

CAN DAI

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Work Experience

Software Developer | Hughes Network Systems

Gaithersburg, MD | August 2023 – Present

Generative AI Chatbot Application (AVA) & Agentic Voice AI

- **Enterprise GenAI Deployment:** Co-developed and launched “AVA”, a production RAG-based AI chatbot handling **7,400+** weekly sessions, achieving a **40% containment rate** and saving an estimated **\$500K annually**.
- **RAG, CRM Integration & AI Security:** Built intent classification action frameworks and RAG response workflows over Hughes knowledge bases; engineered automated Salesforce case creation and transcript summarization; implemented manipulation-detection gates including prompt injection defenses and PII stripping.
- **ASAPP Agentic Voice AI PoC:** Co-developed an Agentic Voice Customer Service AI prototype on the ASAPP Generative Agent platform; presented technical architecture and results to senior executive leadership, influencing product roadmap decisions.

Full-Stack Web Application (ATLAS)

- **Architected & Deployed ATLAS:** Sole engineer architecting and scaling a mission-critical Django/PostgreSQL web application on Azure through 6 production releases for 200+ call center supervisors; built JWT/scope-authorized REST APIs (Django Ninja), HTMX “Omni Search” across data categories, secure RBAC & 2FA protections, and utilized Azure Key Vault & Blob Storage along with Apatally API monitoring systems.
- **Real-Time Outage Monitoring:** Engineered Consumer & Enterprise Trends dashboards ingesting live Alvaria IVR call data to track gateway, satellite, and beam availability—detecting network outages **30–40 minutes before manual detection** and cutting outage response latency by **75%**.
- **Automated Sync & Background Scheduler:** Developed an asynchronous global background scheduler running recurring cron-jobs that synchronize agent, skill, work-type, and team data across Production & Backup environments; integrated Microsoft Graph API to automatically generate and email execution/error diagnostic reports to system admins after every sync cycle.

IVR & Automation Systems

- **Workflow Automation (n8n & Alvaria IVR):** Modernized various IVR branches using n8n pipelines to automate and streamline workflows, significantly reducing live-agent call volume.

Graduate Research Assistant & Project Lead | DePaul University ROME Lab

Chicago, IL | Oct 2021 – Jun 2022

- Integrated Robot Operating System (ROS) with Ethereum smart contracts for decentralized task allocation across robotic swarms; built Python navigation and obstacle-avoidance algorithms paired with Gazebo simulation scripts to automate testing environments.
- **Publication:** S. Mallikarachchi, C. Dai, et al., “Managing Collaborative Tasks within Heterogeneous Robotic Swarms using Swarm Contracts”, *2022 IEEE DAPPS*, pp. 48-55.

Software Projects

RapidRead (Chrome Extension & Web Platform) | rapidread.app

- Created Chrome Extension accelerating reading speed up to 300% via custom JS transformation algorithms; built Django/Heroku backend with Stripe API integration and automated SMTP email verification.

Bert – Restaurant Checkout System (NFC Web App) | [GitHub](https://github.com)

- Developed a Django REST digital payment system for restaurants for quick and easy checkout process, utilizing NFC tags, Stripe, along with unique customer and waiter UI interfaces.

Technical Skills

Languages & Web: Python (Django, Django Ninja, FastAPI), JavaScript (HTMX, jQuery), SQL (PostgreSQL, MariaDB), Java, C, HTML5/CSS3

AI & ML: AI Assisted Planning & Coding (Amazon Kiro, Claude Code), LLM Integration (OpenAI GPT-4/4o, Gemini), RAG Architecture, Prompt Engineering, LLMops

Cloud & DevOps: Azure (App Service, Key Vault, Blob Storage), GitHub Actions (CI/CD), Docker, Heroku, PostgreSQL

Tools & Automation: n8n, Alvaria CX Suite, Postman, Postman Monitors, Apatally, Git, Agile/Scrum

Education & Certifications

M.S. in Computer Science | DePaul University

Graduated: Jun 2023

Honors: Upsilon Pi Epsilon (UPE) Honor Society

B.S. in Mechanical Engineering | Purdue University

Graduated: Dec 2020

Honors: Dean’s Honors List, Alpha Lambda Delta / Phi Eta Sigma Honor Society | **Certifications:** IISE Six Sigma Green Belt