Vatsal Aggarwal

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EDUCATION

University at Buffalo, The State University of New York	Buffalo, NY
Master's of Science in Computer Science, Minor in Machine Learning (GPA: 3.92/4.00)	*Aug. 2022 – Feb. 2024*
Manipal Institute of Technology	Manipal, Karnataka, India
Bachelor of Technology in Computer Science, Minor in Intelligent systems	*Jul. 2015 – Jul. 2019*

EXPERIENCE

Samsung Research Institute, Bangalore — Jul 2019 – Jul 2022

Senior Software Engineer — *Bengaluru, India*

- Enhanced the AI model performance and KPIs such as inference time, model size, and VMAF score. The new model **boosted the QoS of native video calls by 8.42%** for Samsung flagship devices in 2022.
- Refactored code using clean code practices & Test Driven Development (TDD) to **increase code coverage by 15%**.
- Developed a POC by deploying Generative Adversarial Networks to **improve existing KPIs by 12.24%** for real-time application in low bandwidth conditions.
- Built and integrated key features to enhance the user experience for native video calls on mid-tier Samsung mobile devices.
- Reduced time consumed per issue analysis by 30 mins (approx.) by formulating an automation software to collate a summary report and help with issue analysis.

Student Trainee — *Jan 2019 – Jun 2019*

- Implemented a calendar event notification system leveraging NLP and Deep Learning approaches. Developed and trained different deep learning models, including CNNs and BiLSTMs, exploiting word and character embeddings to obtain sentence representations for input categorization.

RESEARCH EXPERIENCE

Indian Institute of Technology (Banaras Hindu University) IIT BHU — May 2018 – Jul 2018

Research Intern at Information Retrieval Lab, Dr. Sukomal Pal — *Varanasi, India*

- Proposed a Deep Learning and NLP-based Recommender System utilizing pre-trained word2vec embeddings. Recommender System Achieved **74.46% accuracy** for Top-5 recommendations.

Indian Institute of Management Bangalore — May 2017 – Jul 2017

Research Intern at Digital Innovation lab, Dr. Shashank Garg — *Bengaluru, India*

- Performed credit and finance risk predictive modeling (R programming) for public sector banks offering education loans to students pursuing graduate and undergraduate studies, helping reduce their NPA burden.
- Designed the complete ML pipeline to train ensemble learners with regression output to predict NPA score.

PROJECTS

Retrospective Cycle GAN | *Python, TensorFlow, Git* — Oct. 2020 – Jun. 2021

- Implemented Retrospective Cycle GAN (Generative Adversarial Network) for video frame prediction, mentioned in the paper. TensorFlow was employed, with multi-GPU support via distributed mirrored strategy.

Melanoma Detection in Dermoscopic Images | *Python, MATLAB, Git* — Mar. 2018 – Dec. 2018

- Achieved an overall **accuracy of 87.5%** in classifying melanocytic lesions through a novel approach of using dynamic selection from a pool ensemble classifiers created applying the bagging technique (paper).

TECHNICAL SKILLS

Languages: Python, Shell Scripting, C, C++, R, Java, SQL (Postgre), JavaScript, HTML/CSS
Frameworks & Libraries: Tensorflow, Keras, PyTorch, JUnit, gMock, Node.js, NLTK, spacy, Librosa
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Android Studio
Methodologies: Google APIs, Software Development Life Cycle, Object Oriented Programming, Unit Testing, Test Driven Development
Soft Skills: Leadership, Communication, Time Management, Problem Solving, Critical thinking
Interests: Software Development, ML/AI, Back-end Development, Cloud Technologies, ML Research