Chester Tan's CV

- Email(s):
  - mail@chester-tan.com
  - chester.tan@uni-wuerzburg.de
  - chester.tan13@imperial.ac.uk
- Matrix: @chester-tan:matrix.org
- Jami: chester_tan
- Keybase: chester_tan
- Telegram: chester_tan

Theoretical physics MSci graduate from Imperial College London with key research interests in artificial intelligence, complex systems, and network science.

Education

Master in Science (MSci) Physics with Theoretical Physics from Imperial College London

October 2016 – June 2020

A 4-year integrated undergraduate+master's physics programme with a focus on theoretical physics.

Research Experience

Summer Research Project: Percolation in Atrial Fibrillation Models

July 2019 – August 2019

Supervised by Kim Christensen & Max Falkenberg. Studied bond and surface percolation in a cellular automata models of atrial fibrillation. Generated Monte Carlo percolation simulations and analysed their scaling, facilitating classification into known universality classes, thereby providing justification for a range of known analyses techniques in literature. An Undergraduate Research Opportunities Programme (UROP) with the Centre for Complexity Science, Imperial College London.

MSci Project: Spacetime Random Geometric Graphs

June 2019 – May 2020

Supervised by Tim S. Evans. Developed a novel graph model for the popular Gilbert disk random geometric graph in spacetime, using ideas from directed acyclic graphs, directed percolation, and causal set theory. Studied directed percolation and path lengths in the model, generating Monte Carlo simulations in up to 5+1D on the Imperial College London High Performance Computing cluster. Investigated both numerical and analytical solutions to its particular scale-dependent critical density. Developed a novel search algorithm for DAGs in undirected graphs to comparatively study DAGs in other spaces, including spaces of varying Minkowski distance order. MSci project involved membership and enthusiastic participation at the Centre for Complexity Science, Imperial College London.

How Do Hidden Networks Affect Network Evolution

May 2020 – Present

With Max Falkenberg. Studying how hidden networks affect the temporal evolution of observed networks, and developing a framework to extract hidden networks from observed data, with many potential transdisciplinary applications, including, but not limited to, the analysis of social networks. Involves analytical and numerical studies (and development) of many popular network growth models and novel growth models. Research conducted as an academic visitor at the Centre for Complexity Science, Imperial College London.

The Small World of Singlish Words

July 2021 – December 2021

With Cynthia S. Q. Siew and Jazton Chern. A Singapore-English (Singlish) spin on the Small World of Words project – to collect and study free assiociation data for Singlish.

Conferences and Seminars

Conference on Complex Systems (CCS) 2019

Attended with other members of the Centre for Complexity Science, Imperial College London.

Network Science Society (NetSci) Conference 2020

Parallel session presentation on work done for MSci project.

Network Science Society (NetSci) Conference 2021

Dagstuhl Seminar 21352 - Higher Order Graph Models: From Theoretical Foundations to Machine Learning 2021

The ACM Web Conference 2022

Teaching Experience

A-Star Tuition Centre, Jakarta

Teaching Assistant

July 2020 – August 2020

Assisted teaching International Baccalaureate and iGCSE mathematics classes.

Employment History

Republic of Singapore Air Force

Tactical Control Officer, Lieutenant, Ground Based Air Defence

February 2014 – December 2015

11 months in Officer Cadet School, commissioned as a Ground Based Air Defence Air Warfare Officer, then worked another 11 months as a Tactical Control Officer on active duty operating the Raytheon I-Hawk surface-to-air missile system. Planned and led exercises assuming roles of 1st or 2nd-in-command, and was in charge of chemical defence training for my flight (platoon). Designed an aircraft engagement Microsoft Excel VBA workbook for more efficient and accurate evaluation of exercises (incorporating Vincenty's solutions on a WGS 84 ellipsoid, missile proportional navigation, and radar atmospheric refraction).

Partners Group

Junior Data Engineer

December 2020 – May 2021

Developing automated data analysis and reporting applications in T-SQL and Java.

National University of Singapore

Research Assistant, Department of Psychology

July 2021 – December 2021

The Small World of Singlish Words research project.

Julius-Maximilians-Universität Würzburg

PhD Student with the Chair of Machine Learning for Complex Networks

January 2022 – Present

PhD student at the chair of Machine Learning for Complex Networks, Center for Artificial Intelligence and Data Science (CAIDAS), Julius-Maximilians-Universität Würzburg.