

Tony Deng
3A Computational Math
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SKILLS

General Programming: C++14, JavaScript, Python, Rust, C.
Web Development: NodeJS, React and React Native, Express, HTML, CSS, R Shiny.
Data Science: R, ggplot2, D3.js, Tensorflow.
Databases: MySQL/MariaDB, MongoDB, Mongoose.

EXPERIENCE

Avidbots Corp. — *Applications and Full-stack Engineer* Kitchener, ON
September 2017 - February 2018

- Main developer responsible for new Operational Intelligence initiative — internal data aggregation and visualization platform used by product managers and company executives.
- Built multiple dashboards in React served by NodeJS connected to MariaDB; different views include robot operating history, cleaning efficiency, and customer Google Analytics reports.
- Applied regression models to predict schedules for over 50 customer robots over 4 continents.
- Grew project to a key part of Avidbots product strategy. Took on code quality and deployment responsibilities, managed work of two other developer co-ops on project.

Valuo.io — *Co-Founder, Software Engineer* Toronto, ON
January 2017 - February 2018

- Headed software design and full-stack implementation of SaaS marketing dashboard product with React powered by NodeJS and MongoDB.
- Led dashboard through four iterations of UI/UX design based on user testing and feedback.
- Designed and implemented NoSQL solution to store user data and pipelines for feeding data to Excel and to D3.js data visualizer.
- Built modular plotting widgets integrating Google Charts and Plot.ly libraries to improve user engagement and provide bespoke visualizations for user data.

CPP Investment Board — *Analyst (Total Portfolio Management)* Toronto, ON
May 2016 - August 2016

- Built web-hosted macroeconomic visualization dashboard using R Shiny, deployed as new standard for presentation of experimental models within team.
- Conducted novel quantitative analysis on alternative inflation indicators using R, focusing on productivity and import/export ratios within the United States.
- Built R Shiny dashboards for automated retrieval of over 1000 series of economic data from over 10 sources with real-time updates to replace paid proprietary product for team.
- Wrote final manual on financial modelling, data processing, forecasting and visualization using R, used by team for on-boarding new employees without computing background.

EDUCATION

University of Waterloo — *B.Math* Expected April 2020

- Velocity Residence Incubator Fall 2016.
- MTE140 Data Structures & Algorithms; MTE241 RTOS; CS246 Object Oriented Programming.

PROJECTS

Hippo — *React Native spaced repetition app for knowledge retention*

- Inspired by Anki for Android, built spaced repetition app in React Native powered by personalized version of SuperMemo 2 algorithm.
- Extra functionality added includes reminder support and predictive repetition based on past review timestamps and reported difficulty.

Bank Heist Robo-burglar — *WEC 2017 senior design challenge runner-up*

- Built and programmed powered lasso gripper arm to retrieve item along chosen path.
- Led testing and robot redesign to optimize for performance for height and terrain obstacles.