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Hong Kiat, Tan

Education

University of California, Los Angeles

- **Ph.D.** Candidate, Applied Mathematics, (GPA: 3.98/4.00) Aug 2021 - Jun 2026 (Expected)
- PhD Advisor: Andrea L. Bertozzi.
- **Masters of Arts** in Mathematics Aug 2021 - Jun 2022

National University of Singapore

- **Bachelor of Science (Honours)** in Applied Mathematics with Highest Distinction. Aug 2017 - May 2021
- Second Major in Physics and Minor in Statistics, (CAP: 4.97/5.00)
- 28 A+'s in Math/Physics/Statistics courses.

Publications

- *Weak Cosmic Censorship Conjecture for the Spherically Symmetric Einstein-Maxwell-Charged Scalar Field System.*
  X. An, **H.K. Tan**. || arXiv preprint arXiv:2402.16250.
  Topics: Analysis of Partial Differential Equations (PDEs), General Relativity.
- *Regularization of Complex Langevin Method.*
  Z. Cai, Y. Kuang, **H.K. Tan**. || Physical Review D 105 (1), 014508.
  Topics: Numerical Analysis, Quantum Mechanics.
- *Hierarchical Bayesian Thermonuclear Rate for the 7Be (n, p) 7Li Big Bang Nucleosynthesis Reaction.*
  R.S. de Souza, **H.K. Tan**, A. Coc, C. Iliadis. || The Astrophysical Journal 894 (2), 134.
  Topics: Bayesian Statistics, Astrophysics.

Honours and Awards

- *Ho Family Prize* – Best overall student in Applied Math, AY 20/21, 2021
- *Tan Siak Kew Gold Medal* – Best student in Science III, AY 19/20, 2020
- *Tan Teck Chwee Prize* – Best student in Applied Math III, AY 19/20, 2020
- *Honour List of Student Tutors* – Excellence in Teaching, AY 19/20, 20/21, 2020, 2021
- *Sembcorp Marine Prize* – Top 2 students in Physics III, AY 18/19, 2019
- *Arthur Rajaratnam Prize* – Best student in Experimental Physics I, AY 18/19, 2019
- *Jurong Shipyard Prize* – Top 2 students in Physics I, AY 17/18, 2018
- *Dean's List* – Top 5% of students, AY 18/19, 19/20, 20/21, Sem I & II, 2018 – 2021
- *NUS Merit Scholarship* – Awarded to support my undergraduate studies. 2017

Work Experiences

Graduate Research Assistant, UCLA 2022 - Present

- Coded a continuum traffic network model from scratch in Python using object-oriented programming (OOP), incorporating data to investigate its efficiency.
- Utilized differential topology and functional analysis to analyze PDE models and relevant numerical schemes motivated by experiments in fluid dynamics.

Graduate Teaching Assistant, UCLA 2021 - Present

- Served as a TA with an average teaching feedback score of 8.6/9.0 over 9 quarters which includes the following classes:
  - Math of Finance for Math/Econs,
  - PDEs (Undergrad/Graduate),
  - Ordinary Differential Equations (ODEs),
  - Introduction to Probability,
  - Analysis,
  - Calculus of Several Variables (Honors).

Undergraduate Teaching Assistant, NUS 2019 - 2021

- Served as a TA for discrete structures and programming methodology in Python for 5 semesters, with average teaching feedback score of 4.8/5.0.

Undergraduate Research Assistant, UNC - Chapel Hill 2019

- Performed data analysis on astrophysical thermonuclear reaction rates using hierarchical models in Bayesian statistics.

Technical Skills

- *Programming Languages*: Python (Proficient), R (Proficient), LaTeX (Proficient), Wolfram.
- *Languages*: English & Mandarin Chinese (Native/Bilingual), Japanese (Elementary).