Chunyin, SIU (Alex)

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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.*

C. Siu, 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, C. Siu, and R. Lui. "Decomposition of Longitudinal Deformations via Beltrami Descriptors". *Journal of Scientific Computing*, 2021.

C. Siu, H.L. Chan, and R. Lui "Image Segmentation with Partial Convexity Shape Prior Using Discrete Conformality Structures". *SIAM Journal on Imaging Sciences*, 2020.

* E. Goodman, C. Siu, and R. Strichartz. "Geometry and Laplacian on Discrete Magic Carpets". Accepted by *Journal of Fractal Geometry*.

* J. Li, and C. Siu. "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	*2019/2020*
Sir Edward Youde Memorial Fellowship	*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 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