

Ryan Y.W. Tan

Student Researcher, Modeller & Policy Analyst

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Education

Delft University of Technology (TU Delft)

M. Sc. Engineering and Policy Analysis

Netherlands
Sep 22 – Present

- Awarded the Justus & Louise van Effen Excellence Scholarship (Tuition fees & Living expenses)

National University of Singapore (NUS)

B. Eng. Mechanical Engineering, Honours (Highest Distinction), CAP: 4.64/5.00

Singapore
Aug 18 – May 22

- University Town College Programme: Systems Thinking/ System Dynamics
- Modules: Mechanical Engineering, Urban Planning, Policy, Philosophy

Nanyang Technological University (NTU)

Singapore Universities Student Exchange Programme

Singapore
Jan 21 – May 21

Hwa Chong Institution – High School and College

Singapore-Cambridge GCE Advanced Level (4 H2- Physics, Computing, Math, Economics)

Singapore
Jan 10 – Dec 15

- Institution accepts the top 5% of scorers in primary and secondary school national examinations

Research Experience

Centre for Social Complexity of Climate Change, Delft University of Technology (TU Delft)

Student Assistantship (PI: Dr Tatiana Filatova)

Netherlands
Dec 22 – Present

- Responsibilities include Systematic Reviews and Qualitative Coding of literature surrounding social adaptation to climate change in various related domains e.g., environmental management, disaster resilience.
Topics: Social Adaptation, Adaptive Governance, Active Learning

International Centre for Integrated Mountain Development (ICIMOD)

System Dynamics Researcher (PI: Mr Nand Kishor Agrawal, Dr Arabinda Mishra)

Nepal / Singapore
Jan 21 – Aug 22

- “Integrating resilience into Monitoring and Evaluation of climate and development practices in Hindu-Kush Himalaya”
Topics: Livelihood Systems, Adaptation and Resilience Building, System Dynamics

University Town College Programme, National University of Singapore (NUS)

Social Network Analysis Research Assistant (PI: Dr Naviyn Balakrishnan)

Singapore
Nov 21 – Aug 22

- “Measuring Learning Outcomes of University Town College Programme (UTCP) in Residential College 4 (RC4): Examining the Constructively Aligned Living-Learning Environments, and Student Characteristics”
Topics: Social Network Analysis, Cross-Disciplinary Mixing, Living-Learning Programmes

System Dynamics Research Student (SP: Prof Robert Wasson, Dr Navarun Varma)

Nov 19 – Dec 20

- “System dynamics across three scales in the Brahmaputra River Basin - Exploring a Himalayan social-hydrological system”
Topics: Policy Analysis, Social-ecological Systems, Disaster Resilience, System Dynamics

Department of Mechanical Engineering, National University of Singapore (NUS)

B.Eng Dissertation (SP: Prof Marcelo H. Ang, Jr)

Singapore
Aug 21 – Mar 22

- “Implementation and Evaluation of Mobile Robot Localisation Techniques”
Topics: Computer Vision, Graph Algorithms, Graph Optimization

Collaborative Space Syntax Research Projects

Spatial Data Researcher (in collaboration with a UCL researcher and practising architects)

Singapore
Apr 21 – Feb 22

- “Expanding on Connectivity Graphs (J-Graphs) to analyse Spatial Configurations in Complex Buildings”
Topics: Spatial Networks, Complex Buildings, Network Layouts

Institute of Water Policy, Lee Kuan Yew School of Public Policy (LKYSPP)

Public Policy Research Assistant (PI: Dr Cecilia Tortajada)

Singapore
May 20 – Nov 20

- Responsibilities include Text Mining & Analysis, Systematic Reviews, Case Studies
Topics: Discourse Analysis, Sustainability Reporting, Water Management, Structured Topic Modelling

Professional & Work Experience _____

Inully Architecture Design Studio

Spatial Design Analyst – collaboration with CIAP, Bescon and ARUP

Singapore
Jan 21 – Apr 21

- Planned the spatial configuration of the new campus at GEMS World Academy through analysing multi-scale connectivity and functionality of spaces

Centre for Liveable Cities (CLC), Ministry of National Development

Intern/Research Assistant - Complexity Science Team (SP: Dr Limin Hee)

Singapore
Jul 20 – Jan 21

- Supported projects aimed to bridge knowledge and foster discussions between stakeholders and agencies
- Conducted urban geospatial (GIS) modelling and analysis for government agencies
- Designed spatial network models and conducted analysis on choice accessibility on multiple scales

17 C4I Battalion, Singapore Armed Forces

Signal Operator and Armourer in Charge (National Service)

Singapore
April 16 – Feb 18

- Managed vehicular communications for an active battalion and was presented with the batch's best detachment award

Teaching Experience _____

___MODULES

12DS3I - Design Research Studio, 12DAI - Data Analytics for Design

School of Design and Environment, Ngee Ann Polytechnic

Singapore
Jan 21 – May 22

Co-Lecturer/ Course Developer – Diploma in Design (Product Innovation/Architecture)

ME1102 - Engineering Principles and Practice 1

Faculty of Engineering, National University of Singapore

Singapore
Aug 19 – Nov 21

Teaching Assistant – Mechanical Engineering

DSA4264 - Sense-making Case Analysis: Public Policy and Society

Department of Statistics, National University of Singapore

Singapore
May 20 – Nov 20

Support – Scraped Data and Code used as Teaching Material

___WORKSHOPS & GUEST LECTURES

Urban Analysis and Systematic Observations

School of Architecture and the Built Environment, Singapore Polytechnic

Singapore
Jun 22

Guest Speaker – Diploma in Design (Interior Design)

Interior Spatial Analysis Workshop for Final Year Module - "Atelier Space, Inclusion & Belonging"

School of Architecture and the Built Environment, Singapore Polytechnic + Lee Kuan Yew School of Public Policy

Singapore
Nov 21, Dec 21

Guest Lecturer & Critique – Diploma in Design (Interior Design)

Modelling Techniques for Seminar - "Navigation in Singapore Waters - Bridges and Barriers"

Residential College 4, National University of Singapore

Singapore
May 20, May 21

Guest Speaker for UTS2708/ UTC2717 (NUS), a module on Systems Thinking and Water Policy

Articles & Publications _____

___JOURNAL ARTICLES

System dynamics across three scales in the Brahmaputra River Basin- Exploring a Himalayan social-hydrological system

[Ryan YW Tan](#), Navarun Varma, Robert Wasson, Shukla Archajee. (2022). *International Journal of Water Resource Development*. [Manuscript in Preparation].

___CONFERENCE PAPERS & PRESENTATION

Testing the waters for a Social-Learning Lab in Residential College 4

Navarun Varma, [...], [Ryan Tan Yi Wei](#), et al. (2022). *2022 Teaching and Learning at Residential Colleges Colloquium*.

Integrating resilience into Monitoring and Evaluation of climate and development practices in Hindu-Kush Himalaya

Navarun Varma, Arabinda Mishra, [Ryan Yi Wei Tan](#), et al. (2022). *2022 International System Dynamics Conference*. [Work in Progress Paper]

System dynamics across three scales in the Brahmaputra River Basin- Exploring a Himalayan social-hydrological system

[Ryan Tan](#), Navarun Varma, Robert Wasson, Shukla Archajee. (2021). *2021 International System Dynamics Conference*. [Long Paper + Oral Presentation]

___OTHERS

Making the most out of every drop of Singapore's water

Cecilia Tortajada, [Ryan Tan Yi Wei](#). (2020, Nov 25). *The Business Times*. [Opinion Piece].

Community Involvement _____

Active Member

System Dynamics Society (ASEAN and Student Chapter)

International
Mar 21 – Dec 22

- Presenter and Reviewer at the 2022, 2021 International System Dynamics Conference

External Advisor for Student Projects on Public Spaces

School of Design and Environment, Ngee Ann Polytechnic

Singapore
May 21 – Aug 21

- Advised collaborative evidence-based design projects with industry partners: National Environment Agency, Jalan Besar Town Council, City Sprouts, Red Cross, Yong En Care Centre
- Projects aimed to rejuvenate and develop public spaces - Parks, Playgrounds, Void Decks, Gardens, Urban Farms, etc

Certifications _____

Moral Foundations of Politics

May 22

Syntax_202 + Syntax_101 (Space Syntax)

Jun 21, May 21

AnalyticsX: Big Data Analytics

Jun 20

Solid Edge 2019 Certified Associate II

Aug 19

Awards _____

Justus & Louise van Effen Excellence Scholarships

Netherlands

Full scholarship to study at TU Delft, MSc Engineering and Policy Analysis

Mar 22

Skills _____

- System Dynamics Modelling (Vensim)
- Agent Based Modelling (MESA)
- Social Network Modelling (igraph, Gephi)
- Spatial Network Modelling (Space Syntax Tools)
- Geographic Information Systems (QGIS)
- CAD Software (SolidWorks, Solid Edge, SketchUp)
- **Languages:** English (Native), Chinese Mandarin (Fluent)
- R, Python & C Programming
- Packages/ Frameworks: ggplot2, dplyr, rvest, selenium, quanteda, stm, igraph, rdepthmap, sp, rgdal, shiny, pandas, geopandas, numpy, sklearn, pytorch, opencv, ROS, mesa.