

ZHENGRAN JI

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Curriculum Vitae

EDUCATIONS

Duke University Durham, NC
Masters of Computer Science (Research Track) May. 2025

University of California, Irvine Irvine, CA
Bachelor of Science in Data Science (ICS Honors Program) Jun. 2023
Bachelor of Science in Mathematics (Honors Program)

- **Phi Beta Kappa**
- **Cum Laude**
- **Pi Mu Epsilon**

PUBLICATION

[4] *MnEdgeNet for Accurate Decomposition of Mixed Oxidation States for Mn XAS and EELS L_{2,3} Edges without Reference and Calibration*, **Zhengran Ji**, Mike Hu, and Huolin Xin, **Scientific Report**, Aug 2023, <https://doi.org/10.1038/s41598-023-40616-5>

[3] *A Universal Data Synthesizer to Enable AI4TEM*, Huolin Xin, Chunyang Wang, **Zhengran Ji**, Mike Hu, and Lingli Kong, **Microscopy and Microanalysis**, Jul 2023, <https://doi.org/10.1093/micmic/ozad067.962>

[2] *Decoding Spatial Symmetry and EELS Spectroscopic Fine Structures*, Huolin Xin, Chunyang Wang, Dong Zhu, **Zhengran Ji**, Mike Hu, and Lingli Kong, **Microscopy and Microanalysis**, Jul 2023, <https://doi.org/10.1093/micmic/ozad067.995>

[1] *Electron Energy Loss Spectroscopy Database Synthesis and Automation of Core-Loss Edge Recognition by Deep-Learning Neural Networks*, Lingli Kong, **Zhengran Ji**, and Huolin Xin, **Scientific Report**, Dec 2022, <https://doi.org/10.1038/s41598-022-25870-3>

RESEARCH

UCI DeepEM Laboratory
Project: **Electron Energy Loss Spectroscopy (EELS) Database Synthesis and Automation of Core-Loss Edge Recognition by Deep-Learning Neural Networks** Jun. 2021 – Sep. 2022

Project: **Deep-Learning Neural Network for Iron Oxidation State Prediction in Spectroscopy** Sep. 2022 – Aug. 2023

PRESENTATIONS

Electron Energy Loss Spectroscopy (EELS) Database Synthesis and Automation of Core-Loss Edge Recognition by Deep-Learning Neural Networks (Oral) May 17, 2023

- UCI Undergraduate Research Opportunity Program Annual Symposium 2023

Ratio of Ferric (Fe^{2+}) and Ferrous (Fe^{3+}) Iron Prediction in Iron Edge from Transmission Electron Microscope Spectrum using Convolutional Neural Network (Poster) May 19, 2023

- UCI Undergraduate Research Opportunity Program Annual Symposium 2023

EELS EdgeNet, a Machine Learning Model to Detect Edges in Electron Energy Loss Spectroscopy (Oral) May 21, 2022

- UCI Undergraduate Research Opportunity Program Annual Symposium 2022

AWARDS

UCI Chancellor's Award of Distinction Apr. 2023

- Received for being one of the most outstanding graduating seniors

UCI Chancellor's Award of Excellence in Research May. 2023

- Received for substantial contribution in undergraduate research

UCI 3rd ICS Expo 1st Place Prize in ICS Honors Program May. 2023

- Received for having the best honors program project at UCI ICS Expo

UCI Math Undergraduate Research & Departmental Service Award May. 2023

- Awarded to one outstanding graduating student in math department whose research and/or service to the department has been extraordinary

UCI Math Honors Award May. 2023

- Received for being the outstanding student in UCI math honors program

UCI Dean's Honor Award Jan. 2020 – Jun. 2023

- Received for maintaining a 3.5+ quarterly GPA at UCI

UCI Outstanding Service and Online Mentorship Award Jun. 2021

- Received for serving as the volunteer mentor at UCI math department

FELLOWSHIPS

UCI Undergraduate Research Opportunity Program Fellowship

- Fall 2021 (\$900)
- Spring 2022 (\$400)
- Summer 2022 (\$1,480)
- Fall 2022 (\$50)

WORKING EXPERIENCES

Duke Graduate Teaching Assistant

- COMPSCI 230: Discrete Mathematics for Computer Science Fall 2023

Tutorial Leader Sep. 2022 – Jun. 2023

UCI Learning Academic Resource Center

- Lead tutorial sessions for calculus classes and facilitate active learning among students
- Create weekly lesson plans and hold review sessions for students
- Answer student's questions on class material and homework

UCI Undergraduate Teaching Assistant

- Math 2B: Single Variable Calculus II Spring 2023, Winter 2023, Spring 2022
- I&C SCI 46: Data Structure Implementation and Analysis Winter 2023
- Math 1B: Pre-Calculus II Winter 2023, Winter 2022
- Math 9: Introduction to Programming for Numerical Analysis Fall 2022
- Math 120A: Abstract Algebra Spring 2022

UCI Undergraduate Grader

- Math 130B Probability II Spring 2022
- Math 130A Probability I Winter 2022, Fall 2022

Peer Academic Advisor

Mar. 2022 – Jun. 2023

UCI Undergraduate/Undeclared Program

- Advise more than 200 incoming freshmen about their major, class schedules during orientation and office hours
- Maintain the Qualtrics survey system for undeclared/undecided advising office to support major exploration
- Organize workshops for students who want to switch their majors
- Refer and promote support services to all students in need

UCI Math Circle Mentor

Jan. 2021 – Dec. 2021

- Led after-school lessons in mathematics for middle school and high school students

SKILLS

Programming Language

- Python, C++, MATLAB, R, Java, Assembly Language, SQL, Mathematica