

WANG YANNAN, DUSTIN

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Hong Kong

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EDUCATION

Ph.D. in Information Engineering

Sept 2016 – June 2021

The Chinese University of Hong Kong

CGPA: 3.991/4.000

- **Research Topic:** Optimization of some Non-convex Functionals arising in Information Theory
- **Main Research:** Forward and reverse-hypercontractive inequality for binary erasure channel; weighted-sum rate outer bound on computing the module-two sum of doubly symmetric binary sources; log-convexity of Fisher Information
- **Expertise:** Extensive experience on a wide range of mathematical tools and numerical simulation techniques to determine extremizers of non-convex optimization problems closely related to probability

B.Eng in Information Engineering

Sept 2012 – July 2016

The Chinese University of Hong Kong

CGPA: 3.678/4.000

- **Ho & Ho Foundation Admission Scholarship** (2012-2016): Full tuition and living expenses coverage for studying in CUHK; Awarded annually to three mainland students who are academically outstanding
- **Dean's List** (2013-2016): Awarded to students who attain a year GPA of 3.50 or above
- **Head's List (Merit)** (2014-2016): Awarded to students who attain a year GPA of 3.3 or above and also rank top 10% among all students in the same major/programme
- **Best (Research) Project Award** (2015): One of the best participants in Summer Undergraduate Research Internship Programme awarded by Faculty of Engineering
- Engineering Leadership, Innovation, Technology and Entrepreneurship (ELITE) stream
- **First-class honour:** Major GPA=3.902/4.000

CORE SKILLS

- **Mathematics**
 - **Probability Theory:** Grade A in postgraduate course Theory of Probability (IERG 6300), including law of Large numbers, Central Limit Theorem and conditional expectation
 - **Stochastic Process:** Grade A in postgraduate course Advanced Stochastic Models (SEEM 5580), covering Poisson Process, Markov chains, Martingales and Brownian Motion; Served as teaching assistant in undergraduate course Introduction to Stochastic Processes (IERG 3300)
- **Programming**
 - **Matlab:** Verifying conjectured properties of optimizers for certain non-convex functions via Matlab optimization functions such as fmincon
 - **C:** Served as teaching assistant in undergraduate course (IERG 2080) on C in Fall 2017, Fall 2018 and Fall 2020
 - **Python 3:** Solving matrix inequalities via CVXOPT package of Python3 to verify feasibility

EXPERIENCE

Teaching Assistant

Sept 2016 – Dec 2020

Conducted tutorials on network protocols for undergraduates; Demonstrated complex mathematical concepts and engineering techniques to undergraduates

Part-time student helper

Dec 2014 – Apr 2015

Worked as a team leader with three junior undergraduates; Created and maintained a course website by Moodle; Prepared in-class exercises, online exercises and teaching notes to assist professor in teaching

PUBLICATIONS & CONFERENCES

Remark: Author names are in alphabetical order in the publications.

- M. Costa, C. Nair, D. Ng and Y. N. Wang, "On the structure of certain non-convex functionals and the Gaussian Z-interference channel", ISIT 2020.
- C. Nair and Y. N. Wang, "On optimal weighted-sum rates for the modulo sum problem", ISIT 2020.
- C. Nair and Y. N. Wang, "Reverse hypercontractivity region for the binary erasure channel", ISIT 2017.
- C. Nair and Y. N. Wang, "Evaluating hypercontractivity parameters using Information Measures", ISIT 2016.

LANGUAGE

English (Fluent) | Cantonese (Fluent) | Mandarin (Native)