Ryan Y.W. Tan

Student Researcher, Modeller & Policy Analyst
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Education _____

Delft University of Technology (TU Delft)   Netherlands
M. Sc. Engineering and Policy Analysis, Average GPA: ~8.3/10   Sep 22 – Present
- An interdisciplinary program weaving political sciences with modelling and simulation studies
- <u>Specialization</u>: Water and Delta Systems; <u>Courses</u>: Systems Modelling/System Dynamics, Decision Making under Deep Uncertainty, Adaptive Planning, , Actor and Strategy Models, Water Governance
- Awarded the *Justus & Louise van Effen Excellence Scholarship* (full tuition fees & living expenses)

National University of Singapore (NUS)   Singapore
B. Eng. Mechanical Engineering, Honours (Highest Distinction), CAP: 4.64/5.00   Aug 18 – May 22
- Completed the *University Town College Programme* on systems thinking/systems dynamics
- A multidisciplinary focus on engineering, urban planning, policy and philosophy

Nanyang Technological University (NTU)   Singapore
Singapore Universities Student Exchange Programme   Jan 21 – May 21

Hwa Chong Institution – High School and College   Singapore
Singapore-Cambridge GCE Advanced Level (4 H2- Physics, Computing, Math, Economics) Jan 10 – Dec 15
- Institution accepts the top 5% of scorers in primary and secondary school national examinations

Research Experience _____

Faculty of Technology, Policy and Management, Delft University of Technology (TU Delft)   Netherlands
Thesis Student (SP: Dr Lisa Scholten, Dr Nihit Goyal)   Feb 24 – Present
- "Navigating Discourse Networks to understand the Environmental Planning Act in the Netherlands"
  Topics: <u>Sustainability Transition</u>, <u>Discourse Network Analysis</u>, <u>Multi-Sector Transition</u>

Research Intern (SP: Dr Lisa Scholten)   Sep 23 – Feb 24
- "Mapping the system underlying inertia in the (storm)water transition in cities in the Netherlands - through a financing perspective"
  Topics: <u>Institutional Analysis</u>, <u>Cognitive Mapping</u>, <u>Water Transition</u>

Student Assistant (PI: Dr Tatiana Filatova)   Dec 22 – Feb 23
- 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: <u>Social Adaptation</u>, <u>Adaptive Governance</u>, <u>Active Learning</u>

International Centre for Integrated Mountain Development (ICIMOD)   Nepal / Singapore
System Dynamics Researcher (PI: Mr Nand Kishor Agrawal, Dr Arabinda Mishra)   Jan 21 – Aug 22
- "Integrating resilience into Monitoring and Evaluation of climate and development practices in Hindu-Kush Himalaya"
  Topics: <u>Livelihood Systems</u>, <u>Adaptation and Resilience Building</u>, <u>System Dynamics</u>

University Town College Programme, National University of Singapore (NUS)   Singapore
Social Network Analysis Research Assistant (PI: Dr Naviyn Balakrishnan)   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: <u>Social Network Analysis</u>, <u>Cross-Disciplinary Mixing</u>, <u>Living-Learning Programmes</u>

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: <u>Policy Analysis</u>, <u>Social-ecological Systems</u>, <u>Disaster Resilience</u>, <u>System Dynamics</u>

Collaborative Space Syntax Research Projects   Singapore
Informal Spatial Data Researcher (in collaboration with a UCL researcher and practising architects)   Apr 21 – Feb 22
- "Expanding on Connectivity Graphs (J-Graphs) to analyse Spatial Configurations in Complex Buildings"
  Topics: <u>Spatial Networks</u>, <u>Complex Buildings</u>, <u>Network Layouts</u>

Institute of Water Policy, Lee Kuan Yew School of Public Policy (LKYSPP)   Singapore
Public Policy Research Assistant (PI: Dr Cecilia Tortajada)   May 20 – Nov 20
- Responsibilities include Text Mining & Analysis, Systematic Reviews, Case Studies
  Topics: <u>Discourse Analysis</u>, <u>Sustainability Reporting</u>, <u>Water Management</u>, <u>Structured Topic Modelling</u>

Professional & Work Experience _____

Inully Architecture Design Studio   Singapore
Spatial Design Analyst – collaboration with CIAP, Bescon and ARUP   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   Singapore
Intern/Research Assistant - Complexity Science Team (SP: Dr Limin Hee)   Jul 20 – Jan 21
- Supported projects aimed to bridge knowledge and foster discussions between stakeholders and agencies
- Designed street network models and conducted urban geospatial analyses for government agencies

17C4I Battalion, Singapore Armed Forces   Singapore
Signal Operator and Armourer in Charge (National Service)   April 16 – Feb 18
- Managed vehicular communications for an active battalion and was presented with the batch's best detachment award

Teaching Experience _____

___MODULES

Multi-stakeholder Strategies: Analysis for Winning Coalitions
Online Course on Water Policy Analysis: A Systems Approach   Online / International
Moderator and Teaching Assistant | *IHE Delft Institute for Water Education*   Feb 24 - Present

TB233B System Modelling 4 – System Dynamics
EPA121A Actors and Strategy Models
EPA123A Introduction to TPM Modelling – System Dynamics   Netherlands
Teaching Assistant | *Faculty of Technology Policy Management, Delft University of Technology*   Nov 23 - Present

12DS3I - Design Research Studio
12DAI - Data Analytics for Design   Singapore
Co-Lecturer/ Course Developer | *School of Design and Environment, Ngee Ann Polytechnic (Diploma in Design)*   Jan 21 - May 22

ME1102 - Engineering Principles and Practice 1   Singapore
Teaching Assistant | *Faculty of Engineering, National University of Singapore*   Aug 19 – Nov 21

___WORKSHOPS & GUEST LECTURES

Urban Analysis and Systematic Observations   Singapore
  School of Architecture and the Built Environment, Singapore Polytechnic   Jun 22
Guest Speaker – Diploma in Design (Interior Design)

Interior Spatial Analysis Workshop for Final Year Module - "Atelier Space, Inclusion & Belonging"   Singapore
  School of Architecture and the Built Environment, Singapore Polytechnic + Lee Kuan Yew School of Public Policy   Nov 21, Dec 21
Guest Lecturer & Critique – Diploma in Design (Interior Design)

Modelling Techniques for Seminar - "Navigation in Singapore Waters - Bridges and Barriers"   Singapore
  Residential College 4, National University of Singapore   May 20, May 21
Guest Speaker for UTS2708/ UTC2717 (NUS), a module on Systems Thinking and Water Policy

Articles & Publications _____

___CONFERENCE PAPERS & PRESENTATIONS

Mapping the system underlying inertia in the (storm)water transition in cities in the Netherlands - through a financing perspective
Ryan Tan Yi Wei. (2024). *182nd Dies Natalis. Redesigning Deltas* [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
International
System Dynamics Society - ASEAN and Student Chapter
Mar 21 – Present
- Reviewer at the International System Dynamics Conference 2024, 2021
- Presenter at the International System Dynamics Conference 2022, 2021

Business Tour Committee Member
Netherlands
TU Delft Engineering and Policy Analysis Student Chapter (Dentatus)
Mar 23 – May 23
- Organized and facilitated exchanges with policy-related organizations

Workshop Facilitator
Netherlands
50th European Young Engineer Conference
May 23
- Supported "the beer game", an educational game on supply chain coordination
- Managed the workshop alongside the University of Bergen's System Dynamics Group

External Advisor for Student Projects on Public Spaces
Singapore
School of Design and Environment, Ngee Ann Polytechnic
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 Scholarship
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)
- o **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, mesa.