Praveen Kumar Ramesh

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Education

University of California, San Diego **GPA: 3.93/4.0**
Master of Science in Computer Science *Sep 2022 – Mar 2024 (Expected)*
Course work: Compilers, Algorithms, Database Management, Machine Learning, Complexity Theory.

Anna University (Sri Sivasubramaniya Nadar College of Engineering) **GPA: 9.09/10.0**
Bachelor of Engineering in Computer Science and Engineering *Aug 2017 – Apr 2021*
Course work: Software Engineering, Operating System, Parallel Computing, Data Structures

Technical Skills

Languages: JavaScript, Java, Python, C, C++, Objective-C, Bash, HTML/CSS, SQL, LaTeX, Rust, Haskell
Frameworks: ExpressJS, ReactJS, Springboot, OrientDB, Vertx, Tensorflow, Pytorch, OpenCV, Tkinter
Technologies: Git, Subversion, Arduino, Andriod Studio, Unix, LLMs

Experience

LEI Lab(UCSD) **San Diego, USA**
Graduate Research Assistant & Student Developer *Jan 2023 – Present*

- Spearheading an initiative to prove lower bounds on hallucinations in LLMs and engineer robust prompts to reduce hallucination by at least 20% in factual QA tasks. Advised by Dr Mohan Paturi and Dr Leon Bergen.
- Designing a robust **database management system for the campus AI tutor** to store, retrieve and archive 1000's of user information that is updated on a regular basis, managed and led by Dr Matthew Clegg.

Goldman Sachs **Bangalore, India**
Analyst - Software Development Engineer (full time) *Aug 2021 – Aug 2022*
Winter Intern & Summer Intern *Jan 2021 – Jul 2021 & May 2020 – Jun 2020*

- Collaborated with teams across time zones in developing a financial tool to **process statistical data of 100,000 business entities in real-time**, leveraging ReactJS, SybaseASE, and Java to construct a scalable system.
- As a summer intern, optimized pipeline analysis by restructuring 500k data points with OrientDB, translating it to a graph. Further, exposed APIs via Vertx to interact with the database.

Admatic Solutions **Chennai, India**
Intern *May 2019 – Jul 2019*

- Engineered a low-cost smart teaching assistant, setting a new standard by reducing inference latency to 0.1 seconds, delivering real-time results that transform learning.
- Built a state-of-the-art depth detection algorithm for robot navigation, overcoming challenges of unconstrained environments and achieved RMSE less than 4cm, and laying the foundation for future development.

Selected Projects

Snek Compiler | *Course Project* [code] *Apr 2023 – May 2023*

- Designed and coded a compiler for Snek, a custom language, from scratch, advised by Dr Joe Gibbs Politz.
- Integrated contemporary compiled language features including heap allocation, garbage collection, and code optimization **reducing execution time by 25%**.

Type Racer | *Course Project* [code] *Sep 2022 – Dec 2022*

- Architected and developed a multiplayer gaming application using Haskell, facilitating data synchronization across a network of client devices, managing more than 10 clients efficiently.
- Created a user interface and a server-client architecture utilizing TCP/IP to offer a seamless connection

Behavioral Model: Industry 4.0 | *Ford Hackathon*[code] *Apr 2020 – May 2020*

- Realised, improved and tested 3 behavioural models, culminating in crucial feedback for PLCs via OPC DA protocol, and slashed testing costs to zero.
- Led the team to victory with a **1st finish on the national stage** by analyzing and programming the system's core logic.

Smart Attendance Management System | *Smart India Hackathon* [code] *Jan 2020 – Feb 2020*

- Built and deployed a web application and synchronised it with a react-native mobile app. Further, enhanced system with AI-based validation checks.
- Researched and trained face and voice recognition systems and interfaced them with Flask micro-services to run models offline reducing the inference cost to $0 and inference time to less than 1 second.

Honors and Awards

★ Graduated with 19^{th} rank among 15,000 undergraduates from across state.
★ Secured top 5 percentile in International Youth Math Contest - 2020 edition.
★ Served as a reviewer and conference chair at ICMLA 2021.