Tushar Sachdeva

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Education

•Netaji Subhas University of Technology *2023 – 2027*
Bachelor of Technology in Computer Science (Artificial Intelligence) — CGPA: 8.38 Delhi, India

Experience

•SWE Intern (Microsoft) May 2026 – Jul 2026

- Architected and shipped an **AI on-call assistant** in **C# / .NET 8** that triages live cluster state in natural language, integrating **Azure OpenAI** with **77 read-only tools across 9 backend services** via the **Model Context Protocol.**
- Designed a **dual-runtime architecture** (.NET 8 + .NET Framework 4.7.2) with a persistent **PowerShell runspace**, eliminating per-call re-authentication and reducing query latency to **1–3s**.
- Engineered a **streaming ReAct agent loop** with multiplexed tool-calling over **two MCP servers** using **JSON-RPC over stdio**, orchestrating up to **16 reason–act–observe iterations** per query.
- Optimized **LLM context efficiency** with **40+ schema-bounded filtered tools**, shrinking responses from **∼18,000 rows to ∼50** and **eliminating HTTP 429 token-limit failures** for deterministically reliable tool calls.
- Shipped a production-grade **DCM MSI Installer** for internal datacenter tooling, **automating prerequisite checks, packaging, and signed release artifacts.**

•SDE Intern (Mahindra Logistics Limited) Apr 2025 – Jun 2025 ***Live Link:*** *unifiedgps.mlldev.com*

- Programmed a production-grade **real-time vehicle GPS tracking platform** enabling **24/7 monitoring of 4000+ Mahindra delivery vehicles**, leading to enhanced operational visibility and reduced delivery delays.
- Created and Refined **RESTful APIs** for ingesting and managing high-frequency GPS and shipment telemetry data, ensuring **real-time processing of 50,000+ events/day** with **low latency**, **fault tolerance**, and **scalability**.
- Constructed a high-throughput **Kafka-based streaming pipeline** processing **1M+ updates/day** with **<100ms latency**.

Academic Projects

•Code-X (Scalable Code Execution Engine) *Demo Video* | *GitHub Repo*

- Built a secure, sandboxed execution engine using **Node.js**, **Docker**, and **Kubernetes**, ensuring strong **cybersecurity** isolation; handled **multiple daily code runs** across 10+ runtimes with average response time under **700ms**.
- Orchestrated runtime containers on **Azure Kubernetes Engine (AKE)** in a **cloud computing** environment.
- Delivered real-time feedback using **WebSockets**, reducing perceived latency, enabling client-server interaction.

•Speech-Based Alzheimer's Detection using Deep Multi-Modal Fusion *Architecture* | *GitHub Repo*

- Developed an **attention-driven multi-modal pipeline** that unifies **Wav2Vec2 acoustic features**, **BERT linguistic representations**, and **engineered prosodic/paralinguistic cues** for robust **speech-based cognitive modeling**.
- Devised **stacked bidirectional co-attention** to jointly model **what is being said** (linguistic content) and **how it is said** (acoustic delivery), enabling fine-grained **cross-modal interaction** between speech and language.
- Evaluated on the **DementiaBank Pitt Corpus** using **stratified 10-fold cross-validation**, achieving **85.4% accuracy and F1-score**, competitive with **state-of-the-art fusion models**.

Academic Achievements and Awards

- Achieved a national rank of **9 out of 52,637** teams (**0.017%**) in the **Amazon HackOn**, after clearing multiple rounds including online assessment, ideation, and prototyping. Built an **AI-powered video summarization platform** featuring **co-watching**, a **mood-aware recommender system**, and engaging **gamification features**.
- **Published a research paper at an IEEE conference (NIT Delhi)** on deep learning–based skin cancer detection, achieving **94%** classification accuracy using a **custom CNN model**. **Research Paper Link**
- Distinguished among the **highest 0.35%** (Top **70/20,000**) of applicants in the **Algo University National Scholarship Program**, selected after two coding challenges and a personal interview. Awarded a **1,00,000 merit-based scholarship**.
- **Attained Expert (1600+) rank** on Codeforces ranking with **700+ problems** Tackled TusharSachdeva (profile link)
- Accomplished **Knight** rank on LeetCode with a **rating of 2100+** and Dealt with **1200+ problems**. (profile link)
- Emerged in top **13th out of 200** teams in the Mahindra Logistics Techathon after clearing multiple rounds.

Technical Skills

Languages and Databases: C/C++, SQL, Python, C#, JavaScript, TypeScript, MongoDB, MySQL, PostgreSQL,
Frameworks and Libraries: NodeJs, ExpressJs, NextJs, .NET, PostgreSQL, React, Scikit-learn
DevOps and Developer Tools: Git, Docker, CI/CD, Jenkins, GCP, AWS, Azure