

Dan (Shi Jie) Tan

| sjtan@uwaterloo.ca | <https://dantan.me/> | <https://github.com/dantan123> |

EDUCATION

University of Waterloo (Waterloo, CA)

2015 – 2020

Civil Engineering, Honours BAsC

- **Computer Science Courses:**

- Databases & Software Design: Constructed software with multi-tier software architectures and object-oriented design principles – SOLID using Ruby on Rails; Designed database schemas with UML class diagrams and wrote queries using SQL
- Systems Programming & Concurrency: Implemented synchronization patterns and asynchronous & event-driven I/O using C
- Pattern Recognition & AI: Applied clustering, classifications, parametric & nonparametric learnings, and discriminant functions through MATLAB; Utilized Python & TensorFlow to create AI models

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

- Co-developed the soil infiltration subroutines of the hydrologic model – MESH in structured programming style by reading Fortran documentation and research papers
- Tested the program subroutines with different model inputs and debugged compile & run-time errors
- 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 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