

Ansh Tiwari

Burnaby, BC | 672-558-1516 | ata185@sfu.ca
github: CandyRagi | linkedin: ansh-tiwari

Education

Simon Fraser University — BAsC in Computing Science

Jan 2023 – Present

Technical Foundations: Software Engineering, Systems Programming, Data Structures, Networking, Databases *Burnaby, BC*

Technical Skills

Languages: C, C++, Java, TypeScript, JavaScript, Python

Frameworks & Tools: React, Spring Boot, Node.js, Express, Android Studio, Firebase, Git, Docker, Linux (Fedora KDE Plasma User)

Databases: PostgreSQL, MongoDB, SQLite, Firebase

Concepts: REST APIs, OOP, MVC Architecture, Data Structures & Algorithms, Socket Programming, CI/CD

Technical Projects

Group Chat — Server

Oct 2025

C, Sockets API, pthreads, TCP/IP

Developer

- Architected a multi-threaded TCP server in C using `pthreads` and the Sockets API to manage multiple, concurrent client connections (`AF_INET`).
- Designed a custom binary protocol for message handling (Type 0/1) and server-side IP/port (`uint32_t`, `uint16_t`) prepending, ensuring robust byte-level data serialization.
- Implemented a centralized broadcast queue with synchronization to guarantee strict, in-order message delivery to all connected clients, including the original sender.
- Developed a concurrent fuzzing client to stress-test the server, generating random message payloads using `getentropy()` and logging all received broadcasts for validation.
- Orchestrated a two-phase commit protocol to ensure graceful termination.

StudySage — AI-Powered Android Study App

Sept 2025 – Present

Kotlin, Jetpack Compose, Firebase, MVVM, Coroutines, Flow

Android Developer (Group Project)

- Architected a native Android app using MVVM, structuring state and logic across 8 ViewModels and 5 data Repositories
- Engineered an AI note processing feature to parse uploaded files (PDF, DOCX) and generate automated summaries
- Real-time study group chat rooms using Firebase Firestore for live messaging and Cloudinary CDN for image sharing
- A comprehensive course management system with CRUD operations, semester/year filters, and color-coded organization
- Designed a modern, responsive UI with Jetpack Compose and Material3, featuring glass morphism and animations

Unix Shell Clone — Systems Programming Project

Sept 2024

C, Linux

Developer

- Developed Unix shell supporting I/O redirection, background process execution, and command pipelines
- Implemented core OS-level features using `fork()`, `exec()`, and `wait()` system calls for process management
- Built command parsing engine to handle complex inputs with proper error handling and signal management
- Demonstrated proficiency in low-level memory management, process scheduling, and inter-process communication

Territory Control Game — Multiplayer Strategy Game

Feb 2023 – Apr 2023

JavaFX, Socket Programming

Developer

- Developed real-time multiplayer JavaFX game where teams compete to capture sequential tiles on a grid
 - Implemented socket networking infrastructure for synchronized two-player gameplay over local area network
 - Designed game logic with turn-based mechanics and territory control algorithms for competitive gameplay
 - Optimized game state management using multithreaded event handling and efficient client-server messaging
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Volunteer Experience

FIC IT Squad

Jan 2024 – April 2024

Volunteer

Burnaby, BC

- Coordinated hackathons, coding workshops, and co-op networking events for computing science students
- Collaborated with peers and faculty to solve student issues

HelpAge International

Aug 2021

Volunteer Fundraiser

New Delhi, India

- Organized donation campaigns supporting elderly care facilities under HelpAge NGO
 - Developed interpersonal communication and event coordination skills through direct community outreach
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Interests & Activities

Leadership: VAL Challengers (NECC) Spring 2024 playoffs competitor — Member of CSSS and SFU Esports Club

Interests: UI/UX Design, Hackathons (Hack the North 2025), Esports Analytics, Cloud Development, Open-Source