

Supratik Gujulvakarthicbabu

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EDUCATION

B.S./M.S. in Computer Science | North Carolina State University, Raleigh, NC

Expected May 2028

GPA: 3.89 | University Honors Program | Mathematics Minor, Cognitive Science Minor | Seoul, Korea Study Abroad

Relevant coursework: Software Engineering, Data Structures & Algorithms, Operating Systems, Database Management

SKILLS

- **Languages:** Java, Python, JavaScript, TypeScript, SQL, C, HTML, CSS, R
 - **Frameworks:** React, Angular, Next.js, Node.js, REST APIs, Spring Boot
 - **Cloud & Databases:** Google Cloud Platform (GCP), MySQL, MongoDB, ER modeling
 - **Machine Learning:** Computer vision, NLP, regression, neural networks, bootstrapping, model evaluation
 - **Tools & DevOps:** Git, Docker, Jenkins, CI/CD, Agile, Linux, Postman, GitHub Copilot, Claude Code, ChatGPT
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WORK EXPERIENCE

Innovative Educational Computing Lab | Raleigh, NC | Software Engineering Intern

March 2026 - Present

- Develop software and algorithms for AI-driven intelligent tutoring systems within a large legacy codebase
 - Independently design, implement, test, and deploy production features, shipping 10+ merged pull requests
 - Debugged over 20 known and self-discovered defects, ensuring reproducibility and enhancing system reliability
 - Collaborate with faculty and graduate researchers to author effective code documentation and user guides
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TECHNICAL PROJECTS

RaceRouter (In Progress) | *React, Next.js, TypeScript, Python, Google Cloud Platform, RAG*

- Developing a web platform that automates race transport planning logistics to reduce manual officer work from 4 hours to under 10 minutes
- Implemented Google Cloud Platform authentication and managed end-to-end data lifecycle through Google APIs
- Designed reusable **React** components to simplify maintenance and accelerate feature development

WolfCafe | *Git, Spring Boot, Hibernate, Maven, Angular, Node.js, SQL, REST APIs, CI/CD*

- Engineered a full-stack web ordering platform using Spring Boot, Angular, and **Node.js** in an **Agile** environment
- Developed backend services and **REST APIs**, collaborating through **Git** version control and **CI/CD** pipelines
- Designed **SQL** relational database schemas to ensure data integrity, maintainability, and security

Transit Planner | *Python, Claude Code, multi-threading, optimization*

- Developed a **multithreaded** genetic algorithm-based optimizer in **Python** for public transit network design
- Modeled competing design objectives using a multifactor cost function incorporating population density, simulated time-of-day traffic, budget limitations, and other complex engineering constraints
- Integrated OpenStreetMap datasets to transition from synthetic to real-world city inputs
- Achieved a **10% improvement** in simulated traffic flow over the existing Manhattan public transit layout

Spotify Trends Analysis | *R, NLP, machine learning, statistical analysis*

- Analyzed 150,000+ song datasets using **R**, employing classification/clustering **machine learning** models to generate insights into complex relationships influencing song popularity, presented with **ggplot** visualizations
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LEADERSHIP / CAMPUS INVOLVEMENT

Club XC/TF at NC State | Secretary, Webmaster

January 2025 - Present

- Analyzed 10+ years of club data to identify trends that shaped decisions leading to a 15% boost in participation