Shreya Rajpal

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OBJECTIVE

A proficient student with 2 years of experience in NLP and Generative AI is aiming to pursue PhD in NLP and Language Models.

EDUCATION

Vellore Institute of Technology Vellore, Tamil Nadu   2021-2025
Bachelor of Technology in Computer Science Engineering   *C*GPA 8.81/10.0
- Accolades: Top 10% of the class in a cohort of 70 students.   US eq GPA 3.52/4.00

EXPERIENCE

Undergrad Researcher, BEEE Lab-VIT Vellore- Tamil Nadu, India(Remote)   Aug 2024 – Present
- Selected as an Undergraduate researcher **to work on Lithium-ion Battery performance optimization in Electric Vehicles using predictive models.**
- Worked on 2 research papers leveraging various Natural Language Processing algorithms like LightGBM and Long Short Term Memory for analyzing and predicting from the datasets.

Research Assistant, Financial Services Innovation Lab- Georgia Tech – Atlanta, USA (Remote)   May 2024 – Present
- Selected as a Volunteer Research Assistant at Georgia Tech under Prof. Sudheer Chava among a competitive pool of 1200+ applicants.
- Currently engaged in leveraging **large language models (LLMs) in the financial domain for analysis and development**.

Research Intern, CERAI Lab- IIT Madras– Tamil Nadu, India(Remote)   May 2024 – Present
- Currently undertaking an internship at IIT Madras under Dr. Gokul Krishnan, focusing on the application of medical language models (LMs) **including large and small language models to improve diagnostic accuracy and optimize patient care.**
- Actively involved in projects that integrate advanced machine learning techniques with medical data processing to boost healthcare outcomes.

Research Intern, Semantic Systems Research Group-University of Hamburg-Hamburg, Germany   Aug 2023 - Sep 2023
- Engineered a Pangu-inspired system enhancing one-hop relation identification between knowledge graph entities, leveraging Bert CLS embeddings for efficient extraction and ranking of candidate pairs.
- Attained **100% accuracy on 200 DBLP QuAD** questions, achieving an F1 score of 0.2175 on a 500-question test dataset for Scholarly QALD @ISWC 2023, setting a new benchmark in knowledge graph query answering.
- Mastered sparql, s-expressions, and advanced knowledge graphs, alongside refining semantic relations using NLP models, notably Bert.
- Co-authored and published **"BERTologyNavigator: Advanced Question Answering with BERT-based Semantics"** under Prof. Dr. Ricardo Usbeck in the Joint Proceedings of QALD 2023 and SemREC 2023 (ISWC 2023). Integrated BERT for question answering and significant F1 scores on DBLP datasets.

App Developer Intern, Resshu Connect Pvt Ltd. (Apna Konnect)   Jan 2023 - Mar 2023
- Achieving over 100+ downloads and a 5-star rating on Google Play Store through user-centric features and bug resolutions in a social networking app developed in a team of 7.
- Spearheaded the addition of profile functionality, deep linking via Firebase, and push notifications, enhancing user engagement and app functionality in a dynamic team of lead software engineers and designers.
- Expanded expertise in React Native and Firebase, contributing to the app's continuous improvement and feature-rich platform.

RESEARCH WORK

BERTologyNavigator: Advanced Question Answering with BERT-based Semantics(Research Contribution)
Team Size: 4   Role:AI Researcher
- Co-authored a significant paper on leveraging BERT embeddings for question answering, published in Scholarly QALD 2023 and SemREC 2023 proceedings, ISWC 2023.
- Designed BERTologyNavigator, integrating knowledge graphs and BERT for advanced QA tasks, achieving impressive F1 scores on the DBLP datasets.

Medisentbot (Research Contribution)
Team Size: 2   Role:AI Researcher
- Tested three language models in few-shot and zero-shot prompting—on a medicinal review dataset, comparing modern NLP techniques with traditional methods like LSTM and XGBoost.
- Developed MediSentBot, a system for live reviews, medicine review analysis, and a patient-friendly chatbot, leveraging a 95% accuracy to analyze reviews. The paper has been awarded the Best Paper Award at ICCCNet Conference 2024, UK.

Automatic Number Plate Recognition (ANPR) System (Research Contributions)
Team Size: 2   Role:AI Researcher
- Conducted comprehensive research on ANPR systems, emphasizing GPU over CPU performance enhancements and the role of high-resolution cameras in character recognition accuracy.

- Utilized Python, OpenCV, and EasyOCR in developing the system, documenting findings on the impact of technological advancements on ANPR efficiency.

PROJECTS

FinRAG- Financial Analysis Bot

Team Size: 2   Role:AI Developer

- **Designed a bot to understand and provide answers related to SEC filings over 20 years for any company.**
- Utilized **retrieval-augmented generation (RAG)** techniques for dynamic document integration and question answering.
- Tech Stack used: Python, LangChain library, Streamlit.

Codegen - Code Generation Assistant

Team Size: 3   Role:AI Developer

- Developed a code generation assistant using **FALCON and multiple LLMs** to generate and complete code.
- Focused on improving coding practices and enhancing developer productivity through AI.
- Tech Stack used: Python, google collab, LMs like Falcon and Polycoder.

Code Canvas (GSSOC'23)

Team Size: 100+   Role: Project Admin

- Served as Project Admin, leading the "Code Canvas" GitHub repository for GirlScript Summer of Code 2023.
- Managed and resolved over 250 issues, providing support and guidance to contributors.
- Reviewed and merged 150+ pull requests, ensuring high standards of code quality and project consistency.

Games and Go (Hacktober Fest 2022, GSSOC'23)

Team Size: 100+   Role: Project Admin

- Designed and developed the user interface and experience for a gaming website using ReactJS.
- Handled over 560 issues, facilitating effective problem-solving and project advancement.
- Code Review: Managed and reviewed 590+ pull requests, maintaining the integrity and quality of the project contributions.

SKILLS

- **Programming Languages & Technologies**: Python, Java, C++, C, web designing using HTML, CSS, and JavaScript. MySQLand MongoDB for database management, Figma, and Canva for design, and Microsoft Office suite for productivity.
- **Development Tools & Frameworks**: Redux, React.js, Node.js, Express.js, MongoDB (MERN Stack), Firebase, Git, GitHub, React Native, AWS Machine Learning (Deep Racer), Flask, Docker, Azure Cloud, FastAPI
- **Data Science & Machine Learning**: Python libraries for data analysis, including Numpy, Pandas, Scikit-learn, Matplotlib, PyTorch, SPARQL for querying RDF databases, Hugging Face Libraries, and OpenCV
- **Data Visualization**: MATLAB and PLS Toolbox/Solo 9.5 by Eigenvector Lab for Data plotting and visualization.

ACHIEVEMENTS

- **1st Prize at Eco Hack IEEESSIT, VIT** (2021) among 50+ teams from VIT, University.
- **2nd Prize at CIL Hackathon** (2021) among 200 teams all over India.
- **Scholarship Stipend of 1,60,000 INR for** Bachelor Students University of Hamburg, Germany.
- **Mercer Mettl Hackathon** 2024 Top 50 teams - Gprize among 500+ participants.
- **Subject Excellence** in English, Social Sciences and Overall Excellence, 2018-2019, Presidium School.
- **AWS-Udacity Scholarship** for AI programming in Python.
- **Speaker Session** at Code Confluence - Igniting Open Source Innovation by IEEE SSIT VIT (50+ audience).
- **Grace Hopper Celebration Scholarship** 2023 Recipient.
- **Grace Hopper Celebration Scholarship** 2024 Recipient.
- Selected as an **RA for FSIL Georgia** Tech among 1500+ applicants.
- 2 projects accepted to **Girls Script Summer of Code'23.**
- **Womanium Quantum Scholar** 2024
- **Womanium Quantum Final Awards'24 – Top 14 Finalists**
- **IET Scholarship Award'24- Top 100 in 64000+** participants.
- **Best Paper Award at ICCCNET'2024 for MediSentBot**

CERTIFICATION

- **AWS-Udacity Nanodegree** for **AI programming in Python**
- **Advance Frontend Web Development Course** by Coding Ninjas
- **Semantic Web** Technologies- OpenHPI
- **MERN from Scratch** 2023 Udemy Course by Brad Traversy
- **Sequence Models** Coursera DeepLearning.AI course
- **Python for Computer Vision with Open CV and Deep Learning** Udemy Course by Jose Portilla
- **ChatGPT Prompt Engineering** course by DeepLearning.Ai
- **Google Cloud Digital Leader** Badges(6 modules completed)
- **Microsoft Azure AI Fundamentals** Professional Certificate (921/1000)