Ashwin Baduni

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Education

Mahindra University (MU) Oct 2021 – July 2025
B.Tech in Computational Mathematics

Experience

National Informatics Centre (NIC) | *AI Software Developer* Jan 2025 – April 2025
Built an AI chatbot that streamlined vehicle registration support using NLP and real-time analytics. Improved backend scalability with FastAPI, ensured secure user access via CAPTCHA, and boosted engagement through interactive data visualizations.

Gurugram Metropolitan Development Authority (GMDA) | *Full-Stack Developer* June 2022 – Aug 2022
Revamped the UI/UX of GMDA's internal dashboard using Bootstrap and JavaScript, delivering a more responsive, accessible, and cohesive user experience across platforms. Collaborated closely with backend teams to streamline data workflows, minimizing manual input and elevating operational efficiency.

Mahindra University Student Council | *Finance Representative*
Managed end-to-end budgeting for student-led initiatives, ensuring strategic fund allocation, financial transparency, and optimal resource utilization. Also implemented structured financial reporting.

Projects

AI Powered Analytics Dashboard Chatbot Jan 2025 – April 2025
- Developed an AI-powered assistant for the Parivahan Dashboard, automating vehicle registration queries using advanced NLP and real-time data analytics.
- Implemented FastAPI-based asynchronous backend with quantized LLM inference, enabling low-latency, scalable performance.
- Delivered interactive data visualizations and future trend projections, enhancing decision-making for end-users.
- Integrated CAPTCHA-based security and RESTful APIs, ensuring robust protection against automated threats.

AI Integrated Human-Machine Interface for Motorcycle Safety Feb 2024 – June 2024
- Developed a real-time vehicle monitoring HMI using YOLOv5, PyTorch, and OpenCV for accurate object detection and tracking.
- Automated movement classification, speed estimation, and distance tracking for dynamic traffic scenarios.
- Enabled proactive safety insights for motorcycles by integrating multi-dimensional analysis and customizable detection thresholds.

Video Based Motion Amplification and Vibration Analysis Dec 2023
- Developed a self-supervised tool for video-based motion magnification and vibration analysis.
- Enabled targeted amplification and ROI-based diagnostics using optical flow and bounding boxes.
- Automated frequency extraction and anomaly detection with FFT, time-series graphs, and heatmap visualization.
- Delivered interactive 3D plots and multi-setting analysis for precise, non-contact vibration monitoring.

CERTIFICATIONS

Cybersecurity Professional Certificate 🔗 | *Credential ID: DXRLYIKE4D2T* 2025

Data Analyst Professional Certificate 🔗 | *Credential ID: 9WRKVKV2DUIH* 2025

Enterprise Risk Management - Level 1 🔗 | *Credential ID: IRMIN/L1CIM/2023/00000000000675* 2025

SKILLS

Programming Languages : C, C++, Python, Java, SQL, Rust
ML/DL and HPC : PyTorch, CUDA, OpenCV, TensorFlow
Mathematics : Partial Differential Equations, Linear Algebra, Calculus, Real Analysis, Functional Analysis
Development Tools : Linux, Bootstrap, GitHub
Finance Related : Financial Mathematics, Technical Analysis, Stochastic Processes, Statistics

ACHIEVEMENTS

Smart India Hackathon (SIH) | *Winner* 2023

Indian International Model United Nations (IIMUN) | *High Commendation* 2017

Scindia School Model United Nations (SCIMUN) | *Special Mention* 2016