Abhinav Bains

+91-9858700006 | abhinavbains@gmail.com | linkedin.com/in/abhinavbains384 | github.com/Abhinav384

PROFESSIONAL SUMMARY

Results-driven Computer Science graduate student with 8+ months of industry experience at Bosch Global Software Technologies and Small World Digital Services. Proficient in C++, Python, JavaScript, Node.js, and ReactJS, with hands-on experience in real-time embedded systems, cloud pipelines (Azure), MQTT-based IoT communication, and full-stack web development. Passionate about building scalable backend systems, telematics solutions, and data-driven applications.

EDUCATION

Dr. B.R. Ambedkar National Institute of Technology Aug 2023 – Jul 2025
Master of Technology (M.Tech) in Computer Science

Thapar Institute of Engineering and Technology Aug 2019 – Jun 2023
Bachelor of Engineering (B.E.) in Computer Science

WORK EXPERIENCE

Student Trainee – Embedded Systems & Full Stack Aug 2024 – May 2025
Client: Tata Motors

- Spearheaded Proof of Concept (PoC) development for a next-generation Telematics Device, delivering reliable real-time ECU data communication and seamless system integration.
- Engineered 3+ low-level C++ applications including a socket-based MQTT command system, live video streaming module via media server, and a complete DoIP handshake application for ECU-device communication.
- Built a responsive ReactJS web dashboard enabling operational command dispatch and real-time device monitoring, reducing manual testing effort significantly.
- Developed a Node.js backend server handling frontend requests and functioning as a real-time MQTT publisher, supporting seamless communication between cloud and device.
- Delivered a cloud pipeline on Microsoft Azure with automated transcoding and live UDP stream handling, enabling end-to-end real-time ECU data processing.

Developer Trainee Jan 2023 – Jul 2023
Client: Amala Earth

- Developed a production-grade ChatBot using Node.js and ChatGPT API that delivered insights on user spending and metrics via natural language queries, serving multiple clients.
- Built and deployed scalable SFTP Service APIs on a private SFTP server with automated daily cron job transfers, improving operational efficiency for data pipelines.
- Designed data-rich dashboards in Google Looker Studio visualizing complex datasets from Google BigQuery, improving data accessibility for business stakeholders.

PROJECTS

DoIP-w-MQTT | Telematics PoC System Jan 2025 – May 2025
Industry Project

- Developed a proof-of-concept telematics system for real-time ECU data communication and monitoring using DoIP and MQTT protocols.
- Architected as a multi-threaded, low-level application written in C++, enabling concurrent handling of ECU streams, command processing, and data transmission.
- Built a web-based ReactJS dashboard for sending operational commands and visualizing live device data streams from connected ECUs.
- Integrated a cloud-based Azure pipeline for real-time UDP stream handling and automated transcoding of ECU data.

OSS-MCDM | Solar Site Selection Framework Aug 2024 – Jun 2025

Research Project

- Developed a hybrid multi-criteria decision-making (MCDM) framework integrating DEA, AHP, and TOPSIS for optimal solar power plant site selection.
- Processed geospatial and environmental datasets (solar radiation, NDVI, LST, wind speed, elevation) using GIS tools and Python pipelines.
- Implemented MARCOS, VIKOR, and WASPAS ranking models with comparative analysis via heatmaps, radar plots, and boxplots; conducted sensitivity analysis for robustness.

BakeriBot | Conversational Analytics Chatbot May 2023 – Jun 2023

Industry Project

- Built a full-stack chatbot that delivers insights on user spends and metrics via natural language queries using the ChatGPT API and Defog API for data retrieval.
- Deployed Node.js microservice backend on Google Cloud Run for scalable processing; used React and Material-UI to present large datasets in structured tabular format.

TECHNICAL SKILLS

Programming Languages:	C, C++, Python, JavaScript, SQL, LaTeX
Frameworks & Libraries:	Node.js, Express.js, ReactJS, NumPy, SciPy, Pandas
Cloud & DevOps:	Microsoft Azure, Google Cloud Run, Google BigQuery
Version Control:	Git, GitHub, Bitbucket
Databases:	MongoDB, Google BigQuery
Embedded & IoT:	MQTT, DoIP, Socket Programming, Real-Time Systems, Telematics, Raspberry Pi 5
Operating Systems:	Linux (ARMv7l, Ubuntu), Unix
Tools & Platforms:	VS Code, Postman, Jupyter Notebook, Google Looker Studio, GIS Tools
Domains:	Machine Learning, Deep Learning, Data Structures & Algorithms, OOP, DBMS, Web Development, Multi-Criteria Decision Making, Design Patterns

ADDITIONAL

- Technical Team Member, Thapar Food Festival (TFF): Developed a user-friendly student registration and event highlights website for the annual campus festival.