Yuchen Guo

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EDUCATION

The Chinese University of Hong Kong   *August 2020- present*
Ph.D. in Mathematics, Supervisor: Ronald Lok Ming Lui
Research Interests: Computational Differential Geometry, Medical Imaging, 3D Imaging, Surface Registration Problems and Machine Learning

Hunan University   *September 2016- June 2020*
Bachelor of Science in Applied Mathematics

University of California, Los Angeles   *June 2019- September 2019*
Cross-disciplinary Scholars in Science and Technology (CSST) Program

PUBLICATIONS

- **Yuchen Guo**, Qiguang Chen, Gary Choi, and Lok Ming Lui. *Automatic Landmark Detection and Registration of Brain Cortical Surfaces via Quasi-Conformal Geometry and Convolutional Neural Networks*, arXiv preprint arXiv:2208.07010. Submitted to IEEE Transactions on Medical Imaging.

- **Yuchen Guo**, Nicholas Haonian, Zhexiao Lin, Nicholas Liskij, Hanbaek Lyu, Deanna Needell, Jiahao Qu, Henry Sojico, Yuliang Wang, Zhe Xiong and Zhenhong Zou, *Topic-aware chatbot using Recurrent Neural Networks and Nonnegative Matrix Factorization*, arXiv preprint arXiv: 1912.00315.

- **Yuchen Guo**, Mengqi Chen, Xiao-Bao Shu and Fei Xu, *The existence and Hyers-Ulam stability of solution for almost periodical fractional stochastic differential equation with fBm*, Stochastic Analysis and Applications, 39(4), 643-666. ***Highly Cited Paper***.

- **Yuchen Guo**, Xiao-Bao Shu, Yongjin Li and Fei Xu, *The existence and Hyers–Ulam stability of solution for an impulsive Riemann–Liouville fractional neutral functional stochastic differential equation with infinite delay of order 1< β <2*, Boundary Value Problems, 2019(59). ***Highly Cited Paper.***

- **Yuchen Guo** and Xiao-Bao Shu, *An investigation on the existence and Ulam stability of solution for an impulsive fractional differential equation*, Journal of Mathematics, 2019, 39(06): 835-851.

RESEARCH EXPERIENCE

The Chinese University of Hong Kong   *August 2020 -present*
Under the supervision of Prof. Ronald Lok Ming Lui
- Mainly work on applying machine learning to quasi-conformal geometry theory.
- Interested in 3D detection and registration problems.

University of California, Los Angeles   *June 2019 -September 2019*
Under the supervision of Prof. Deanna Needell and Dr. Hanbaek Lyu
- Created a topic-aware chatbot by using recurrent neural network, non-negative matrix factorization as well as the attention mechanism.
- Mainly worked on the structure of the chatbot in order to make the chatbot to be topic-aware and sought ways to boost computing speed in training and generating process.

Hunan University   *February 2018- October 2019*

Under the supervision of Xiaobao Shu

- Learned the basic theorems of the stochastic differential equation.
- Conducted research on the existence and Hyers-Ulam stability of solutions for Riemann-Liouville fractional stochastic differential equations and Caputo fractional stochastic differential equations.

SERVICE &MEMBERSHIP

- Reviewer for *Journal of Inequalities and Applications*, 2022.

- Reviewer for *FILOMAT*, 2021.

- Member of *Society for Industrial and Applied Mathematics student chapter*, 2023.

ACADEMIC AWARDS

- **International Congress of Chinese Mathematicians Best Thesis Award**, *Silver Medal [2022]*.

- **Outstanding Graduates**, *Hunan Province [2020]*.

- **Outstanding Graduation Thesis**, *Hunan University [2020]*.

- **Cross-Disciplinary Scholars in Science and Technology Scholarship**, *University of California, Los Angeles [2019]*.

- **The Challenge Cup** - **National Technological Innovation Competition**, *National Second Prize [2019]*.

SKILLS

- **Programming**   Python, Matlab, C
- **Machine Learning**   Pytorch
- **Paper Writing**   Latex

EXTRACURRICULAR AWARDS

- **Merit Student**, *Hunan University [2017, 2018, 2019]*.

- **Outstanding Accomplishment and Service as a Valued Volunteer**, *Child Education Development, Sri Lanka [2017]*.