**Guoning Yu**

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**Education**

*Ph.D. Candidate*Fall 2019 – Spring 2024

**Mathematics**, **Georgia State University**, Atlanta, GA

Advisors: Guantao Chen & Yaroslav I. Molkov

GPA 4.2/4.5

*Bachelor of Science*,2015-2019

**Mathematics and Applied Mathematics**, **Lanzhou University,** Lanzhou, China

*Relevant Coursework:*

Real/Complex Analysis

Combinatorics

Probability Theory

ODE/PDE

Numerical Analysis

Data Structure

Database Systems

Advanced Machine Learning

Security Investment Analysis

**Research Papers**

In Graph Theory and Combinatorics:

* *Linear arboricity of degenerate graphs*, 2021, with G. Chen and Y. Hao, Journal of Graph Theory
* *A decomposition method on solving the linear arboricity conjecture*, 2022, with G. Chen and Y. Hao, accepted
* *The degree-f fractional density algorithm in graph edge coloring*, 2022, with G. Chen, under review

In Statistics and Machine Learning:

* *A method on m-uniform hypergraphon estimation and validation*, 2024., in preparation

In Theoretical Neural Science:

* *On the role of sensory feedback and central neuronal interactions in locomotor gait and balance control in quadrupeds*, 2023, with Y. Molkov, etc., in preparation

**Other Representative Research Experiences**

Project on **Alzheimer Disease Prognosis with Clinical Data** 2023/05 – present

*Advisor: Dr. Yaroslav Molkov*

* Process and analyze clinical data, fit and evaluate authenticate PDE model parameters
* Draw connections between molecular mechanisms of neurotoxicity, biomarkers, and the diagnosis
* Applied gradient-boosted decision tree models

Project on **Neural Mechanisms of Motor Learning from Errors** 2022/12 – present

*Advisor: Dr. Yaroslav Molkov*

* Statistically identify model the neurocomputational principles underlying motor learning from errors
* Utilize machine learning tools to decode behavioral variables from brain recordings and building predictive models based on behavioral and neural data

The study of **Dynamic Behavior of Brucellosis in Gannan Area** 2017/12 – 2018/07

*College Students' Innovation and Entrepreneurship Training Project*

*Funded by: Lanzhou University*

* Developed a propagation model using infection data from Gannan area, established disease dynamics
* Conducted numerical simulations, furnished guidance on agricultural practices and lifestyle management to local pastoral communities

**Academic Presentations**

AMS 2023 Spring Southeastern Sectional Meeting 2023/03

* A decomposition method on solving the linear arboricity conjecture

Graph Theory Seminar, Georgia Institute of Technology 2023/02

* A polynomial time algorithm for the fractional f-density

Neuroscience 2022 Poster Session 2022/11

* On the role of sensory feedback and central neuronal interactions in locomotor gait and balance control in quadrupeds

34th Midwestern Conference on Combinatorics and Combinatorial Computing 2022/10

* A decomposition method on solving the linear arboricity conjecture

Atlanta Lecture Series in Combinatorics and Graph Theory 2021/08

* Linear arboricity of degenerate graphs

**Activities and Social Services**

**Course Instructor,** Entry-level Undergraduate Courses

*Department of Mathematics and Statistics, Georgia State University*

* Math 1111 College Algebra Fall 2022
* Math 0999 Support for College Algebra Fall 2021
* Math 1001 Quantitative Reasoning Spring 2021
* Math 1101 Introduction to Mathematical Modeling Spring 2020

**President,** Student Union 2017/05 – 2018/05

*School of Mathematics and Statistics, Lanzhou University*

* Administered an organization of 82 students; organized 30+ student events
* Coordinated college academic/employment-oriented lectures; built contact with corporations providing sponsor and jobs for students; assisted with organizing national math/modeling contests

**Organizer and Teacher of Mathematics,** Children’s Welfare Project2016/07

*Xincheng Xijie Primary School, Gannan Tibetan Autonomous Region, Gansu Province*

* Organized a 28-day program of social service for children in remote and ethnic minority areas; sponsored by the Lanzhou University Education Development Foundation; reported by China News.

**Skills and Awards**

*Skills and tools:*

* Programming - C++ | Python | MATLAB | SQL
* Text editing and other tools - LaTeX | Git | CLI with Bash

*Awards:*

* Second Century Initiative University Doctoral Fellowship 2020/05 – present
* The Fred Massey Graduate Student Award 2022/04 and 2023/03
* Outstanding Student Award of Lanzhou University (top 5%) 2018/10
* Excellent Student Leaders (top 10, among 500 students) 2018/05