Abhishek V Tatachar

Email: abhishektatachar@gmail.com |Phone: +91 9148413281 |Bengaluru, India | GitHub | LinkedIn

Data Scientist at SAP (VT Student) | MTech SWE at BITS Pilani | AWS Certified Cloud Practitioner

---

EDUCATION

Master of Technology in Software Engineering   **August 2022 – July 2024**
Birla Institute of Technology and Science, Pilani

Bachelor of Engineering in Computer Sciences   **August 2018 – July 2022**
Global Academy of Technology, Bengaluru

EXPERIENCE

Scholar@SAP | Data Scientist – Natural Language Processing and Generative AI   **May 2023 – Present**
SAP Labs India | Bengaluru, India | Work-Study (VT Rotation-2)

- Building business applications with Large Language Models, utilizing strong problem-solving skills to design experiments involving LLMs, AI agents, and tools. Converting experimental prototypes into production-ready features through code optimization and API integration.
- Utilized technical expertise in vector databases, semantic search and embedding models to implement Retrieval Augmented Generation (RAG) pipelines for the SAP Business Decision Simulator AI Agent, **improving the relevance and quality of the context passed to the Large Language Model by 40%.**
- Architected a LLM powered AI Agent for SAP Regulatory Insightss and successfully conducted several experiments on enabling user interaction with regulatory documents in a Question and Answering model, **resulting in an intuitive user experience and improving task efficiency by 20%.**
- Conducted successful experiments with hybrid search on business data and currently working on a research paper showcasing that in the context of unstructured business data, Hybrid Search using reciprocal rank fusion technique, provides better search results compared to individual search techniques such as keyword or semantic search.

Scholar@SAP | Innvent For Scholars (First Runners Up) - Machine Learning, NLP, API Design And RBDMS   **April 2023 – May 2023**
SAP Labs India | Bengaluru, India | VT Students Hackathon

- Architected and developed a product recommendation system that provides context aware recommendations on the SAP product line to customers based on factors such as problem space, existing product landscapes, industry & company size.
- Utilized strong design thinking skills to implement an ETL workflow to ingest product & release data from SAP product roadmap and processes it through search and rank fusion algorithms, improving recommendation precision by 20%
- Responsible for the design and implementation of REST APIs using a Flask application, resulting in optimized data flow between services, ensuring streamlined communication, and facilitated robust control over data access.
- Implemented a relational database helper module with APIs allowing for custom database operations, that enabled faster access and storage of data into a PostgreSQL database instance.
- Bagged the second place in the hackathon for the development and presentation of the recommendation system.

Scholar@SAP | Frontend Developer – TypeScript, JavaScript, SAP UI5   **August 2022 – April 2023**
SAP Labs India | Bengaluru, India | Work-Study (VT Rotation-1)

- Through meticulous attention to details and efficient communication skills, developed the tools and building blocks that resulted in the scalable adoption of SAP Fiori Elements, in close collaboration with application and infrastructure teams.
- Implemented variant management for SAP FE charts that enabled personalization and maintaining multiple persistent versions of the chart simultaneously, both at a tech-app level and at the building-blocks level.
- Implemented asynchronous functionality that allows for integration of SAP FE V4 application into **My Inbox UI** allowing navigation to non-draft based object pages based on application startup parameters.
- Organized workshops called Synergy Bytes to enable cross team awareness allowing teams to gain knowledge on advancements in the SAP UX Engineering Bangalore line of business.
- Received the Special Award from the LOB for excellent performance, dedication and deliverables during my rotation with the team.

Project Intern - Technical R&D and Stakeholder Engagement for Intelligent Cane Stick   **October 2021 – March 2022**
Dhi Flagship and Innovation Center, Dept. of ISE, GAT | Bengaluru, India | Internship

- Demonstrated effective leadership by leading the team responsible for research and development of an intelligent cane stick that alerts the visually challenged about obstacles. The final prototype successfully detected obstacles over 90% of the time.
- Utilized excellent communication and collaboration skills to build and nurture partnership with an NGO that caters to the blind and visually impaired to understand their pain-points, gather requirements and receive feedback on the developed prototypes.
- Designed and implemented multiple prototypes of the cane stick using HC-SR-04 ultrasonic sensors enabling detection and distance estimation of the obstacles and alerting the users using coin vibration motors.
- Tested the cane stick with the test users and other internal and external stakeholders to gain valuable feedback and refine the implementation accordingly.

Project and Research Intern – Machine Learning   **March 2021 – January 2022**
Smart ICT Solutions PTY LTD | Glen Waverley, Victoria, Australia (Remote) | Internship

- Employed design thinking skills to design and develop an intelligent water sprinkler system that leverages live data from farming fields to make data aware decisions and **reduce water wastage up to 40%.**

- Utilized machine learning and predictive analytics to forecast probable field data like soil moisture and temperature that helped reduce the dependence and need for additional sensors on field.
- Employed ZigBee to implement a robust Wireless Sensor Network (WSN) that facilitates transmission of live data from the field sensors to the controller device responsible for making intelligent decisions.
- Through thorough research acumen published 3 research papers on requirement and right choice of communication technologies like ZigBee, Bluetooth, LoRaWAN and Wi-Fi for intelligent and automated systems based on factors such as communication range and topography of operating environment.
- Demonstrated strong collaboration skills by engaged in productive collaborations with product owners and stakeholders, actively participating in refining product requirements and redesigning the system architecture to align with evolving project needs.

VOCATIONAL TRAINING (VT) PROJECTS

Scrum Master and Developer - VT Onboarding Portal
- Facilitated scrum and agile processes as the as the Scrum Master for the Project. Responsible for organizing and facilitating planning and daily stand-up meetings.
- Currently tracking and resolving Open-Source Vulnerability issues in the production version of the VT Onboarding Portal.

Trainer – Scholar Curriculum Trainings
- Successfully conducted training sessions on Git, GitHub, Docker, and Kubernetes for the 2023 batch of VT students.
- Facilitated hands-on learning, emphasizing on conceptual understanding, practical application, and best practices for effective utilization of these essential tools in software development.

Volunteer – Scholar Onboarding 2023
- Volunteered for the 2023 VT Scholars onboarding, facilitating a smooth transition for new students by giving campus tours, being a supportive buddy, and offering helpful advice to create a welcoming and inclusive atmosphere.

RESEARCH PUBLICATIONS (TOP 3 OF 7 PUBLICATIONS)

A Secured Surveillance System Employing Dense Optical Flow Estimation
International Journal of Engineering Research & Technology, Volume 11, Issue 7, Year 2022, ISSN: 2278-0181
- This literature presents an architecture for a novel surveillance system that leverages object detection algorithms and optical flow estimates to effectively identify potential criminal elements and anomaly activities in social environments.

Zigbee, It's Applications and Comparison with Other Short Range Network Technologies
International Journal of Engineering Research & Technology, Volume 10, Issue 6, Year 2021, ISSN: 2278-0181
- This paper explores Wireless Sensor Networks (WSNs) and ZigBee technology, discussing their essential concepts, applications in autonomous systems, and conducting a comparative study with short-range protocols like Wi-Fi and Bluetooth.

Automated Attendance System Based on Histogram of Oriented Gradients
MAT Journals, Volume 6, Issue 3, Year 2020, ISSN: 2581-3803
- This paper presents a scalable implementation of an automated attendance system that uses face recognition with histogram of oriented gradients (HOG) for precise identification and attendance marking.

PROFICIENCIES AND SKILLS

- **Database Management and ETL:** PostgreSQL and MySQL Relational Database, Firebase NoSQL Database, Chroma Vector Database
- **API Design, Management and Documentation:** REST APIs, Flask, FastAPI, Swagger
- **Exploratory Data Analysis and Visualization:** Python, NumPy, Pandas, Seaborn, Matplotlib
- **Machine Learning and Deep Learning:** Scikit Learn, Keras and TensorFlow
- **Natural Language Processing and Large Language Models:** NLTK, OpenAI, Langchain, SentenceTransformers, HuggingFace
- **Cloud Platforms:** Amazon Web Services (AWS), SAP BTP and Cloud Foundry
- **Web Development:** HTML, CSS, JavaScript, TypeScript, SAP UI5 and Fiori Elements
- **Version Control and CI/CD:** Git and GitHub, Docker and Kubernetes, Jenkins
- **Project Management & Execution:** Atlassian JIRA, Agile methodologies, SAFe and SCRUM (Sprint Planning, backlog grooming)
- **Architecture and Design:** System Design Patterns, Architecture and Flow Diagrams (Lucidchart and Pencil for Designs)
- **Leadership:** Sense of ownership, Effective Communication, Structured Thinking and Storytelling.

CERTIFICATIONS

- AWS Certified Cloud Practitioner (Verification ID: 9KWGQ11LQMQ1QLC7)
- Introduction to Generative AI (Certificate ID: e4649b48e2c6d6bda2296a39ef606ff511f2c22e4e08d06afa047ca5c259b9a8)
- Probability and Statistics
- Google Career Certificate – Python
- Data Science Bootcamp

ACHIEVEMENTS

- **The Special Award**, *SAP UX Engineering India* - Received this recognition from the line of business for delivering two consecutive hard commitment backlogs and my performance during my rotation as a student with the team.
- **First Runners Up**, *Innvent for Scholars Hackathon* - Secured the second place in the Hackathon for the development of a context aware product recommendation system for the SAP Product Line.