

# Yixuan Wang (Roy)

[roywang@caltech.edu](mailto:roywang@caltech.edu) | (1) 6264609554

Applied and Comput. Math., Caltech, Pasadena, CA 91125

## EDUCATION

### Peking University

B.S., School of Mathematics, Peking University, **Summa Cum Laude** in Beijing 2016—2020  
Elite Undergraduate Training Programs in Applied Math and in Pure Math, Excellent Graduate

### California Institute of Technology

Graduate Student, Computing + Mathematical Sciences, supervised by Prof. Thomas Hou 2020—2026  
W. P. Carey & Co Prize in applied mathematics

## MATHEMATICAL ENGAGEMENT

Founding President of the SIAM Student Chapter at Caltech 2021—2023  
Member of DEI committee at Caltech

## RESEARCH HIGHLIGHTS

I develop analytical and computational frameworks for understanding singularity formation in PDEs, motivated by the Clay prize problem on blowup of Navier-Stokes equation (NSE). I build systematic proofs inspired by numerics, amenable to computer-assisted verification. I establish the open problem of nonuniqueness of Leray-Hopf solutions to 3D incompressible NSE.

Citations: 6178 as of Aug 10th, 2026

[Personal website](#)

## SELECTED PUBLICATIONS

- T.Y. Hou, **Y. Wang**, and C. Yang. (2025) Nonuniqueness of Leray–Hopf solutions to the unforced incompressible 3D Navier–Stokes Equation.
- **Y. Wang**, Z. Liu, Z. Li, A. Anandkumar, and T.Y. Hou. (2025) High Precision PINNs in Unbounded Domains: Application to Singularity Formulation in PDEs.
- J. Liu, **Y. Wang**, and T. Zhou. (2025) Finite Time Blowup for Keller–Segel Equation with Logistic Damping in Three Dimensions.
- **Y. Wang**, J.W. Siegel, Z. Liu and T.Y. Hou. On the Expressiveness and Spectral Bias of KANs, ICLR 2025.
- Z. Liu, P. Ma, **Y. Wang**, W. Matusik and M. Tegmark. KAN 2.0: Kolmogorov–Arnold Networks Meet Science, Physical Review X, 15, 041051, 2025
- J. Chen, T.Y. Hou, V.T. Nguyen and **Y. Wang**. On the Stability of Blowup Solutions to the Complex Ginzburg–Landau Equation in  $\mathbb{R}^d$ , Annals of PDE 11, 29, 2025.
- Z. Liu, **Y. Wang**, S. Vaidya, F. Ruehle, J. Halverson, M. Soljacic, T.Y. Hou and M. Tegmark. KAN: Kolmogorov–Arnold Networks, ICLR Oral 2025.
- T.Y. Hou, V.T. Nguyen and **Y. Wang**. (2024)  $L^2$ -based Stability of Blowup with Log Correction for Semilinear Heat Equation.
- T.Y. Hou and **Y. Wang**. Blowup Analysis for a Quasi-exact 1D Model of 3D Euler and Navier–Stokes, Nonlinearity, 37(3), 2024, 035001.
- Y. Chen, T.Y. Hou and **Y. Wang**. Exponentially Convergent Multiscale Methods for 2D High Frequency Heterogeneous Helmholtz Equations, Multiscale Modeling and Simulation, 21(3), 2023, pp. 849–883.

See [google scholar](#) full a full list of publications.

## TEACHING EXPERIENCE

- ACM 106a (Numerical linear algebra) 22/23/24/25 Fall
- ACM 106b (Numerical analysis) 23/24/25/26 Winter
- ACM 107a (Linear analysis) 21 Fall
- ACM 127 (Calculus of variations) 22 Spring
- ACM 180a (Multiscale modeling) 23 Spring
- ACM 107b (Real and functional analysis) 22 Winter

- ACM 270 (Topics in applied math) 24/26 Spring

### **AWARDS AND HONORS**

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- Silver Award at 56th International Mathematical Olympiad, 2016
- All Three 2<sup>nd</sup> Places in Analysis, Applied Math, and Overall Individual Competitions, S.-T. Yau College Mathematics Contests, 2019
- 1<sup>st</sup> Place in Team Competition, S.-T. Yau College Mathematics Contests, 2019
- 1<sup>st</sup> Prize in National University Math Competition, 2017
- 1<sup>st</sup> Prize in National University Math Modeling Competition, 2017
- 1<sup>st</sup> Place in Citadel Datathon, China, 2018
- National Scholarship, 2018, 2019
- Representative of PKU for National Scholarship, 2019
- PKU Person of the Year, 2019
- PKU May 4<sup>th</sup>-Award, 2020
- Rising Stars in Data Science, 2025