

Mohan Grewal

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EXPERIENCE

Software Engineer Intern | Android Studio, Xcode, Kotlin, Swift, Linux

Rivian

January 2023 – August 2023, Vancouver, BC

- Diagnosed and resolved customer-facing mobile app issues in Kotlin and Swift, improving **QA turnaround for production builds**.
- Engineered an in-app **debug menu** enabling QA teams to **automatically create JIRA tickets** with device state and logs, removing manual bug report creation.
- Developed an automated testing suite adapted from Python into Kotlin integrated into developer workflow, **reducing reliance on manual testing** during feature validation.

Software Engineer Intern | Unity C#

East Side Games

September 2020 – April 2021, Vancouver, BC

- Designed and implemented a successful weekly subscription service using Unity IAPs for both Android and iOS platforms, **deployed in production for a live mobile game with 5.5M+ installs**.
- Developed a visual debugging menu **actively used and iterated on by internal teams** for the subscription service to diagnose and resolve service issues.
- Collaborated within an agile development environment using sprints and daily-standups to **ship and iterate on production features**.

PROJECT

Spotify Smart Queue Manager | Electron, React, TypeScript, JavaScript, Node.js, Spotify Web API

Personal • github.com/mohangrewal101/Spotify-Smart-Queue-Manager • August 2025 – January 2026

- Developed an Electron desktop widget enabling **real-time Spotify queue management** without interrupting playback or switching applications.
- Integrated the Spotify Web API and implemented custom logic **supporting multiple queue operations**, including reordering and removal.
- Designed IPC-based state synchronization between Node.js backend services and the React frontend to **prevent queue state desynchronization**.

Career Website | Next.js, Typescript, React, Tailwind CSS

Personal • github.com/mohangrewal101/Career-Website • June 2025 – July 2025

- Designed and deployed a responsive portfolio website using component-based architecture to **organize and present projects and skills at scale**.
- Architected a data-driven project system that **decouples content from UI**, enabling new projects to be added via JSON configuration without modifying frontend code.
- Built reusable React and TypeScript components to dynamically render project data, **reducing future feature additions to configuration updates**.

AI Workout Plan | FastAPI, Python, React, JavaScript, Tailwind CSS, scikit-learn

Personal • github.com/mohangrewal101/Workout-AI-Planner • April 2025 – June 2025

- Built and deployed a full-stack AI-powered workout planner that generates **personalized routines and recommendations** based on user-selected goals and muscle groups.
- Trained a logistic regression model using scikit-learn to rank and filter **40+ fitness tips**, improving recommendation relevance by muscle group focus.
- Designed RESTful APIs using FastAPI to **efficiently orchestrate frontend requests, ML inference, and data retrieval**, enabling low-latency personalized recommendations.

Path-Reachability | IntelliJ, TypeScript, Javascript, Z3

Academic • github.com/mohangrewal101/Path-Reachability • March 2024 – April 2024

- Developed a static analysis tool to enumerate **all feasible execution paths** in TypeScript programs, enabling early detection of unreachable and conflicting logic.
- Designed parsed execution paths into a structured AST representation to **making program behavior interpretable and usable by downstream tooling**.
- Modeled and evaluated execution path constraints using the Z3 solver, **classifying paths as satisfiable or unsatisfiable** to simplify visualization and analysis in the UI layer.

Panic Titanic | Unity, C#, Photon Networking

Personal • github.com/2020-21-UBC-Game-Dev-Team-3/team3-game • September 2020 – March 2021

- **Led development** of a real-time 3D multiplayer game using Unity and Photon Networking, coordinating a 10-person team in a sprint-based agile workflow and **winning the Audience Choice Award** at the UBC Game Development Competition.
- Implemented RPC-based state synchronization to **maintain consistent gameplay across networked clients** in real-time multiplayer sessions.
- Designed and integrated an intuitive multiplayer voting system using C# enums and Photon callbacks, **praised for clear and reliable player decision coordination**.

AI Demo Test | Unreal Engine, C++, Blueprint

Personal • github.com/mohangrewal101/ThirdPersonCombat • July 2021 – September 2022

- Built an AI-driven third-person combat prototype using **Unreal Engine 4 with C++ and Blueprints**.
- Implemented **five distinct AI states** with collider-based transitions to enable dynamic combat behavior changes.
- Structured gameplay logic across Blueprint and C++ to **balance performance and maintainability** prioritizing user engagement.

EDUCATION

Bachelor of Science in Computer Science

University of British Columbia • Vancouver, BC • 2024

SKILLS

Languages: Java, JavaScript, TypeScript, Kotlin, Swift, Python, C#, C, C++

Frameworks / Libraries: FastAPI, React, Tailwind CSS, Hugging Face, ANTLR, Z3, Aubio

Tools / Platforms: GitHub, GitLab, Android Studio, Xcode, IntelliJ, Unity, Unreal Engine, JIRA, Render, Vercel

Technologies / APIs: REST APIs, Inter-Process Communication (IPC), Event-Driven Architecture, Signal Processing

AI / ML: NLP, Transformer Models, Prompt Engineering

Cloud / DevOps: CI/CD, Deployment Pipelines, Environment Variables

Testing / QA: Unit Testing, Automated Testing, Debugging, Test-Driven Development

Networking / Multiplayer: RPC, Client-Server Architecture, Real-Time Synchronization, Latency Optimization

General Concepts: Linux, Operating Systems, Data Structures & Algorithms, Complexity Analysis, Multithreading, Game AI, Agile Development