

MARASANIGE SAMARTH MAHENDRA

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EDUCATION

Northeastern University

January 2024 - December 2025

Master's, Computer Science

- Relevant coursework: Programming Design Paradigm, Database Management Systems, Algorithms, Natural Language Processing, Machine Learning, Foundation of Software Engineering, Mobile App development

Dayananda Sagar College of Engineering

August 2018 - July 2022

Bachelor's, Computer Science

SKILLS

- Languages:** Python, Java, C/C++, NoSQL, JavaScript, TypeScript
- Frameworks & Libraries:** Django restframework, Flask, React.js
- Databases:** PostgreSQL, Redis, MongoDB, ChromaDB, Elasticsearch
- Cloud & DevOp:** AWS, Terraform, Docker, Kubernetes, Prometheus, Datadog, Celery
- Tools & Platforms:** Git, Linux/Unix, Puppeteer, LLM Integration
- Concepts:** Microservices, Data Modeling, REST APIs, System Design, Distributed Systems, Problem Solving

PROFESSIONAL EXPERIENCE

Draup

Bengaluru, KA, India

Associate Software development Engineer

August 2022 - November 2023

- Oversaw & maintained various platform features like digital tech stack, outsourcing, customers, and university page.
- Designed and developed an internal framework for dynamic query generation, enhancing real-time data aggregation and boosting chatbot performance by <60%, while reducing new entity development time by 80%.
- Revamped filters, adding the flexibility to change logical operators and incorporate nested filtering options, e.g., "(a and b) or c" enabling complex filtering across platform.
- Authored business logic for over 100+ APIs using Python and Django, ensuring modular design and reusability, which supported various platform functionalities
- Designed and implemented subscription-based access control systems, regulating app access effectively.
- Migrated APIs from Postgres to Elasticsearch for real-time aggregation, resulting in a 5x faster response time.
- Implemented optimization techniques such as partitioning, query restructuring, indexing, and view creation, leading to a 400% improvement in query execution and a 50% reduction in operational costs
- Monitored and maintained platform health using Datadog and AWS CloudWatch, proactively addressing issues to reduce downtime from 4% to 1% and resolving platform issues 75% faster.

Draup

Bengaluru, KA, India

Associate Software development Engineer Intern

April 2022 - July 2022

- Monitored and debugged API bugs in Datadog, reducing issue resolution time by 30%
- Implemented caching to improve efficiency of image requests, resulting in a 70% reduction in load times
- Developed and executed automated database cleanup scripts, increasing database efficiency by 25%.

PROJECTS & OUTSIDE EXPERIENCE

Open Jobs - Analatics (in progress)

Boston, MA, USA

Puppeteer, Python, Redis, celery, Mongodb, Grafana, Prometheus, GPT-4o

December 2024 - Present

- Built Jobs, inspired by Levels.fyi, aggregating 500+ job postings across companies.
- Designed a producer-consumer architecture using Celery, integrated with Prometheus and Grafana, achieving 99.9% uptime and efficient task monitoring.
- Scraped dynamic web pages with Playwright and Puppeteer, harvesting 1000+ data points daily.
- Developed a Python reverse proxy with router port-forwarding, reducing latency by 40%.
- Automated CSS selector extraction using LLMs, processing HTML content in under 2 seconds per page, reducing new company onboarding effort by 90%.
- [Link to project](#)

LinkedIn Assist (LLM powered Bot to Filter Job Postings)

Remote

GPT-4o, javascript, flask, LLM, AI automation

- Developed a Chrome extension leveraging Flask for backend on CodeSandbox to filter job postings in LinkedIn using a prompt, improving job search efficiency by automating the filtering process.
- Implemented entity extraction using GPT-3.5 to interpret natural language, with support for complex boolean queries such as AND, OR, NOT similar to boolean modifiers in LinkedIn job search, enhancing search precision and customization.

Myocardium Wall motion and wall thickness map, Patent Pending :- App-no : 202341086278 (India) (Co-inventor/author)

Bengaluru, KA, India

Research Assistant / Python, Dicom, MRI, numpy, Tkinter, image processing

November 2021 - September 2023

- Generated a visual map from cine-series MRI scans to investigate heart wall motion, thickness, thickness difference, fibrosis during systole and diastole phases using dicom and python
- Employed custom algorithms to determine myocardium wall thickness and calculated distances in indistinct areas, increasing measurement precision by 50%.
- Optimized time complexity using numpy and multiprocessing, reducing execution time by factor of 60

Bike Rental System

Django, PostgreSQL, Harvesting, Jwt, datadog, Rest, Netlify, react

Boston, MA, USA

February 2024 - April 2024

- Developed full-stack bike rental system (similar to Blue Bikes) using React.js, Django REST Framework, and MySQL hosted over deployed across multiple platforms (Azure, Digital Ocean, Netlify)
- Implemented caching with Redis and monitoring with Datadog to enhance system performance and scalability.
- Created a secure login system utilizing JWT (JSON Web Token) authentication, allowing users to easily access protected resources.

Stock Market Simulation Application - Java MVC

Java, Junit

Boston, MA, USA

February 2024 - April 2024

- Developed a Java MVC system managing investment portfolios, integrating a stock API, test coverage, and buy/sell on specified dates.
- Integrated data visualization to plot portfolio performance over time, utilizing bar and line charts for investment growth trends, stock gains/losses analysis, and moving average calculation.

StackOverflow

Full-Stack Q&A Platform (StackOverflow Clone) / TypeScript, JavaScript, React.js, Node.js, MongoDB, Cypress, Jest, CodeQL, DevOps, Front-End & Back-End Web Development

February 2025 - April 2025

- Developed a full-stack Q&A web application inspired by Stack Overflow using React (frontend) and Node.js/Express with TypeScript (backend).
- Architected backend controllers and models following the MVC pattern, leveraging design patterns such as Facade, Validator, Strategy, and Factory to ensure modularity, maintainability, and scalability.
- Built comprehensive end-to-end and integration test suites using Cypress and Jest, automating user flows (e.g., posting questions/answers, commenting, voting) and achieving high code coverage and reliability.
- Enhanced user experience with a responsive, accessible, and theme-enabled UI, utilizing modern CSS and React context for state management and theming.
- Integrated CI with GitHub Actions, Cypress, and CodeQL for PR-based linting and coverage checks.
- [Link to project](#)

Real-Time AI Voice Assistant & Intelligent Agent Platform | OpenAI GPT-4o, Twilio, Discord, FastAPI

OpenAI GPT-4O, Twilio, Celery, FastAPI, Discord, Websockets

Boston, MA, USA

April 2025 - May 2025

- Engineered a real-time AI voice assistant using Twilio + GPT-4o's streaming API, enabling phone-based two-way conversations with <500ms latency, VAD, and dynamic speech truncation support.
- Architected an intelligent agent system integrating OpenAI GPT-4 + Google Gemini with modular tools, dynamic function calling, and profile-aware responses via MongoDB and Discord.
- Built a scalable async backend with FastAPI + WebSockets, deployed on Render with a Celery worker handling long-running tool calls and real-time audio coordination.
- Deployed live demo via public phone number (833) 970-3274 using Twilio, showcasing job-query answering, system prompts with resume context, and cross-platform communication.
- [Link to project](#)