# Dan Tan

sjtan@uwaterloo.ca | dantan.me/ | github.com/dantan123

## EDUCATION ----------------------------------------------------------------------------------------------------------

**University of Waterloo (CA) & University of Leeds (UK)**                              **Sep 2015 – Oct 2020**
*Civil Engineering, Honours BASc*
- **Courses:** Algorithms & Data Structures, Artificial Intelligence, Pattern Recognition, Optimization, Numerical Computation, Systems Programming & Concurrency, Databases & Software Design

## PROJECTS -------------------------------------------------------------------------------------------------------------

- **Dungeons & Dragons:** Developed a spell book management app with a 3-tier architecture (**Rails, PostgreSQL**)
  - **App:** dd-spellbooks.herokuapp.com
- **Mail:** Designed a front-end for an email client that generates API calls to send and receive emails (**JavaScript**)
- **Fifth Grader:** Designed a math game UI with various operations and difficulty levels (**React**, **Bootstrap**)
- **Shopping:** Created an ML model to predict whether online customers will complete a purchase (**Scikit-learn**)
- **Crossword:** Wrote an AI that solves crossword puzzles through backtracking & heuristics (**Python**)
- **Traffic:** Architected a convolutional neural network that predicts traffic signs with 97% accuracy (**TensorFlow**)
- **Web Crawler:** Implemented asynchronous I/O with cURL for web crawling PNG files (**C, Valgrind**)

## EXPERIENCE ---------------------------------------------------------------------------------------------------------

**Research Assistant – Hydrologic Model Development & Analysis**
**Water Institute, Waterloo**                                                                    **Apr – Aug 2018**
- Calibrated and optimized model performance by tuning input parameters through the NSE metric
- Developed and debugged model subroutines with 2000+ lines of code through pair programming
- Evaluated model predictions by analysing hydrologic time-series data through the ARIMA and DTW techniques
- Presented research summary of the model algorithms at the 2018 Canadian Geophysical Union conference to a group of 30+ researchers

**Engineering Consultant**
**Simpson Gumpertz & Heger, San Francisco**                                          **Sept – Dec 2019**
- Developed and presented algorithmic flowcharts and decision trees based on engineering documentation and specifications, thus pinpointing minimal design requirements to clients
- Identified and revised 100+ engineering design issues, improving building enclosure performance and durability
- Examined product submittals and drafted 10+ consulting reports for QA in close collaboration with senior project consultants and managers

**Student Entrepreneur (For Us, By Us)**                                                **Sept – Dec 2018**
**Craft Collective – Hult Prize Finalist, Waterloo**
- Pitched a handicraft e-commerce solution with a platform mock-up for employing 10,000 women and empowering handicraft cooperatives
- Engaged in design-thinking and conducted handicraft market research by surveying 22 collectives and analysing sociodemographic reports of young women in developing countries
- Established revenue growth strategies, potential partnerships, and value proposition to address pain points

**Project Coordinator**
**EllisDon – Ottawa Light Rail Transit Project, Ottawa**                          **Sept – Dec 2017**
- Coordinated project schedules by documenting daily progress & meeting minutes and interfacing with subcontractors in a 200+ people team
- Estimated and verified material quantities and invoices for cost control, successfully reducing the closure phase