

# Swastik Agarwala

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## EDUCATION

**Purdue University** West Lafayette, IN  
*B.S. in Computer Science, Minors in Math and Economics (GPA: 3.90/4.0, Dean's List)* Expected May 2026  
**Coursework:** Statistical Machine Learning, Artificial Intelligence, Numerical Methods,  
Operating Systems, Analysis of Algorithms, Software Engineering  
**Competitive Programming:** ICPC-ECNA Regional; IOI Training Camp '21; Codeforces Rating: 1862

## TECHNICAL SKILLS

**Programming:** C, C++, Python, Java, JavaScript, TypeScript, Scala, Multithreading, Unit Testing  
**Web/Backend:** React, React Native, Redux, RTK Query, HTML, CSS, Express.js, Spring Boot, Flask  
**AI/Machine Learning:** LangGraph, LangChain, LLMs, RAG, Prompt Engineering, NumPy, Pandas  
**Data/DevOps:** PostgreSQL, Redis, MongoDB, Zilliz, AWS, Docker, Git, Linux, Bash, Agile

## EXPERIENCE

**AI Intern** | *RMgX Technologies LLP* May 2025 – Jul 2025  

- Developed an agentic travel AI system using LangGraph with sub-agents for recommendations, memory, & search
- Architected a multimodal RAG system enabling reasoning over unstructured content in PDFs, spreadsheets, charts
- Reduced token usage by 30–40% via dynamic memory system with conversation caching and context optimization
- Created recommendation engine using hybrid vector search (semantic + keyword matching) & metadata filtering

**Software Developer (Contract)** | *Jyoti Broking Pvt. Ltd. (Stock Brokerage)* Jul 2024 – Present  

- Enhanced Risk Management System for brokerage serving 3,500+ clients (\$430M+ monthly turnover)
- Cut pipeline latency by 41% by replacing polling with Redis Streams for real-time delivery to Java RMS backend
- Modularized C++ core into Boost-based services, processing 200+ TPS over Exchange lease line binary protocols

**Software Engineering Intern** | *SML Isuzu Ltd.* May 2024 – Jul 2024  

- Developed React Native app for 400+ employees with QR code scanning to digitize equipment repair tracking
- Architected SAP integration to sync hardware specs, locations, and repair statuses to mobile interface
- Implemented real-time notifications system to streamline repair workflows and reduce downtime by 25%

**Undergraduate Teaching Assistant** | *Purdue University* Jan 2024 – Present  

- Mentored 60+ students in C/C++, algorithms, data structures, and systems projects across 3 courses
- Provided guidance on Linux, debugging with GDB, Qt, and object-oriented programming principles

## PROJECTS

**MiniScala Compiler** | *Scala, Algorithms, Data Structures, Systems Programming* Jan 2025 – May 2025  

- Developed a functional compiler and garbage collector for MiniScala, translating high-level code to assembly
- Implemented lexical analysis, AST construction, type-checking, and comprehensive error handling
- Built code optimization pipeline with constant folding, dead code elimination, and efficient value representations

**Investing Learning Platform** | *React, Redux, Spring Boot, PostgreSQL, AWS* Aug 2024 – Dec 2024  

- Developed investment education platform with portfolio tracking, paper trading, and market analysis
- Designed scalable frontend architecture with React Hooks, TypeScript, and modular components
- Integrated Redux Toolkit and RTK Query for efficient state management and API data caching
- Led feature development in 5-person team, implementing code reviews and Git workflows

## LEADERSHIP

**Orientation Leader** | *Boiler Gold Rush (Purdue Orientation Programs)* Mar 2023 – Jul 2025  

- Guided 40+ incoming students, including 20+ international students, through Purdue's week-long orientation
- Facilitated smooth transitions for international students facing cultural differences using strong interpersonal skills