

Nelvin Tan

Curriculum Vitae

PERSONAL DETAILS

Phone: +65 9363 8261
Email: nelvintan@hotmail.com
Nationality: Singaporean

RESEARCH INTERESTS

I am interested in problems at the intersection of information theory and statistics. More specifically, my research investigates the fundamental limits and algorithmic performances of statistical algorithms.

EDUCATION

Ph.D. October 2021 – Present
University of Cambridge
Division: Information Engineering
Specialization: Information Theory and Statistics
Thesis title: *Approximate Message Passing for Data Science: Mixed Regression, Pooled Data, and Group Testing*

B. Comp. (Honours) – Turing Programme (4.68/5.0) August 2017 – May 2021
National University of Singapore
Classification: Highest Distinction (First Class Honours)
Majors: Computer Science and Statistics
Specialization: Algorithms and Theory
Thesis title: *Fast Splitting Algorithms for Noisy and Sparsity-Constrained Group Testing*

EXPERIENCE

University of Cambridge October 2021 – Present
Researcher

- Group: Signal Processing and Communications
- Topic: Information Theory and Machine Learning (Mixed Regression, Pooled Data, Group Testing)
- Supervisor: Ramji Venkataramanan

National University of Singapore June 2019 – June 2021
Research Assistant

- Topic: Information Theory and Machine Learning (Group Testing)
- Supervisor: Jonathan Scarlett

National University of Singapore January 2018 – April 2018
Teaching Assistant

- Module: CS2030 Programming Methodology II
- Planned, managed, and conducted weekly lab sessions.

Singapore Armed Forces, 41 Singapore Armoured Regiment February 2015 – December 2016
Reconnaissance Commander

- Led my tango in battalion level missions.
- Conducted and assisted in basic military training and specialized reconnaissance training.

SKILLS

Programming Languages (Computer Science):	Python (main), Java, C
Programming Languages (Statistics):	R (main), SAS, SPSS

AWARDS

- Cambridge Department of Engineering Scholarship 2021
(from *Harding Distinguished Postgraduate Scholars Programme*)
- Cambridge Trust Scholarship 2021
- Outstanding Undergraduate Researcher Prize ([link](#)) 2021
(*Best Undergraduate Researcher Prize – Individual*)
- GCE A-Level Academic Excellence Award 2014

SERVICE (REVIEWER)

- IEEE International Symposium on Information Theory 2023
- IEEE Transactions on Signal Processing 2023
- 26th International Conference on Artificial Intelligence and Statistics 2022

PUBLICATIONS

Publications are listed in reverse chronological order.

Journal Papers:

- [3] Eric Price, Jonathan Scarlett, and **Nelvin Tan**, “Fast Splitting Algorithms for Noisy and Sparsity-Constrained Group Testing,” *Information and Inference: A Journal of the IMA*, 2022.
- [2] **Nelvin Tan**, Way Tan, and Jonathan Scarlett, “Performance Bounds for Group Testing With Doubly-Regular Designs,” *IEEE Transactions on Information Theory*, 2022.
- [1] Oliver Gebhard, Max Hahn-Klimroth, Olaf Parczyk, Manuel Penschuck, Maurice Rolvien, Jonathan Scarlett, and **Nelvin Tan**, “Near Optimal Sparsity-Constrained Group Testing: Improved Bounds and Algorithms,” *IEEE Transactions on Information Theory*, 2022.

Conference Papers:

- [3] **Nelvin Tan** and Ramji Venkataramanan, “Mixed Linear Regression via Approximate Message Passing,” *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2023.
- [2] **Nelvin Tan** and Jonathan Scarlett, “An Analysis of the DD Algorithm for Group Testing with Size-Constrained Tests,” *IEEE International Symposium on Information Theory (ISIT)*, 2021.
- [1] **Nelvin Tan** and Jonathan Scarlett, “Near-Optimal Sparse Adaptive Group Testing,” *IEEE International Symposium on Information Theory (ISIT)*, 2020.