



Anush Kumar Venkatesh

🏠 Boulder, CO 80302 📞 720-843-8386 ✉ anushkumarv3@gmail.com  [anushkumarv](#)  [anushkumarv](#)

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 MATLAB toolbox UI using React.js and Redux. Developed over 25 custom components (including search, forms, breadcrumbs etc) and maintained states to selectively render required components based on backend data.
- Participated in a team-wide event and helped identify 5 UI bugs in the dark mode version of MATLAB browser.

Associate Software Engineer

January 2019 – July 2022

J.P.Morgan & Chase

Bengaluru, India

- Collaborated with cross-functional teams to develop APIs that computes credit risk for over 3000 clients using Python, Numpy, Pandas and Flask. The application processed over 1 million records on a daily basis.
- Optimized the distribution algorithm for parallel processing of client's data. The approach spawned additional sub-processes to further parallelize computation for large clients and reduced execution time by 2 hours.
- Worked jointly to architect the integration of Kafka for data ingestion from the firm's data lake platform. It eliminated continuous polling of SQL DB tables to monitor changes, thereby reducing the read load on the database by 30%.
- Implemented Python scripts to verify code compatibility checks with Python 2.7 and Python 3.6. It ensured production readiness and future-proofing new code before merging.
- Designed custom profiling tools using cProfile and memory_profiler in Python to simulate code performance on smaller data subsets. It helped identifying bottlenecks in newly added features and aided in reducing testing time by 30%.
- 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.

Technical Skills

Languages/ Frameworks: Python, React.js, Redux, JavaScript, HTML/CSS, Pytorch, GoLang, Node.js

Technologies: AWS, GCP, Apache Kafka, Kubernetes, Oracle SQL, Mongo DB, Neo4j, Git, GitHub

Education


University of Colorado Boulder, *Master of Science in Computer Science*

August 2022 – May 2024

Ramaiah Institute of Technology, *Bachelor of Engineering in Computer Science*

August 2015 – June 2019

Relevant Projects

HyperParameter Tuning as a Service | *Python, React.js, Kafka, MongoDB, Kubernetes, GCP* |  **December 2023**

- Built a web app for parallelized hyper-parameter tuning of ML models on the GCP resulting in a 30% reduction in training time compared to a single machine.
- Developed the front-end using React.js which included interfaces for login, submitting new job requests, and displaying the status of ongoing and completed jobs. Wrote REST APIs using Python and Flask to provide data for front-end.
- Wrote scripts to containerize every service and deploy them on Google Kubernetes Engine.

Connected Papers on Arxiv Web App | *GoLang, React.js, Neo4j, Kubernetes, GCP* | 

April 2023

- Collaborated with a team of 6 to design a web app that displays the citation network for a given research paper in arXiv. It aided in 20% quicker exploration of connected research papers.
- Implemented a batch processing service in GoLang to parse metadata of over 100000 research papers to build a citation network using a simple breadth-first search algorithm and store the results in Neo4j DB.
- Created REST APIs using GoLang and Gin framework to fetch results from Neo4j DB.
- Used React.js and Redux to build interfaces for login, search, and rendering citation network for a given input.

Achievements

- Served as a teaching assistant for the "Intro to Programming in C++" course for over 1000 students. Created lab assignments, graded assignments, and conducted office hours.
- Facilitated a series of workshops for peers, junior-year, and sophomore-year students as part of the developer student community. It covered version control and software design patterns.

Other Projects

Effective Prompting for Visual Question Answering (VQA) | *Python, Pytorch, HuggingFace* | **April 2024**

- Built a new dataset with over 3000 data points containing a mixture of ambiguous and unambiguous visual questions
- Evaluated the effectiveness of using zero-shot, few-shot, and chain of thought prompting on open-source VQA models to identify ambiguity and produce answers from multiple perspectives for ambiguous visual questions.
- Improved model accuracy by 5% upon adopting instruction tuning and prompt calibration methods on the LLM component of the VQA models. Defended Master's thesis in the same area.

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 data for 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.

Soft-Braille Desktop App | *Python, PyQt* | **July 2018**

- Created a desktop app to assist teachers in automatically translating an English textbook to its Braille equivalent, helping in an 80% conversion of primary school materials.
- Introduced an innovative algorithm to represent edges of an image with Braille characters to mimic tactile graphics.
- Recognized with Inspiration award by Ministry of Social Justice, Govt of India.