# CHUNYIN, SIU (ALEX)

657 Rhodes Hall, Cornell University, Ithaca, NY 14853 cs2323@cornell.edu <a href="https://c-siu.github.io">https://c-siu.github.io</a>

#### **EDUCATION**

## Cornell University, Ithaca, NY

2019 - present

PhD Applied Mathematics

The Chinese University of Hong Kong, Hong Kong

2017 - 2019

MPhil Mathematics

The Chinese University of Hong Kong, Hong Kong

2013 - 2017

BSc Mathematics
Minor in Economics

#### RESEARCH INTERESTS

Statistics of Topological Data Analysis, Network Analysis, Computational Geometry

#### **PUBLICATIONS**

- \* denotes entries with alphabetically listed authors.
- <u>C. Siu</u>, G. Samorodnitsky, C. Yu, and A. Yao. "Detection of Small Holes by the Scale-Invariant Robust Density-Aware Distance (RDAD) Filtration". Submitted to Journal of Applied Topology.
- H. Law, <u>C. Siu</u>, and R. Lui. "Decomposition of Longitudinal Deformations via Beltrami Descriptors". *Journal of Scientific Computing*, 2021.
- <u>C. Siu, H.L. Chan, and R. Lui "Image Segmentation with Partial Convexity Shape Prior Using Discrete Conformality Structures"</u>. *SIAM Journal on Imaging Sciences*, 2020.
- \* E. Goodman, <u>C. Siu</u>, and R. Strichartz. "Geometry and Laplacian on Discrete Magic Carpets". Accepted by *Journal of Fractal Geometry*.
- \* J. Li, and <u>C. Siu</u>. "An Elementary Approach on Left-Orderability, Cables of Torus Knots and Dehn Surgery". Preprint.

#### PRESENTATIONS AND TALKS

- "Betti Numbers of Preferential Attachment Complexes" (poster). Randomness in Topology and its Applications. Chicago, IL, Mar 2023.
- "Detection of Small Topological Features by the Scale-Invariant Robust Density-Aware Distance (RDAD) Filtration". CUHK, Hong Kong, Jan 2023.
- "Detection of Small Topological Features by the Scale-Invariant Robust Density-Aware Distance (RDAD) Filtration" (poster). Algebraic Topology, Methods, Computation and Science 10. Oxford, Britain, Jun 2022.
- "Antman Persistence: Detection of Small Holes with the Robust Density-Aware Distance (RDAD) Filtration" (poster). Bridging Applied and Quantitative Topology. Virtual, May 2022.
- "All Holes Can Be Measured, But Some Holes Are Noisier Than Others" (poster). AATRN Poster Session. Virtual, Oct 2021.

## SELECT AWARDS AND HONORS

Croucher Scholarship for Doctoral Study Sir Edward Youde Memorial Fellowship 2019/2020 2017/2018

## TEACHING AND MENTORSHIP EXPERIENCES

MATH 1920 Multivariable Calculus for Engineers, Cornell, head teaching assistant	Spring	23
MATH 1920 Multivariable Calculus for Engineers, Cornell, teaching assistant	Fall	22
Directed Reading Program on Applied Topology, Cornell, mentor Fall 20, Spring 2	21, Spring	22
MATH 2010 Advanced Calculus I, CUHK, teaching assistant	Spring	17
MATH 4060 Complex Analysis, CUHK, teaching assistant	Fall	17
EPYMT Number Theory and Cryptography, CUHK, teaching assistant	Summer	17
MATH 1510 Calculus for Engineers, CUHK, teaching assistant	Spring	17
MATH 1540 University Mathematics for Financial Studies, CUHK, teaching assistant	Fall	16

### ADDITIONAL INFORMATION

Natural languages English, Chinese (Cantonese, Mandarin)

**Programing** MATLAB, Python, Bash