

Dan (Shi Jie) Tan

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EDUCATION

University of Waterloo (Waterloo, CA)

2015 – 2020

Civil Engineering, Honours BAsC (Cumulative Average: 74%)

- **Relevant Courses:**

- Databases & Software Design: Designed database schemas and wrote queries using MySQL; Developed backend applications using Ruby on Rails as well as RSpec & Cucumber for TDD & BDD
- Systems Programming & Concurrency: Implemented synchronization patterns for C programs
- Algorithms & Data Structures: Wrote data structure and test programs in an object-oriented manner using C++
- Pattern Recognition: Applied distance and probability classifications and both parametric & nonparametric learnings through MATLAB; Used TensorFlow to create CNN 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

- Developed and debugged the infiltration subroutines of the hydrologic model – MESH in structured programming style by reading Fortran documentation and using automated tests
- Adopted version control by using concurrent versioning system (CVS) in collaboration with R&D engineers at the University of Saskatchewan
- Conducted time series analysis of hydrologic data by utilizing regression and dynamic time warping techniques through R's libraries, improving the model calibration process
- Performed literature reviews of interflow and infiltration algorithms and flood forecasting methods in preparation for academic publication
- Presented research summary at the 2018 Canadian Geophysical Union Conference (CGU) in Niagara Falls

Technical Intern

Simpson Gumpertz & Heger (ENR 500 Consulting), 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 enclosure design inconsistencies 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
- Demonstrated attention to detail by verifying submittals based on shop drawing and datasheet reviews

Project Coordinator

EllisDon - Ottawa Light Rail Transit Project, Ottawa

September – December 2017

- Performed scheduling through Gantt charts and the critical path algorithm for minimizing project delays
- Verified 50+ contracts for project submittals and conducted quantity take-offs (estimating) for cost control by using MS Excel, 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 building code
- Drafted structural details per specifications through AutoCAD

ACHIEVEMENTS & LEADERSHIP -----

- **Hult Prize Waterloo Finalist - Craft Collective:** Selected as one of the top 8 finalist teams to pitch youth unemployment solutions out of 40+ 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
 - Daedalos Academy Camp Assistant: tutoring LEGO robotics to primary school children
 - Emmaus Leeds (UK): charity hitchhiking from the UK to Germany to raise funds
- **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