

Jorrel Rajan

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EDUCATION

Princeton University

Princeton, NJ

Bachelor of Engineering in Computer Science

GPA: 3.9 / 4.0

Minor in Statistics and Machine Learning, Minor in Robotics

August 2022 – May 2026

- Avionics sub-team lead in Princeton Rocketry Club. TA for Data Structures and Algorithms (COS226). TA for Intro to Systems Programming (COS217), Grader for Full-Stack Web Dev Course (COS333)

EXPERIENCE

Software Engineering Intern

May 2025 – Present

The Vanguard Group

Malvern, PA

- Developed an full-stack application for tracking Amazon Web Service (AWS) accounts and services used across Github repositories. Leveraged AWS Lambdas, S3s for backend, and developed Angular frontend.
- Implemented an LLM-powered transaction classifier with AWS Bedrock for a personal finance dashboard with AWS Lambda. Built database schema for storing transaction data in DynamoDB, along with a RESTful API.
- Adopted enterprise-level software development practices including Agile methodologies for fast development, conducting technical demos for non-technical management, and implementing comprehensive unit testing.

AI & Backend Software Engineer Intern

December 2024 – May 2025

PlayMaker Software

Remote

- Engineered a contract analysis pipeline leveraging Google Cloud Services to ingest contract text, segment into chunks, generate vector embeddings, and store in PostgreSQL with pgvector extension for a vector database.
- Built a Retrieval Augmented Generation (RAG) chatbot with Gemini LLMs and a tool-calling agent loop to answer contract inquiries through similarity searches on vectorized contract data and integrating with company data.
- Created an automated Asset Extractor module that iteratively parses contracts using an LLM to identify and extract potentially sellable items or clauses, streamlining asset identification to store in a structured form.

Electronics and Control Systems Intern

May 2023 – September 2023

Princeton University Department of Physics

Princeton, NJ

- Implemented control systems in C++ on an autonomous glider. Worked with team of 3, under a NASA contract.
- Created a Hardware-in-the-loop pipeline with MATLAB, reducing development time by over 40%.

RESEARCH

Protein Homology Detection Using Protein Language Model Embeddings

January 2025 – May 2025

- Developed a novel protein homology detection method utilizing fine-tuned protein language model (PLM) embeddings and contrastive learning, addressing scalability of traditional sequence alignment tools like BLAST.
- Achieved significant improvement in homology detection accuracy relative to BLAST, by optimizing the embedding space for protein homology discrimination.
- Engineered a solution that delivered a 5X speedup in homology search compared to BLAST with similarity search and Meta's FAISS library, allowed for scalable search over large protein databases.

PROJECTS

Princeton Rocketry SRAD Flight Computer

September 2024 – May 2025

- Pioneered idea for and spearheaded development of a fully student-developed flight computer, used successfully in Princeton Rocketry's launch to 30,000 feet at the Spaceport America Cup in June 2025.
- Led team of 8 peers to develop computer powered by an STM32 with capabilities of controlling air-brakes for accurate flight paths, managing a custom radio protocol, and filtering of on-board sensor data with Kalman filters.

TECHNICAL SKILLS

Languages: Python, JavaScript, Java, C, C++, Assembly, SQL, HTML/CSS, R, MATLAB, Swift

Amazon Web Services: Lambda, S3, API Gateway, DynamoDB, SES

Frameworks: React, Angular, SvelteKit, Node, Express, Vite, Flask, Django

Libraries and Tools: Git, MongoDB, Docker, Linux, pandas, NumPy, PyTorch, TensorFlow