Keenan McConkey

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WORK EXPERIENCE

Operations Engineer, Brock Solutions — 2025–Present — San Francisco, CA

• Support deployment and validation of real-time baggage sortation software in live airport environment; integrate Brock software with industrial PLCs, scanners, scales, cameras, and control hardware from multiple OEMs
• Develop Python data analysis and test scripts to evaluate system performance, detect failure modes, and generate insights
• Led a team of 3 during a system upgrade, integrating new .NET software with existing baggage-handling control systems under tight 1-month timeline; validated system behavior using SCADA/HMI tooling
• Serve as technical interface between software, hardware vendors, manufacturing and installation teams, and airport operations; lead root-cause investigations to resolution in 24/7 operational environment

Software Engineer, Brock Solutions — 2023–2025 — Vancouver, BC

• Full-stack developer on client-facing customs clearance software using Python, C#, React, and MS SQL Server
• Built RESTful APIs and backend microservices to orchestrate data flows in real-time airport setting
• Designed and deployed Docker-based microservices architecture in Azure; managed infrastructure as code in Terraform
• Created CI/CD pipeline using GitHub Actions to automate compilation, testing, code analysis, and release processes
• Mentored developers through code reviews while practicing test-driven development and modern best practices

Software Co-op, Sanctuary AI — 2022 — Vancouver, BC

• Developed software for ROS-based humanoid robot using Python and C++; built physics simulations in NVIDIA Isaac Sim and Omniverse
• Created automated scripts and metrics to evaluate sensor visualization, object tracking, and manipulation performance
• Collaborated with ML researchers, robotics, and controls teams to debug and optimize Sim-to-Real transfer

Embedded Systems Co-op, Voltsafe — 2020 — Vancouver, BC

• Developed embedded C++ firmware for ESP32-based Bluetooth IoT product
• Built Linux-hosted Python microservice with NoSQL database and REST API for user authentication

Mechatronics Co-op, CARIS Robotics Lab — 2019 — Vancouver, BC

• Developed a Python-based machine learning and testing framework for real-time terrain classification in assistive robotics
• Integrated ML software with physical sensors and actuators on powered wheelchair platform; validated classification performance across varied environmental and operating conditions in real time

EDUCATION

Bachelor of Applied Science in Engineering Physics, University of British Columbia — 2016–2021

• GPA 3.75; Graduated with Distinction; Three-time Dean's Honour List; Specialization in Computer Science

PROJECTS

BarPath App — iOS & watchOS Workout Tracking Platform

• Designed Python-based ML pipeline for exercise classification and rep counting using Apple Watch IMU data; performed signal preprocessing, feature extraction, and supervised model training and deployment
• Built cloud-backed data layer using MongoDB to support labeled data collection and model evaluation

TrashBot — Autonomous Mobile Robot

• Developed autonomous robot on NVIDIA Jetson TX2 with GPU-accelerated PyTorch inference for object detection
• Integrated ROS navigation stack with SLAM for localization and path planning
• Built perception pipeline processing camera and sensor data to identify and localize targets for autonomous navigation

CLIDAW — Command-Line Digital Audio Workstation

• Built a text-based DAW in Rust with multi-track playback, ADSR sine wave synthesis engine, and interactive live keyboard mode; used cpal for cross-platform real-time audio I/O and clap for CLI parsing
• Designed composable file format system (.notes, .instr, .song) for version-controllable, human-readable music composition

TECHNICAL SKILLS

Languages & Frameworks: Python, JavaScript/TypeScript, React, C#, C++, Rust, MATLAB, SQL
Backend & APIs: RESTful API design, microservices architecture, data pipelines, real-time data processing
ML & Data: PyTorch, NumPy, pandas, data visualization, ML model training and deployment
DevOps & Infrastructure: Docker, Kubernetes, Terraform, CI/CD (GitHub Actions), Azure, Linux/macOS
Tools & Practices: Git/GitHub, NoSQL/SQL databases, test-driven development, Agile/Scrum, AI-assisted development (Claude, Copilot, ChatGPT)