# Arnav Nagzirkar

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## EDUCATION

**University of Toronto** — Sep. 2022 – April 2027
*Honours Bachelor of Science in Computer Science, Statistics and Economics*
Relevant Courses: Data Structures and Algorithms, Software Engineering, Systems Programming, Introduction to Machine Learning, Probability and Statistics I & II, Regression Analysis, Design and Analysis of Experiments, Applied Econometrics I, Economics of Organizations

## EXPERIENCE

**Artificial Intelligence & Machine Learning Intern** — October 2025 – Present
*VJDS International Inc. (IBM SkillsBuild & Riipen)* — *Remote*
- Deployed a full-stack AI platform using **React**, **Supabase**, and **Vercel serverless APIs**, integrating **MediaPipe computer vision pipelines** and **OpenAI function-calling** to deliver real-time structured outputs.
- Engineered modular API endpoints and data pipelines to handle inference requests, authentication, and real-time synchronization, ensuring scalable and production-ready ML model deployment.
- Implemented **CI/CD workflows** and documented system architecture for ML services, reducing deployment time and enabling seamless integration of future models.

**Software Engineering Intern** — June 2025 – August 2025
*Kavodax* — *Remote*
- Led a team of 3 interns to build a blockchain-based cross-border payment system, reducing remittance fees to **under 1%** and transfer times to **under 3 minutes.**
- Architected modular systems for user onboarding, multi-currency transfers, and wallet management using **Next.js**, **FastAPI**, **Tailwind CSS**, and the **Stellar** blockchain.
- Integrated external services including **Plaid** for bank linking, **Stripe** for fiat on/off-ramping, and **PayTrie** for stablecoin conversions.
- Implemented secure authentication, KYC workflows, and data handling using OVH Cloud, PostgreSQL on CloudSQL, AWS S3 for file storage, enabling SaaS-style multi-user onboarding and UI support.

## PROJECTS

**StocksNow** ↗ | *Python, Flask, HuggingFace, XGBoost, yfinance, Plotly* — December 2024 – Present
- Built a full-stack quantitative research platform with sentiment, prediction, and backtesting modules, combining **NLP, ML, and alpha factor modeling** into a unified research workflow.
- Engineered **15+ predictive factors** (momentum, volatility, cross-asset correlations) and trained **ensemble models** (XGBoost + LSTM), boosting next-day directional accuracy by **12%** over baseline.
- Designed a portfolio simulation engine supporting long-short, risk-parity, and mean-variance strategies with **transaction cost, slippage, and Kelly sizing** modeling, cutting backtest runtime from **3 min to 5 s.**
- Developed an institutional-grade backtesting and analytics suite computing **Sharpe, Sortino, alpha/beta, IC decay, and Fama–French attribution**, improving reporting depth and transparency.
- **Containerized** the application, integrated **CI/CD pipelines** with GitHub Actions, and deployed scalable inference services to **AWS ECS**, reducing deployment time by **85%** and enabling **daily model retraining**.

**Custom Shell** | *C, Socket Programming, Signals, Process Management* — January 2025 – April 2025
- Developed a fully functional Linux-style shell in C with built-in commands (echo, ls, cd, cat, wc, ps, exit)
- Implemented core OS features: **pipes**, **background processes & job control**, and **signal handling**
- Implemented **network support**, including server-client messaging and multi-client communication over sockets

**JourneyMatch** ↗ | *React Native, TypeScript, Django, Google Places API, Node.js, Python* — Apr 2024 – Present
- Built a cross-platform tinder style swipe app for travel discovery in **React Native + TypeScript**; integrated Google Places to tag photos, enrich destinations, and deep-link to Maps.
- Designed **Django APIs** for user profiles and content, handling **media uploads and real-time updates** to deliver **personalized destination recommendations**.

## TECHNICAL SKILLS

**Languages**: Python, C/C++, Java, SQL (PostgreSQL), JavaScript, TypeScript, R, HTML, CSS
**Machine Learning & Data**: XGBoost, LSTM, Transformers (HuggingFace), PyTorch, scikit-learn, Alpha Factor Modeling, pandas, NumPy, TensorFlow, MongoDB, MySQL, CI/CD, Agile, Scrum
**Frameworks & Libraries**: React, Next.js, Flask, FastAPI, Django, Node.js, React Native, Pytest, OAuth2
**Cloud & DevOps**: AWS (S3, ECS), CloudSQL, OVH Cloud, Docker, GitHub Actions (CI/CD), Kubernetes
**Certifications**: AWS Certified Cloud Practitioner ↗, IBM Artificial Intelligence Fundamentals ↗