Henry (Hanxiang) Pan

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Education

University of Pennsylvania — *Philadelphia, USA*

Master of Science in Engineering, Computer and Information Science (CIS) — *Aug. 2019 - Exp. May 2021*

- Relevant Coursework: Machine Learning, Reinforcement Learning, Computer Vision, Distributed Systems

University of Western Ontario | Richard Ivey School of Business — *London, Canada*

Bachelor of Science, Honors Specialization in Computer Science and Minor in Economics — *Sept. 2014 - Apr. 2016*

(Discontinued) Bachelor of Arts, Honors Business Administration (HBA) — *Sept. 2011 - Apr. 2014*

- Relevant Coursework: Analysis of Algorithms, Artificial Intelligence, Computer Architecture, Human-Computer Interaction

Work Experience

ViewFin — *Toronto, Canada*

Software Engineer — *May 2019 - Aug. 2019*

- Designed and developed trading platform modules including data processor, indicator manager and agent in a service-oriented architecture
- Established a websocket communication pipeline both among internal components and with external services using Python
- Developed a multithread backtesting tool in Python, continuous integration (CI) pipeline using Docker and a dashboard for tracking live and backtesting trading performance using React and Node.js

Paymentus — *Toronto, Canada*

Application Engineer (Team Lead) — *Nov. 2017 - Aug. 2018*

- Designed and implemented generic UI form components in React and API/microservices in Node.js for the biller self-onboarding feature
- Designed the first end-to-end (E2E) testing framework and implemented core libraries for developing data-driven tests in Node.js, Puppeteer and Jest and containerized the testing environment with Docker for the CI pipeline
- Analyzed 100+ application feature flows for over 1000+ generic and custom billers with emphasis on complexity and reusability to identify areas for component testing and to create backlogs for E2E tests
- Led the test engineering team scrum meetings, planned sprints and provided mentorships to other engineers

Citigroup (Velocity Desktop Trading Application Team) — *Toronto, Canada*

Software Developer / Technology Analyst — *Jun. 2016 - Nov. 2017*

- Developed and enhanced server-side search features for interest rate swaps (IRS), bonds and internal financial instruments in Java and Spring
- Investigated and implemented a cache architectural change from a peer-to-peer (P2P) model to an efficient client-server model, which reduced component startup-time and latency by 9X and mitigated deadlocks
- Migrated a legacy data source for 300+ IRS products and added support for 200+ non-benchmark IRS products by redesigning field mappings and by implementing reference data enhancements to support consistent order flow for downstream components
- Developed an Electron-based configuration management tool that allows for finding and editing properties via one centralized search bar

Bell Canada — *Toronto, Canada*

Business Intelligence Analyst — *Summer 2015*

- Reallocated technicians to different job types based on performance quartiles, which reduced monthly churn rate for the internet and home-phone channels by 29% and 17%, respectively
- Discovered factors to reduce external noise and statistical bias through technician shadowing and used regression to determine true drivers for field-related churn, which were ultimately used as reports for field managers
- Modeled workload distribution to determine “Same-day/Next-day” repair service cutoff-time that reduced 54 miss-commitments per day

Deloitte (Consulting Practice) — *Toronto, Canada*

Business Technology Analyst — *Summer 2014*

- Implemented SAP system enhancements and developed user acceptance tests in Java for 10 client requests
- Performed vendor analysis, market research, and client scans to develop the firm’s Sourcing and Procurement practice capabilities in Canada
- Revamped a VBA internal visualization tool to analyze and develop practioners’ brand within the firm

Projects & Research

Trading with Machine Learning

Personal Project

- Created and applied neural networks to a price prediction problem using 3 different approaches: raw Python, Keras, and Tensorflow
- Implemented Policy Gradient (PG), Deep Q-Learning (DQN), Actor-Critic, Asynchronous Advantage Actor-Critic (A3C) reinforcement learning algorithms in Python using Tensorflow to devise trading strategies
- Wrote accompanying blog posts for most topics which included overview, technical design, challenge discussion and future steps

Food Image Recognition Thesis

University of Western Ontario

- Surveyed various image data feature extraction and normalization techniques including edge detection, bag of features, and convolutional neural networks (CNN) to improve overall image recognition accuracy; achieved a 10-class top-1 image classification error of 1.93% using CNN and support vector machine (SVM) after cross-validation and parameter-tuning