

# Curriculum Vitae

Fan Zheng  
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## Education

- **High School**, Shanghai High School, 2007–2010
- **Bachelor in Mathematics**, Massachusetts Institute of Technology, 2010–2014
- **Doctor in Mathematics**, Princeton University, 2014–2019  
Advisor: Alexandru Ionescu

## Work Experience

- **Postdoc**, Instituto de Ciencias Matemáticas, 2019-2024
- **Ramón y Cajal Investigator**, Instituto de Ciencias Matemáticas, 2024-

## Publications

### Mathematics

- Diego Córdoba, Luis Martinez-Zoroa and Fan Zheng, Finite time singularities to the 3D incompressible Euler equations for solutions in  $C^\infty(\mathbb{R}^3 \setminus \{0\}) \cap C^{1,\alpha} \cap L^2$ , Ann. PDE, Volume 11 (2025).
- Fan Zheng, Exactly self-similar blow-up of the generalized De Gregorio equation 2023 Nonlinearity 36 (10), 5252–5264.
- Fan Zheng, Long-term Regularity of 3D Gravity Water Waves, Communications in Pure and Applied Mathematics, Volume 75, Issue 5, May 2022, 1074–1080.
- Ángel Castro, Diego Córdoba and Fan Zheng, The lifespan of classical solutions for the inviscid Surface Quasi-geostrophic equation, Annales de l’Institut Henri Poincaré C, Analyse nonlinéaire, Volume 38, Issue 5, 2021, 1583–1603.
- Ángel Castro, Diego Córdoba and Fan Zheng, Stability of traveling waves for the Burgers-Hilbert equation, Analysis & PDE, Vol. 16 (2023), No. 9, 2109–2145
- Fan Zheng, Long-term regularity of the periodic Euler–Poisson system for electrons in 2D, Communications in Mathematical Physics, Volume 366 (2019), 1135–1172.

### Math + AI

- Songyang Gao, Yuzhe Gu, Zijian Wu, Ling kai Kong, Wenwei Zhang, Zhongrui Cai, Fan Zheng, Tianyou Ma, Junhao Shen, Haiteng Zhao, Duanyang Zhang, Huilun Zhang, Kuikun Liu, Chengqi Lyu, Yanhui Duan, Chiyu Chen, Ningsheng Ma, Jianfei Gao, Han Lyu, Dahua Lin, Kai Chen. Long-horizon reasoning agent for Olympiad-level mathematical problem solving, submitted to ICLR 2026.
- Haiteng Zhao, Junhao Shen, Yiming Zhang, Songyang Gao, Kuikun Liu, Tianyou Ma, Fan Zheng, Dahua Lin, Wenwei Zhang, Kai Chen, Achieving expert-level agent from foundation model via complexity curriculum reinforcement learning with synthetic data, submitted to ICLR 2026.

## Awards

- Ramón y Cajal grant, first place, 2024
- Gold Medal, Alibaba Global Math Competition, 2020
- Centennial Scholarship, Princeton University, 2014
- Freshman Scholarship, Peking University, 2010
- IMO Gold Medal, Germany, 2009

## Research plans

- Combining traditional analytical and numerical methods with LLMs to find blow-up profiles for the Euler and Navier–Stokes equations.
- Discovering new mathematical constructions using a combination of LLMs and human wisdom.
- Making LLM-generated mathematical proofs rigorous.