Ayush Raj

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Education

Birla Institute of Technology — Mesra, Jharkhand
Integrated MS - Mathematics and Computing, GPA-7.68 — *Aug. 2018 – June 2023*

Jawahar Vdiya Mandir, Shyamali — Ranchi, Jharkhand
High School in PCM — *May 2016 – May 2017*

EXPERIENCE

ADROSONIC | ***Research & Innovation Engineer*** — July 2023 – Present

- Initiated and led the development of an internal GenAI Experiments Portal using React.js, Flask (Python), and Azure App Services, enabling organization-wide access to GenAI PoCs such as document parsing, summarization, auto-triage, and database querying. Deployed using Azure Container Apps and Azure SQL, with full Postman-based API testing.
- Led the design and implementation of a RAG-based LLM data extraction pipeline using LangChain, OpenAI/Azure LLMs, FAISS, and Azure AI Search Index, improving extraction accuracy by 30%, reducing costs by 20%, and speeding up processing by 50%. Integrated into a client workflow product, cutting operational costs by 50%.
- Developed a natural language to SQL query system enabling business users to query and visualize databases using LLMs. Achieved 95% accuracy on DB responses through advanced prompt engineering, using MySQL, Azure SQL, OpenAI, and Python-based visualization.
- Built and deployed a document translation and summarization workflow using Azure Translator, GPT models, and Power Automate, improving document turnaround time by 80% for live business usage.
- Developed an auto-triage system using LLMs with JSON rule ingestion, Chain-of-Thought prompting, and LangChain, achieving 87% accuracy and a 75% boost in operational speed for underwriting decisions.
- Led organizational LLM research comparing providers (OpenAI, Azure OpenAI, Gemini) across context window, hallucination rate, latency, extraction accuracy, and compliance to guide enterprise adoption strategies.
- Designed and implemented a custom multi-agent AI system using the OpenAI Agents SDK (Python) to handle deterministic and non-deterministic tasks with user-defined prompts and tools. Included agents for parsing, triage, premium calculation, quote binding, and classification.
- Built an experimental Agentic AI framework using MCP and A2A protocols, integrating Gemini LLM, Google Maps API MCP tool and currency converter for multi-agent collaboration.
- Led the introduction of CI/CD practices in RPA development by integrating UiPath processes with Azure DevOps Pipelines using YAML, enabling seamless, scalable deployment workflows across environments. This CI/CD mechanism has since been adopted across multiple automation projects.
- Designed and developed an end-to-end automation solution using UiPath to extract data and attachments from over 50,000 historical Zendesk tickets, storing them in SharePoint with under 2% error rate and sub-2-minute transaction time.
- Contributed a key component to an RPA process handling monthly insurance statements, responsible for validating, manipulating, and routing Excel-based data across systems. The process achieved an average speed of 30 seconds per statement, eliminating manual effort for 1000+ monthly records.
- Developed a modular Excel validation and update workflow using UiPath and SQL, enhancing downstream automation reliability and enabling faster settlement cycle handling.
- Collaborated with the business team on automation PoCs for 4 client-facing processes, creating architecture diagrams and participating in requirement-gathering sessions to align technical design with business needs.

ADROSONIC | ***Research & Innovation Engineer - Intern*** — Dec 2022 – June 2023

- Contributed to the design and development of an RPA solution that automated policy generation for the Underwriting department using UiPath, SQL, and VB.NET cutting processing time from 40 minutes to under 5 minutes per policy.
- Independently designed and implemented a data mapping enhancement to identify incoming policies via unique reference keys, reducing mapping errors from 20% to 5% across 1000+ monthly transactions.
- Integrated business rule validation and database checks within the bot workflow to ensure data integrity and reduce exceptions.

- Assisted the team in automating backlog clearance of over 6 months of policies backlog, ensuring full data compliance and business continuity.
- Conducted thorough testing and debugging of the process across development, test, and UAT environments to ensure deployment readiness and stability.
- Created and maintained Feature Design Documents, Technical Design Specifications, and solution architecture diagrams to support the deployed automation system.
- Built a process architecture diagram and proof of concept (PoC) for a potential client's business automation use case, collaborating with the business team and participating in requirement-gathering calls.

Projects

BAT-BOT | ***JavaScript, Python, Gemini***

- A website where users can engage in conversations with a chat-bot themed with the personality of Batman.
- The backend is built on Python and utilizes the Gemini API for natural language processing. Frontend is built using Vanilla JS.
- Backend is deployed on Render, with frontend hosted on Netlify. For all features GitHub

SEGMENT TREE LIBRARY | ***C++***

- Constructed a general purpose, open source Segment Tree Library using **C++**
- Solved various problems on data structures by applying this library.
- Use this library from GitHub

Technical Skills

Programming Languages: Python, C/C++, JavaScript, SQL, GO
Frameworks/Libraries: React.JS, Node.JS, OpenAI SDK, Gemini SDK, LangChain
Tools: Git/GitHub, Linux, Postman, Docker, Azure DevOps
Course works: Data Structures, Algorithm, DBMS, OOPS, Operating System

ACCOMPLISHMENTS

- **Contest rating 1450+** on **LeetCode**, solved more than 600+ data structures problems on various platforms.
- **Google KickStart** Round D Global Rank :- 4888
- **Facebook Hacker Cup** Round 1 Global Rank :- 6019
- **Debutant of the Year, 2023** – Awarded by ADROSONIC for outstanding performance and contributions within the first year of joining.

Leadership / Co-curricular Activities

- **Member of Finance Team** in Tech Fest PANTEHON 2019
- **Winner - B'Plan at E'Summit'19**, collaborated with a team of four members, designed and proposed a business plan for a product in college's business fest.

Hobbies / Interests

- Playing sports (football, cricket), Solving Sudoku
- Deep interest in Movies and Comics