

Yanbing Gu

CONTACT INFORMATION	Department of Mathematics, Dartmouth College HB 6188 Kemeny Hall, 29 N, Main St, Hanover, NH 03755 yanbing.gu.gr@dartmouth.edu yanbinggu.github.io/		
RESEARCH INTERESTS	Data-driven applications of dynamical systems and differential geometry using machine learning and deep learning techniques, with focus on spectral approximations of differential operators and non-parametric modelling for non-linear systems.		
EDUCATION	Dartmouth College , Hanover, NH Ph.D. in Mathematics (Sep 2021 — Present) Thesis Advisor: Dimitris Giannakis A.M. in Mathematics (Sep 2021 — Jun 2023) Stony Brook University , Stony Brook, NY (Aug 2018 — Aug 2020) B.S. in Mathematics, Applied Mathematics and Statistics		
PUBLICATIONS AND PREPRINTS	<ol style="list-style-type: none">Learning dynamical systems with the spectral exterior calculus, Das, S., D. Giannakis, Y. Gu, and J. Slawinska, submitted to <i>SIAM Journal on Applied Dynamical Systems (SIADS)</i>, 2024.Maximally complete maps on orientable surfaces, Gu, Y., C.Stewart, and A, Yamin, <i>Proceedings of Bridges 2024: Mathematics, Art, Music, Architecture, Culture</i>, 2024.Annual migration routes, stopover patterns and diurnal activity of Eurasian Bitterns <i>Botaurus stellaris</i> wintering in China, Gu, D., Y. Chai, Y. Gu, J. Hou, L. Cao, and A. D. Fox, <i>Bird Study</i>, 66(1):43-52, 2019, doi: 10.1080/00063657.2019.1608906.		
SELECTED TALKS AND PRESENTATIONS	Oct 2024	Learning dynamical systems with the spectral exterior calculus, Das, S., D. Giannakis, Y. Gu , and J. Slawinska, <i>SIAM Conference on Mathematics of Data Science (MDS24)</i> , Atlanta, GA.	
	May 2023	Learning Koopman evolution groups with the spectral exterior calculus, Giannakis, D., Y. Gu , J. Slawinska, and R. Vaughn, <i>SIAM Conference on Applications of Dynamical Systems (DS23)</i> , Portland, OR.	
	Jul 2020	Maximally complete maps on orientable surfaces, Gu, Y. , C. Stewart, and A. Yamin, <i>Geometry Labs United Conference</i> , ICERM, Brown University (virtual).	
	Jan. 2020	Maximally complete maps on orientable surfaces, Gu, Y. , C. Stewart, and A. Yamin, <i>. Joint Mathematics Meetings (JMM)</i> , Denver, CO.	
AWARDS	2021 — 2026	Dartmouth Fellowship	Dartmouth College
	2020	Undergraduate Travel Grant	Joint Mathematics Meetings (JMM)
	2018 — 2020	Dean’s List	Stony Brook University
SKILLS	Languages:	English (fluent), Chinese (native), German (intermediate), Japanese (intermediate)	
	Programming:	Proficient in Python, C++, MATLAB, R, SQL, \LaTeX	
	Framework:	Pandas, PyTorch, TensorFlow, Keras, Scikit-learn, JAX, BERT, NumPy, SciPy, Matplotlib, Seaborn	
	Tools:	Git, Hadoop, Spark, Docker, Jupyter Notebook, PyCharm	

RESEARCH AND WORKSHOPS	Mar 2022 —	<i>Doctoral research</i> advised by Dimitris Giannakis		Department of Mathematics, Dartmouth College
	Jan — Oct 2023	<i>Big Ideas in Dynamics Workshop</i>		virtual
	Jun 2023	<i>Séminaire de Mathématiques Supérieures 2023: Periodic and Ergodic Spectral Problems</i>		SLMath (formally MSRI) Summer School, Université de Montréal, Canada
	Jun 2019 — Jul 2022	<i>Geometric realization for maximally complete regular maps on orientable surfaces</i>		Mathematics Department, Stony Brook University
TEACHING	Spring 2025	Instructor	MATH 23 Differential Equations	Dartmouth College
	Fall 2023	Instructor	MATH 1 Introduction to Calculus	Dartmouth College
	Winter 2023	Teaching Assistant	MATH 8 Calculus of Functions of One and Several Variables	Dartmouth College
	Fall 2022	Teaching Assistant	MATH 20 Probability	Dartmouth College
	Summer 2022	Teaching Assistant	MATH 20 Probability	Dartmouth College
	Fall 2021	Teaching Assistant	MATH 9 Multivariable Calculus with Linear Algrbra	Dartmouth College
	Summer 2021	Instructor	STAT 113 Elementary Probability and Statistics	CUNY Hunter College
	Spring 2021	Instructor	MATH 2501 Elementary Probability and Statistics	CUNY Brooklyn College
	Fall 2020	Instructor	STAT 113 Elementary Probability and Statisitcs	CUNY Hunter College
SERVICE AND OUTREACH	Fall 2020	Instructor	MATH 155 Calculus II	CUNY Hunter College
	Jul — Aug 2023	Instructor for Dartmouth Exploring Mathematics Summer Camp		Department of Mathematics, Dartmouth College
	May 2022	Section Leader for Sonia Kovalevsky Day		Department of Mathematics, Dartmouth College
	Jan — Mar 2022	Mentor for Directed Reading Program (DRP) in 3-manifold topology		Department of Mathematics, Dartmouth College