

RITIKA MANGLA

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EDUCATION

The University of Texas at Austin, Austin, TX *Expected: May 2024*
M.S. in Computer Science GPA: 3.86/4.0
Coursework: Machine Learning, Cryptography, Spoken Language Technologies, Natural Language Processing

Veermata Jijabai Technological Institute, Mumbai, India *Jul 2022*
B.Tech. in Information Technology GPA: 3.96/4.0
Coursework: Data Structure and Algorithms, Database Management, Distributed System, Operating System Rank 1

SKILLS

Python, C/C++, Java, JavaScript, TypeScript, SQL, R, Git, Node.js, React.js, Spring Boot, Flask, HTML5, CSS, Kubernetes, Docker, Tensorflow, Pytorch, Elasticsearch, MySQL, PostgreSQL, MongoDB, SQLAlchemy, Neo4j

WORK EXPERIENCE

University of Texas at Austin (UTNLP) | Graduate Research Assistant | Austin, TX *Jan 2023-Present*

- Developing the first linguistically driven framework for automatic evaluation of QuD (Questions under Discussion) parsers, a complex **Question Generation** task
- Presented QUDeval, a dataset of fine-grained evaluation of 1700 QuDs, generated from fine-tuned systems & LLLMs
- Designed & evaluated a set of reference-free and reference-based metrics, leveraging LLMs to assess QuD quality
- Formulated a 2-step ChatGPT based few-shot prompting strategy to produce questions and anchors grounded in them
- Submitted the paper to **EMNLP 2023**
- Applications:** text simplification and summarization, guided text writing and improving conversational AI

Hewlett Packard Enterprise | Software Engineer Intern | San Jose, CA *May-Aug 2023*

- Automated the workflow of the namespace index module using C++ based customized gRPC services which targeted large workloads, thereby reducing manual testing hours by 60%
- Integrated a standalone centralized Elastic-search based repository for storing IO workloads with the common feature library for improved search ability while reproducing specific customer use-cases or triaging performance issues
- Contributed to 4 different code repositories by cross-functionally collaborating with 5 different teams and stakeholders
- Received **2 HPE Star Points** as a recognition of my work exceeding expectations

Goldman Sachs | Software Engineer Intern | Bangalore, India *Jun-Jul 2021*

- Engineered an event creation and management platform, saving 10,000+ man hours for budgeting and approvals
- Integrated new front-end and middleware with existing legacy backend which was used by 100+ internal departments
- Designed test cases for unit testing and exposed to building the CI/CD pipeline for deploying production-level code
- Collaborated cross-functionally with UI/UX teams and stakeholders to design a dashboard surfacing business insights

COE-CNDS Lab | Undergraduate Research Assistant | Mumbai, India *Dec 2019-Dec 2021*

- Developed a novel approach of 'bot-score' to detect bots in Twitter with an F1 of 97.3%
- Performed feature engineering and statistical data analysis to understand the influence of bots in trending a hashtag
- Examined the influence of bots by detecting communities with bot representations using the Louvain algorithm
- Developed a FLASK based web-app to make an easy-go-access interface to ascertain a Twitter user's bot probability
- Published the work in **2020 IEEE INDICON** and **2021 IEEE ASIANCON**

PROJECTS

MultiHop Question Answering | Python, Machine Learning

- Engineered an algorithm to perform multi-hop QA on HotpotQA dataset using reasoning chains
- Parallelized DFS and NER calculation using the multiprocessing module, reducing processing time by 62%

Startup Quest | Python, Flask, SQLAlchemy

- Secured 'First place' in HackIT 2.0, a national level hackathon organized by KJSCE, competing against 600+ teams
- Created a social media bot which indexed 2000+ potential startup ideas and a CRM dashboard to display it
- Developed a news feed scraper to trace activities of the projects by web scraping data using BeautifulSoup

Investigating Novel Architectures for Automatic Speech Recognition | Speech Processing, ESPNet

- Developed a Kaldi-based implementation of ContextNet, a CNN-RNN based transducer architecture for ASR
- Benchmarked state-of-the-art architectures like Conformer, Branchformer and experimented with model parameters

LEADERSHIP

- Led 10 hours/week lab discussions as a Teaching Assistant for the Data Science Lab (August 2022 – May 2023)
- Co-founder** at **EduBubble**, an e-learning venture for engineering students; Mentored 1000+ students, helped 220 students prepare for internships