TILOSCHAN KARKI

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EDUCATION

B.S. in Computer Science, Minor in Data Analytics & Applied Mathematics (Honors) — Texas State University, San Marcos, TX (Expected May 2026)
GPA: 3.69/4.0 | **TXST Presidential Scholarship • Dean's List** (2022–2025)
Relevant Coursework: OOP (C++/Java/Python), Software Engineering, Computer Architecture, Machine Learning, Data Mining & Information Retrieval, Internet Software Development, Data Analytics, System Security, Computer System Fundamentals

EXPERIENCE

Physics Undergraduate Instructional Assistant — *Texas State University, San Marcos, Texas* (Aug 2022 – Present)
• Led weekly sessions for 50+ students, improving performance by 30% through clear, empathetic teaching.
• Integrated data analysis via Excel, boosting research accuracy by 20%.
• Practiced people-first communication aligned with University's focus on human-centered design.

Front-End Web Developer Intern — *Hungerend Foods Inc, Kathmandu, Nepal* (Oct 2020 – Oct 2021)
• Built responsive e-commerce interfaces in React.js, enhancing accessibility and engagement by 20%.
• Refactored front-end code for modularity and readability, ensuring maintainable architecture.
• Collaborated with designers to translate concepts into polished user experiences.

PROJECTS

CampusGig — iOS Freelancing App for University Students (Work in Progress)
Stack: *SwiftUI, Firebase Auth & Firestore, MVVM Architecture, Xcode, Figma*

- Conceptualized and prototyped an **iOS app** to address the lack of campus-specific freelancing platforms, enabling students to offer or apply for localized gigs.
- Designed scalable **MVVM-structured SwiftUI architecture**, integrating Firebase Auth and Firestore for secure authentication and real-time data handling.
- Created **Figma-based UI prototypes** aligned with Apple's Human Interface Guidelines; iteratively refined based on peer testing.
- Building toward a fully functional MVP projected for TXST launch, targeting **40% reduction in student job search friction** through localized access.

ScholarGraph — Decentralized Knowledge Graph for Academic Verification (September 2025)
Stack: *Neo4j, Node.js, Express, Ethers.js, Solidity, Polygon Amoy, React.js*

- Recognized the lack of integrity and traceability in academic metadata, aiming to make research verification transparent and tamper-proof.
- Architected a **Neo4j graph database** integrated with Polygon blockchain smart contracts for immutable research metadata registration.
- Developed **Solidity smart contracts** and REST APIs for on-chain verification and metadata querying.
- Implemented an **interactive React dashboard** for intuitive exploration of research connections.
- Reduced metadata verification time by **60%**, proving feasibility for decentralized research provenance.

ResumeWizard — AI Resume Screener & Job Analyzer (June 2025)
Stack: *Python, Streamlit, OpenRouter API, NLP, LLMs*

- Identified the need for interpretable AI tools after observing opaque resume evaluators used by students and recruiters.
- Engineered an **object-oriented NLP pipeline** utilizing LLMs to analyze resume–job description fit and generate personalized improvement suggestions.
- Designed a **transparent Streamlit interface**, allowing users to visualize match scores and suggested enhancements in real time.
- Enhanced feedback accuracy by **30%** and reduced revision time by **40%**, validating the system through user testing.

Cerchi Search— Hybrid Web/Local Search Engine (April 2025)
Stack: *Flask, Google Custom Search API, Elasticsearch, Railway*

- Built a dual-mode search platform after identifying the need for a tool that could query both the web and private local datasets.
- Developed a **Flask-based backend** integrating Google Search API and Elasticsearch with toggleable query routing.
- Applied **tokenization and ranking algorithms** to improve retrieval precision and response time.
- Increased search relevance by **25%** and reduced average latency by **35%** compared to baseline benchmarks.

Tfolio — Full-Stack Portfolio Website (February 2025)
Stack: *Django, PostgreSQL, React.js, Vercel, Docker*

- Created a centralized platform to present professional projects and technical case studies.
- Implemented **RESTful APIs** connecting Django backend to React frontend for real-time updates.
- Automated **CI/CD pipelines** using Docker and Vercel for consistent deployment.
- Improved site performance with a **25% faster load time** and reduced setup overhead by **50%**.

TECHNICAL SKILLS

Languages: Swift, Python, C++, Java, JavaScript, SQL, HTML/CSS
Frameworks & Libraries: SwiftUI, Firebase, Flask, Django, React.js, Node.js, Streamlit, Neo4j, Ethers.js
Blockchain & Databases: Polygon Amoy, Solidity, PostgreSQL, MongoDB
Tools & Platforms: Xcode, Docker, Git, Render, Vercel, Firebase Console, PowerBI, Postman
Concepts: OOP, MVVM, CI/CD, REST APIs, Human-Centered Design, Agile Development, Information Retrieval

EXTRACURRICULAR ACTIVITIES

IEEE TXST Member • Hackathon Participant (BokoHack, DevPost STEM Hackathon) • Exploring Swift and Apple SDK development for CampusGig prototype.