Nalina Karkee
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EDUCATION

Alabama A&M University, Normal, AL **Expected Graduation: May 2028**

B.S. in Computer Science **GPA: 4.0/4.0**

Relevant Coursework: Data Structures & Algorithms, Object-Oriented Programming, Operating Systems, Computer Organization, Software Engineering, Theory of Computing, Discrete Mathematics

Honors: Malick Badjie International Scholarship, Honda Campus All-Star Challenge Scholar, Engineering Alumni Association Scholarship, Tiger Transfer Scholarship

TECHNICAL SKILLS

Languages: Python, C++, Java, JavaScript, TypeScript, SQL, Bash/Shell, HTML/CSS

Cloud & Platforms: Google Cloud Platform, Docker, Linux/Unix, Git/GitHub, GitHub Actions, CI/CD, Vercel, Render, REST APIs

Frameworks & Tools: PostgreSQL, pytest, Playwright, Pandas, NumPy, PyTorch, TensorFlow, OpenCV, SciPy, scikit-image

AI-Assisted Development: GitHub Copilot, Cursor, Claude, ChatGPT, Prompt Engineering

EXPERIENCE

Software Engineering Intern—AMPLIFY Program | DOE TN-QuMat Consortium May 2026 – Aug 2026

- Developed a Python/OpenCV pipeline to estimate nanofiber diameters from dense microscopy-image networks using random cropping, connected-component analysis, and distance transforms.
- Designed controlled synthetic and SEM-like datasets to evaluate accuracy across single/mixed-diameter, low-resolution, segmentation, and density conditions, recovering known diameters within approximately 1-2 pixels.
- Automated size-distribution plots, validation figures, and CSV reports for reproducible end-to-end analysis.

Tech Lead | Google Developers Group Tennessee University | Nashville, TN Nov 2025 – May 2026

- Led 10+ technical workshops on Python, cloud computing, data analytics, and AI tools, reaching 50+ student developers.
- Taught practical development workflows involving Pandas, REST APIs, Git, automation, and data visualization.
- Mentored students through debugging and project development while creating technical documentation that made workshop materials easier to reuse.

Software Engineering Research Intern — NSF PREM Program | Tennessee State University Oct 2025 – Apr 2026

- Automated 16 member-level calculations per configuration through a connectivity-driven MATLAB workflow, evaluating 12 tension cables and 4 rigid-strut constraints.
- Developed 2 reusable numerical modules for 3D geometry, stretch-ratio, and potential-energy calculations.
- Evaluated energy minimization across two stable configurations and one transition state, validating computational results against a physical prototype.

IT Support Assistant | Caldwell University | Caldwell, NJ Aug 2024 – Dec 2024

- Automated server-maintenance tasks with shell scripts, improving system uptime by 30% across campus infrastructure.
- Monitored routers and firewalls supporting 500+ users, troubleshooting connectivity issues and reducing disruptions by 20%.
- Managed 200+ user accounts and access controls while documenting repeatable support procedures to improve troubleshooting consistency.

PROJECTS

CollabSpace | *React, TypeScript, FastAPI, PostgreSQL, WebSockets* **GitHub**

- Built and deployed a real-time collaboration app (task boards, live chat, shared notes, RBAC, session-token auth) across 30 REST/WebSocket endpoints and 9 relational tables (Vercel + Render/PostgreSQL).
- Hardened the backend with 53 tests (auth, permissions, REST/WebSocket APIs, rate limiting) and verified real-time sync across sessions with Playwright.
- Built accessible, responsive UI with ARIA-labeled controls and role="alert" note-conflict states across tablet and mobile.

SecureReview | *React, Vite, FastAPI, Python* **GitHub**

- Built a full-stack security tool with a responsive scan-review-fix workflow, detecting 10 insecure pattern classes across 6 file types and 4 severity levels.
- Engineered an explainable Python rule engine averaging approximately 18 ms per 10,000-line local scan, with 7 backend tests detecting 10/10 known patterns.
- Added multi-file scanning, automated Markdown reporting, and actionable remediation guidance to create an end-to-end scan-review-fix workflow.

EduCredit+ | *FastAPI, React, TypeScript, PostgreSQL* **GitHub**

- Engineered and deployed a full-stack credit platform using FastAPI and React/TypeScript, generating adaptive trust scores and credit limits from academic and behavioral data.
- Designed a transparent weighted scoring engine across 6 factors, backed by 18 REST API endpoints and 8 relational tables.
- Built responsive React/TypeScript dashboards with Recharts for repayment tracking, risk monitoring, and credit-limit insights.

CLUBS & ACTIVITIES

Competitions & Programs: Google Cloud Career Launchpad Fellow, Rewriting the Code Fellow, JPMorgan Data for Good Hackathon, Bank of America Global Code-A-Thon, BEYA STEM Delegate

Clubs & Organizations: National Society of Black Engineers, Girls Who Code College Loop