Benjamin Yamin Zhou

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EDUCATION

Department of Mathematics, Northwestern University *9/2018 - Present*
Ph.D. candidate in Mathematics
Advisor: Eric Zaslow

Department of Computer Science, Stanford University *2015-2017*
M.S. in Computer Science
Dual Concentration in Artificial Intelligence, Theoretical Computer Science
Advisor: Serafim Batzoglou

Department of Mathematics, Stanford University *2012-2016*
B.S. with Honors in Mathematics
Advisor: András Vasy
Undergraduate thesis: *Spacetime Geometries*

RESEARCH INTERESTS

My research interests are in Gromov-Witten theory, Enumerative Geometry, Mirror Symmetry, Algebraic Geometry, Symplectic Geometry. I also have interests in analysis and design of algorithms, machine learning.

PUBLICATIONS

- *Higher genus local Gromov-Witten invariants from degeneration of projective bundle*, in progress.

- *Quantum Theta Functions from Open Mirror Symmetry*, joint with Tim Graefnitz, Helge Ruddat, and Eric Zaslow, in progress.

- *Assessing Mechanisms for Microbial Taxa and Community Dynamics using Process Models*, Wu Linwei, Yunfeng Yang, Daliang Ning, Qun Gao, Huaqun Yin, Naijia Xiao, Benjamin Zhou, Si Chen, Qiang He, Jizhong Zhou. mLife. 12 September 2023.

- *Functionally Graded, Bone- and Tendon- like Polyurethane for Rotator Cuff Repair.* Dai Fei Elmer Ker, Dan Wang, Anthony William Behn, Evelyna Tsi Hsin Wang, Xu Zhang, Benjamin Yamin Zhou, Angel Enrique Mercado-Pagan, Sungwoo Kim, John Kleimayer, Burhan Gharaibeh, Yaser Shanjani, Drew Nelson, Marc Safran, Emilie Cheung, Phil Campbell, Yunzhi Peter Yang

- *Metagenomic-based analysis of biofilm communities for electrohydrogenesis: From wastewater to hydrogen.* Varrone, C. J. D. Van Nostrand, W. Liu, Benjmain Yamin Zhou, Z. Wang, F. Liu, Z. He, L. Wu, J.-Z. Zhou, and Aijie Wang. 2014. International Journal of Hydrogen Energy.39: 4222-4233.

- *Random Sampling Process Leads to Overestimation of β-Diversity of Microbial Communities.* Zhou, J-Z., Y.H. Jiang, Y. Deng, Z. Shi, Benjamin Yamin Zhou, K. Xue, L. Wu, Z. He, and Y. Yang. 2013. mBio 4: e00324-13 (doi:10.1128/mBio.00324-13).

HONORS AND AWARDS

Northwestern University Graduate Fellowship	*2022-2023*
Excellence as Graduate Teaching Assistant Departmental Award	*2022*
NSF RTG: Analysis on Manifolds	*2019*

Semifinalist, Siemens Competition in Math, Science, and Technology *2012*
National Finalist, Siemens Competition in Math, Science, and Technology *2011*

TEACHING

TA for Math 351: Fourier Analysis and Boundary Value Problems, Northwestern University	*Fall 2023*
TA for Math 240: Linear Algebra, Northwestern University	*Fall 2023*
TA for Math 368: Introduction to Optimization, Northwestern University	*Spring 2022*
TA for Math 340: Geometry, Northwestern University	*Spring 2022*
TA for Math 366-1: Mathematical Models in Finance, Northwestern University	*Winter 2022*
TA for Math 336-1: Introduction to the Theory of Numbers, Northwestern University	*Winter 2022*
TA for Math 342: Introduction to Differential Geometry, Northwestern University	*Fall 2021*
TA for Math 320-1: Real Analysis, Northwestern University	*Fall 2021*
TA for Math 300: Foundations of Higher Mathematics, Northwestern University	*Spring 2021*
TA for Math 230-2: Multivariable Integral Calculus, Northwestern University	*Winter 2021*
TA for Math 230-1: Multivariable Differential Calculus, Northwestern University	*Fall 2020*
TA for Math 230-1: Multivariable Differential Calculus, Northwestern University	*Fall 2019*
TA for CS 229: Machine Learning, Stanford University	*Fall 2016*

TALKS

Graduate Student Seminar, Northwestern University
Curve Counting and Modular Forms *6/2023*

Graduate Student Seminar, Northwestern University
Every smooth cubic surface has exactly 27 lines *5/2021*

CONFERENCES ATTENDED

Topological Moonshine at UIUC	*7/17-7/21/23*
Los Angeles Workshop on Representations and Geometry at USC	*6/12-6/16/23*
Richmond Geometry Meeting at VCU	*6/2-6/4/23*
IHÉS Summer School in Enumerative Geometry, Physics, Representation Theory	*7/2021*

SERVICE AND OUTREACH

Intermittent tutoring of probability, linear algebra, real analysis to Northwestern undergraduates	2020-2023

PREVIOUS WORK EXPERIENCE

Freelance Data Scientist, DeepThink Health	*2018*
Research Assistant, Stanford Undergraduate Research in Computer Science	*2016*
Research Assistant, Stanford Undergraduate Research in Mathematics	*2015*
Software Engineering Intern, xAd Inc.	*2015*

MISCELLANOUS

Programming languages: Python, C++, Java, Sage

Langauges: English (native), Chinese (working proficiency)