

RYAN YANG

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EDUCATION

University of Toronto

Toronto, ON

Bachelor of Science in Computer Science

Sept. 2024 – Expected May 2028

- **Cumulative GPA:** 3.73/4.0 | **Relevant Coursework:** Data Structures & Analysis, Software Design, Machine Learning, Systems Programming, Computer Organization, Probability & Statistics, Multivariable Calculus

TECHNICAL SKILLS

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

Backend & Data: FastAPI, Next.js, PostgreSQL, SQLite, Docker, Supabase

Mobile & Apple: SwiftUI, UIKit, React Native, Expo, ARKit, WidgetKit, Core Data, CloudKit, HealthKit

AI/CV & Systems: MediaPipe, llama.cpp, Gemini API, RTAB-Map SLAM, ib-insync, pytest, REST APIs

PROJECTS

IBKR Portfolio Analyzer – Full-Stack FinTech Dashboard

2026 – Present

Independent Software Engineer | FastAPI, Next.js, TypeScript, Python, Docker, Gemini API, ib-insync

- Built a read-only portfolio dashboard consolidating multi-account **Interactive Brokers** holdings with USD/CAD FX conversion, live P&L, allocation breakdowns, and VaR/drawdown/concentration risk metrics.
- Connected to **IBKR Gateway** via **ib-insync** with read-only sessions, response caching, connection diagnostics, unique client IDs, and a broker adapter contract that exposes no order-placement methods.
- Built a **GBDT-style** scoring engine rating holdings on fundamentals, technicals, and news sentiment, with suitability checks, IPS drift detection, and **Data Insufficient** fallback when inputs are missing.
- Wired in **Gemini** research reports with structured JSON outputs, source/provenance markers, execution-language sanitization, and **56+ pytest** cases verifying no-trading compliance end-to-end.

TrainTogether – AI Fitness Coach [App Store]

Nov. 2025 – Present

Independent Software Engineer | SwiftUI, MediaPipe, llama.cpp, SQLite, CloudKit, HealthKit

- Shipped an iOS/iPadOS fitness coach with on-device pose tracking, rep counting, form scoring, and HealthKit sync; part of a **3-app App Store portfolio** with **120+ active users**.
- Built the **MediaPipe** landmark-to-pose pipeline with per-frame smoothing, rolling-window validation, and body-angle constraint checks to keep rep counts stable under real-camera noise.
- Designed **FormConfig** and **RepFormTracker** abstractions so **32+ exercise detectors** share a single scoring and feedback path instead of repeating movement logic per exercise.
- Integrated on-device **llama.cpp** coaching, **SQLite** session history, optional **CloudKit** backup, and mock-landmark tests for deterministic form-analysis validation.

Seekr – 3D Spatial Scanner [App Store]

Sept. 2025 – Present

Independent Software Engineer | ARKit, RTAB-Map, C++, Objective-C++, Core Data, MultipeerConnectivity

- Shipped an offline iPhone/iPad spatial organizer that converts LiDAR and ARKit scans into searchable **3D room maps** with hierarchy tags, synonym-aware semantic search, full-text retrieval, and OBJ/PLY export.
- Built a **Swift-to-Objective-C++/C++** bridge streaming per-frame **ARKit** odometry into **RTAB-Map SLAM** while delivering SwiftUI-safe callbacks during mapping and export.
- Designed hybrid persistence with **Core Data** metadata, canonical OBJ/PLY assets, RTAB-Map databases, and disk-cache restoration so saved scans reload cleanly across sessions.
- Added encrypted peer-to-peer file sharing via **MultipeerConnectivity**, throttled scan-state updates, and native resource cleanup to keep long scanning sessions stable without degradation.

HabitForge – AI Productivity Platform [App Store]

June 2025 – Present

Independent Mobile Developer | Expo, React Native, TypeScript, Swift/Objective-C, WidgetKit, Gemini API

- Shipped a cross-platform habit and finance app covering streaks, budgets, reminders, widgets, analytics, and CSV export, with a private iCloud container and local storage for offline use.
- Modeled **40+ domain entities** across habits, finance, rewards, notifications, and UI flows using separate **React Context** providers and typed service layers for clean separation of concerns.
- Built **WidgetKit/App Groups** batch sync through Swift/Objective-C native modules so habits, expenses, and budget data all refresh together in a single reliable payload.
- Wired **Gemini** into habit recommendations using anonymized metadata and natural-language expense parsing, with response caching so core tracking stays fully functional without an active AI connection.

HONORS & AWARDS

Certificate of Distinction | Euclid Math Contest (Top 25% Global)

2021 – 2024

Subject Award | Principles of Mathematics (Highest Grade)

2022

ADDITIONAL EXPERIENCE

East Asian Student Association | Equipment Team Leader

Nov. 2022 – June 2024

Oakville Chinese Network | Community Tech Support & Math Tutor

2019 – 2021