Anush Kumar Venkatesh

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Education

University of Colorado Boulder **August 2022 – May 2024**
Master of Science in Computer Science, GPA : 4.0 *Boulder, U.S.A*

Ramaiah Institute of Technology **August 2015 – June 2019**
B.E in Information Science and Engineering, CGPA : 9.48 *Bengaluru, India*

Technical Skills

Languages/ Frameworks: Python, Java, HTML/CSS, JavaScript, Pytorch, GoLang, React.js, Node js
Developer Tools: VS Code, IntelliJ
Technologies: Git, GitHub, Apache Kafka, Oracle SQL, Mongo DB, Neo4j, AWS, Kubernetes

Experience

Software Engineer Intern **May 2023 – August 2023**
The Mathworks, Inc *Natick, U.S*

- Coordinated with UX teams to redesign an existing MATLAB toolbox UI, addressing 4 key end-user pain points.
- Implemented a versatile front-end application using modern JavaScript standards, supporting and dynamically rendering 20+ custom UI widgets based on backend data.

Associate Software Engineer **January 2019 – July 2022**
J.P.Morgan & Chase *Bengaluru, India*

- Collaborated with cross-functional teams to develop a heuristic and simulation-based credit risk calculator in Python. This tool efficiently computed the risk associated with over 3000 clients the firm trades on a day-to-day basis.
- Optimized the distribution logic for processing data in parallel and reduced execution time by 4 hours.
- Drove the effort to integrate Kafka, replacing Oracle DB, into an existing application to consume data from 20+ upstream sources. It further aided in reducing licensing cost associated wit Oracle DB usage by 40%.
- Spearheaded a five-person team to train a Reinforcement Learning model as part of the AWS deep racer program internal to the firm. The group stood sixth, competing with over 100 participating teams.

Summer NLP Intern **June 2018 – August 2018**
Stride.ai Inc *Bengaluru, India*

- Devised a CLI tool in python to support annotation of named entities belonging to a financial domain. The data was used to build **DEXTER**, the firm's internal data extraction tool. It reduced 15 weekly person-hours.
- Collaborated with the team to train a Semantic Role Labeling model for financial data. Led the effort to improve the F1 score from 87.5 to 91.67 by performing a feature ablation study.

Projects

MultiPerspective VQA | *Python, Pytorch, HuggingFace* | **December 2023**

- Evaluated the effectiveness of several prompting techniques on 3 foundational VQA models (Blip2, InstructBlip, and OpenFlamingo) to produce correct and diverse set of answers for the same visual question to mimic human responses
- Reported an average accuracy of 40%, suggesting that while the models can generate correct answers, they fall short in replicating the diversity observed in human responses, atleast in existing VQA models.

Mathematical Reasoning using MathQA dataset | *Pytorch, OpenNMT* | **March 2022**

- Built a Transformer based Fixer module to auto-correct incorrectly annotated data points from the MathQA dataset using Self-Supervision. It corrected 16% of inaccurately labeled data from the training set.
- Improved the overall accuracy of the mathematical reasoning model by 2% through retraining with augmented, corrected data points.

Machine Translation for Low-Resource Languages | *Pytorch* | (publication) **May 2019**

- Devised a novel data augmentation approach that used an unsupervised statistical machine translation model to produce additional synthetic parallel corpus in the cases of low-resource languages.
- Improved the BLEU scores for supervised neural machine translation by 3 points on the English-Russian low-resource language pair with the additional data.
- Published the findings at Recent Advances in Natural Language Processing, 2019, where I first authored.