

Mohit Manna

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EDUCATION

Purdue University	May 2027
BS Computer Engineering	Minor: Math & Finance
- Coursework: Advanced Circuits · Data Structures · Discrete Math · System Design	
- Organizations: Data Mine · Embedded Systems · Vertically Integrated Projects · Telugu Association @ Purdue	

EXPERIENCE

Caterpillar <i>Data Science Researcher</i>	<i>Aug 2025 – Present</i>
• Boosted CAT's supply-chain forecast accuracy by 10% with a multi-horizon transformer model and automated backtesting	
• Reduced demand-forecasting model latency 5% by refactoring a PyTorch inference pipeline, automating performance tests	
• Cut analysts' manual reporting time 6 hrs/week by automating a SQL-backed Power BI dashboard with scheduled refresh	
Purdue Stack <i>Software Developer</i>	<i>Sep 2024 – Present</i>
• Engineered a rate-limited Flask backend to auto-assign 200+ TAs, replacing spreadsheets/catching conflicts via validation	
• Implemented PuLP-based optimization scheduler and tests to ensure conflict-free TA staffing across 30 math sections	
• Hardened admin portal with stateless JWT auth, RBAC, and access-control tests for privileged routes in 6 departments	
Creative Capital <i>Software Engineer Intern</i>	<i>Mar – Aug 2025</i>
• Scaled a React dashboard to 150+ investors via performance profiling, enabling 12% lower server load for live tracking	
• Secured investor data with JWT-protected Express APIs, Postgres RLS, and integration tests to prevent data leaks	
• Improved investor return projections by 20% via a scikit-learn growth forecasting model using constraint-based allocation	
MySphere <i>Software Developer Intern</i>	<i>Jun – Aug 2025</i>
• Overhauled React Native UI with accessibility tests and Lighthouse audits, reaching 90+ scores and cutting task time 17%	
• Indexed task/profile queries behind Node APIs, reducing ~120 ms off task-feed latency for 300+ concurrent users	
• Integrated speech-to-text with OpenAI Whisper + WebSocket streaming, enabling ~35% of tasks via voice	

PROJECTS

Software Engineer (Backend) – <i>Google Developer Group</i>
• Implemented Node.js service to auto-sync tasks with Google Calendar for 200+ students with OAuth2 and error logging
• Developed Chrome extension for background sync and desktop notifications, cutting manual task tracking time by 30%
Embedded Software Engineer (BB-8 Robot) – <i>Embedded Systems Club</i>
• Wrote firmware code in C++ for microcontrollers with RF tuning and quality checks to extend wireless range by 4 meters
• Engineered drivetrain–sensor control interface with real-time feedback, enabling 40 synchronized robot actions/minute
Scientific Computing Research Assistant – <i>Integrated Photonics Lab</i>
• Built automated Python ETL pipeline with validation for 10,000+ waveguide simulations, cutting analysis time by 18%
• Won 1st of 200 at Purdue Research Symposium for 99.7%-accurate waveguide simulations using numerical methods

SKILLS & TECHNOLOGIES

- **Languages:** Java · Python · C · C++ · C# · Typescript · Javascript · SQL · Bash · Go · R
- **Frameworks:** React · Next.js · Node.js · Express.js · Django · Flask · Angular · PostgreSQL
- **Tools:** Git · Docker · AWS · Firebase · Kubernetes · Jenkins · PyTest
- **Certifications:** CI/CD & DevOps · Object Oriented Design & Patterns · Software Automation · Linux scripting