

# ZIRUO ZHAO

(323) 528-0850 | [ziruo.rosie.zhao@gmail.com](mailto:ziruo.rosie.zhao@gmail.com) | Ph.D. Student, Computer Science

## EDUCATION

---

<b>Stevens Institute of Technology</b>	<b>NJ, US</b>
<i>Ph.D. in Computer Science</i>	<i>Sep. 2023 – Present</i>
Coursework: Machine Learning, Deep Probabilistic Generative Modeling, Algorithm Design, Algorithmic Complexity	
<b>University of Southern California</b>	<b>CA, US</b>
<i>M.S. in Spatial Economics and Data Analysis</i>	<i>Jan. 2021 – Dec. 2022</i>
Coursework: Spatial Databases, Time Series Analysis, Spatial Econometrics, Spatial Analysis and Modeling	
<b>Imperial College London</b>	<b>London, UK</b>
<i>B.Sc. in Mathematics with Statistics</i>	<i>Aug. 2016 – Aug. 2019</i>
Coursework: Scientific Computation, High Performance Computing, Probability and Statistics, Algebra, Analysis	

## RESEARCH EXPERIENCE

---

<b>Human–AI Co-authorship Detection</b>	<b>NJ, US</b>
<i>SIT Department of Computer Science</i>	<i>Jun. 2025 – Present</i>
• Developed a fine-grained framework for detecting AI involvement in human writing under realistic and adversarial rewriting settings.	
• Built training and evaluation pipelines for robust multi-class detection.	
• Manuscript under review at ACL 2026 (ARR).	
<b>Theoretical Analysis of Noisy Contrastive Learning</b>	<b>NJ, US</b>
<i>SIT Department of Computer Science</i>	<i>Jun. 2024 – Jan. 2025</i>
• Analyzed the theoretical limits of contrastive learning under adversarial noise.	
• Conducted generalization analysis to characterize robustness degradation under noisy contrastive objectives.	
• Preprint available on arXiv: <a href="#">link</a>	
<b>Ghost Smelter: Environmental Justice Analysis of Historical Lead Smelters</b>	<b>CA, US</b>
<i>USC Spatial Sciences Institute</i>	<i>Jun. 2022 – Oct. 2022</i>
• Analyzed environmental justice impacts of historical lead smelters in California using large-scale spatial and socioeconomic data.	
• Built data processing pipelines based on U.S. Census TIGER and American Community Survey data and carried out statistical analyses to assess socioeconomic impacts.	
• Results presented at the Association of Pacific Coast Geographers (APCG) conference.	

## WORK EXPERIENCE

---

<b>NetEase Network Co., Ltd.</b>	<b>Hangzhou, China</b>
<i>Data Analyst Intern, Media Technology department.</i>	<i>Jul. 2021 – Oct. 2021</i>
• Designed and implemented data-driven evaluation pipelines for social media product quality and UX metrics.	
• Analyzed A/B testing results to assess feature and model impact on user experience.	
• Collaborated with cross-functional teams to translate analytical insights into product optimization.	

## PROJECTS

---

- **Explainable LLM:** Analyzed shortcut learning and lexical overlap bias in transformer-based language models on NLU tasks; applied Integrated Gradients and long-tailed analysis to interpret bias reliance and generalization behavior.
- **Spatial Data Analysis:** Conducted statistical and spatial regression analyses on housing sales data; built and presented an interactive analysis report using ArcGIS StoryMaps: [link](#)

## SKILLS

---

**Programming Skills:** Python, R, SQL, MATLAB, Fortran

**Language Skills:** Mandarin, English