**Contact Information**

Email: [j.wu24@imperial.ac.uk](mailto:j.wu24@imperial.ac.uk)

**Education**

PhD in Mathematics, Imperial College London From 2024.09

M.S. in Mathematics, New York University 2022.09 - 2024.05

B.A. in Mathematics, New York University (with high honors) 2018.09 - 2022.05

**Research Interests**

Bio-fluid Dynamics, Collective Locomotion in Fluids, Nonlinear Dynamics, Active Matter, Delay Systems

**Research Projects**

**Research at the NYU Applied Math Lab**

Bird Flight in Linear Formation Since 2022.02

Hydrodynamics of Finite-length Pipes at Intermediate Reynolds Numbers 2020.10 - 2023.03

The Water Clocks 2019.12 - 2020.10

**Research at Imperial College London**

The Mechanics of the Coordinated Beating Motion of Cilia Since 2024.10

**Research at Helmholtz Pioneering Campus (Imperial-TUM Partnership)**

The Mechanism of Mucociliary Clearance Since 2024.11

**Publications**

J. W. Newbolt, N. Lewis, M. Bleu, **J. Wu**, C. Mavroyiakoumou, S. Ramananarivo, and L. Ristroph. “Flow interactions lead to self-organized flight formations disrupted by self-amplifying waves,” *Nat. Commun.* 15, 3462 (2024).

O. Pomerenk, S. Carrillo Segura, F. Cao, **J. Wu**, and L. Ristroph. “Hydrodynamics of finite-length pipes at Intermediate Reynolds Numbers,” *J. of Fluid Mech.* (2023), *vol*. 959, A28.

**Awards and Honors**

Roth Scholarship 2024-2028

Graduate School of Arts & Science Tuition Scholarship 2022-2023

Phi Beta Kappa Honors Society 2022.04

Founders Day Award (University Honors Scholar) 2022.04

Larry & Klara Silverstein Research Scholar 2020.05

Dean’s Undergraduate Research Fund 2020.05

Dean’s List for Academic Year (all 4 academic years, 2018 - 2022)

**Research Talks**

**The Water Clocks,** Dean’s Undergraduate Research Conference 2021.05

**Work Experience**

**Math & English Tutor, Shanghai Qingtu Education**  Summer 2019

**Course Grader, NYU Math Department**

MA-UY 1124 Calculus II for Engineers Fall 2020

MA-UY 4414 Applied Partial Differential Equations Fall 2020

**Graduate Employee Adjunct Faculty, Courant Institute of Mathematical Sciences**

MATH-UA 9 Algebra, Trigonometry & Functions Fall 2022

MATH-UA 264 Chaos and Dynamical Systems Spring 2023

MATH-UA 132 Math for Economics II Fall 2023

**Graduate Teaching Assistant, Imperial College London**

MATH50004 Multivariable Calculus and Differential Equations Fall 2024

MATH40007 Introduction to Applied Mathematics Spring 2025

MATH50003 Linear Algebra and Numerical Analysis Spring 2025

**References**

Dr. Eric Keaveny, Reader in Applied Mathematics, Imperial College London, [e.keaveny@imperial.ac.uk](mailto:e.keaveny@imperial.ac.uk)

Prof. Leif Ristroph, Associate Professor of Mathematics, New York University, [lr1090@nyu.edu](mailto:lr1090@nyu.edu)

Prof. Michael Shelley, Lilian and George Lyttle Professor of Applied Mathematics, New York University and Director of Center of Computational Biology, Flatiron Institute, [mshelley@flatironinstitute.org](mailto:mshelley@flatironinstitute.org)