Bishesh Khanal

❖ khanalbishesh12@gmail.com ❖ 403-404-5033

in LinkedIn ⌂ Github 🌐 Portfolio

EDUCATION

University of Calgary   **September 2020 - Present**

Bachelor of Science: Natural Sciences: Computer Science & Biological Sciences | GPA: 3.6

- **Relevant Courses**: Theoretical Computer Science, OOP, Cyber Security, Data Structures & Algorithms, Computer Networks, Operating Systems, Database Management, Distributed Systems, Network Systems Security, Genetics, Organic Chemistry, Microbiology

PROJECTS

ZenMate-Meditation App | (In Progress) | *Expo (TypeScript React Native), AWS, Django, Supabase, Render*

- Architected a mobile meditation app allowing users to track, share, and study their meditation sessions.
- Constructed an intuitive, user-friendly UI and coordinated frontend navigation, increasing user experience.
- Integrated AWS EC2 AI chatbot with Phi-2 LLM, improving user engagement by 60%.
- Designed and migrated custom backend models to Supabase PostgreSQL, boosting database uptime to 99%.

Indie-Bunny Game Marketplace | *React, Django, PostgreSQL, Supabase, Render, Vercel*

- Engineered the UI through frontend navigation, improving user experience, and raised engagement..
- Created a backend server with optimized API views, improving code reusability and speeding up API queries by 30%.
- Designed a custom SQL Database schema, implementing optimal SQL queries, and improving database speed by 20%.
- Integrated Firebase Auth for secure user login, replacing a custom user pool, cutting auth errors by 70%

Quiplash-inspired Distributed Text Chat Game | *React, FastAPI, Docker*

- Built a real-time multiplayer game supporting up to 8 single-game concurrent players.
- Implemented a custom distributed systems architecture with servers and proxies, reducing unrecoverable crashes by 90%.
- Developed a server-side master clock system, reducing the maximum discrepancy among client timers to < 1 second.
- Coordinated backend/frontend fetching logic, increasing system reliability and smooth user experience.

SecureWebSuite | *Java, TLS, SHA256*

- Programmed a custom multithreaded HTTP/HTTPS server/client system in Java.
- Developed a secure web client for parsing and saving files, reducing errors in data transfer by 80%.
- Applied thread pools on the server to accommodate concurrent users, raising server reliability by 70%.
- Established a SHA256 handshake between server and client endpoints, reducing security risks by 90%.

Personal Portfolio Website | *React, Vercel*

- Launched a personal portfolio on Vercel, ensuring 99% uptime.
- Customized UI with animated navigation, skill badges, and interactive project cards, increasing user engagement by 90%.

SKILLS

- Languages & Tools: Python (FastAPI, Django), Java, ARMv8, C/C++, JavaScript (React.js), TypeScript(Expo React Native), SQL, Firebase Auth, HTML/CSS, JSON, GO
- Frameworks & Infrastructure: Docker, Supabase, Render, Vercel, AWS (EC2), TLS (Java Sockets), Expo, Git, Microsoft tools (Excel, PowerPoint, Power BI, Automate, Pages), Next.js, Pandas, NumPy
- Development Areas: Backend API development, distributed systems, authentication & authorization, payment integration, database design & management, multithreaded server/client architecture, AI chatbot integration, Version control, UNIX-based systems
- Lab research techniques (PCR, gel electrophoresis, microbiology protocols)