **Sentiment Analysis:** Analyzed public opinion on Demonetization – a highly controversial currency ban that happened in India in 2016 – using Twitter API, and found that 50% of the tweets were neutral, 30% were in favor and 20% were against the ban.
- **Kaggle Top 0.1%:** Ranked #33 among 150,000+ data science practitioners on Kaggle as a result of winning one gold, one silver, and seven bronze medals by sharing insightful analyses using open datasets.