

# Dan (Shi Jie) Tan

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## EDUCATION

**University of Waterloo (Waterloo, CA)**

**2015 – 2020**

*Civil Engineering, Honours BAsC*

- **Relevant Courses:**

- Pattern Recognition & AI: Applied distance and probability classifications, parametric & nonparametric learnings through MATLAB; Used Python and TensorFlow to create AI models
- Databases & Software Design: Designed database schemas and wrote queries using MySQL; Created RESTful backend applications with Ruby on Rails and used RSpec for unit testing
- Systems Programming & Concurrency: Implemented synchronization patterns and data structures using C

**University of Leeds (Leeds, UK)**

**January – June 2019**

- **Computational Fluid Dynamics Project:** Investigated the effects of fluid flow and heat transfer in microchannels through the finite volume method

## EXPERIENCE

**Research Assistant – Hydrologic Model Development & Analysis**

**Water Institute, Waterloo**

**April – August 2018**

- Developed and debugged the infiltration subroutines of the hydrologic model – MESH in structured programming style by reading Fortran documentation and using automated tests
- Conducted statistical and time series analysis of hydrologic data by manipulating data and utilizing regression and dynamic time warping techniques through R's libraries
- Adopted version control by using concurrent versioning system (CVS) in collaboration with the research group at the University of Saskatchewan
- Presented research summary of interflow and infiltration algorithms at the 2018 Canadian Geophysical Union Conference (CGU) in Niagara Falls

### Technical Intern

**Simpson Gumpertz & Heger, San Francisco**

**September – December 2019**

- Developed and presented visual contents including decision trees and flowcharts for foundation waterproofing based on engineering documentation and specifications
- Identified building enclosure design issues and revised based on building physics principles including heat flow, air ventilation, and water infiltration
- Displayed effective communication and organizational abilities by assisting with 20+ technical reports and verifying submittals based on shop drawings and datasheets

### Project Coordinator

**EllisDon - Ottawa Light Rail Transit Project, Ottawa**

**September – December 2017**

- Performed scheduling through Gantt charts and the critical path method for minimizing project delays
- Conducted quantity take-offs (estimating) and verified product contracts for cost control, successfully reducing the project closure phase
- Utilized Oracle's Primavera software for tracking project progress and responding to inquiries

### Structural Modelling Intern

HongRun Group Co. Ltd, Shanghai

January – April 2017

- Demonstrated quantitative abilities by calculating load combinations for model input and evaluating the model output with respect to the building code
- Drafted structural details per specifications through AutoCAD

### Lab Assistant

Shanghai Municipal Engineering Design Institute, Shanghai

January – April 2016

- Conducted lab tests and analyzed test results for material and geotechnical reports

## ACHIEVEMENTS & LEADERSHIP -----

- **Hult Prize Waterloo Finalist - Craft Collective:** Selected as one of the top 8 finalist teams to pitch youth unemployment solutions out of 30+ teams
  - **Reference:** <https://uwaterloo.ca/conrad-school-entrepreneurship-business/news/student-entrepreneurs-pitch-solutions-youth-unemployment>
- **Podcast Team @ Engineers Without Borders UW Chapter:** Co-produced sustainability-themed podcasts from a systems-thinking perspective, aiming to increase awareness on campus
  - **Reference:** <https://anchor.fm/uwaterlooewb/>
- **UW Varsity Athlete - Tennis:** Selected as one of the 9 roster players out of 50+ players in the varsity tryout
  - **Reference:** <https://athletics.uwaterloo.ca/sports/mens-tennis/roster/2018-19>
- **Teaching:**
  - Certified Tennis Canada Instructor
  - Stepping Stones China English Teacher: teaching 15+ migrant children in China
  - Daedalus Academy Camp Assistant: tutoring LEGO robotics to primary school children
- **Campus Sustainability Initiative:** Campus Compost Operator
- **Recipient of the UW President's Scholarship**

## TECHNICAL SKILLS -----

- **Languages:** C++, C, Python, R, MATLAB, SQL, HTML, CSS, JavaScript, Ruby
- **Frameworks and Libraries:** Rails, TensorFlow
- **Tools:** Git, Shell, Valgrind, RSpec