

# Zheng Tan

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## EDUCATION

**University of California, Los Angeles (UCLA)** Los Angeles, CA  
School of Liberal Arts and Science 09/2023-

Expected PhD in Applied Math

GPA: N/A

**University of California, Los Angeles (UCLA)** Los Angeles, CA  
School of Liberal Arts and Science 09/2019-06/2023

B.S. and M.A. in Applied Math

GPA: **3.99/4.0**

Core Courses: Numerical Analysis, Numerical Linear Algebra, Applied ODE and PDE, Fluid Dynamics, Real Analysis, Dynamical System, PDE Theory

## PUBLICATION AND PRINT

**Zheng Tan**, Longxiu Huang, Yifei Lou. Non-convex approaches for low-rank tensor completion, ICASSP 2023

James Chapman, Bohan Chen, **Zheng Tan**, Jeff Calder, Kevin Miller, Andrea Bertozzi. Novel Batch Active Learning Approach and Its Application on the Synthetic Aperture Radar Datasets, SPIE Conference DCS108 (best student paper)

## ACADEMIC EXPERIENCE

**Numerical Simulation for Singularity in PDEs** Los Angeles, CA  
*Researcher* 02/2024-

- Adaptively used the Runge-Kutta-Legendre explicit method to capture the singularities in PDEs, along with adaptive mesh refinement and Strang splitting.
- Both second order and fourth order parabolic PDEs were simulated.
- Achieved significant improvement in time efficiency comparing to classical implicit-explicit methods while maintaining extremely high accuracy.

**Tensor Completion and Image Processing** Los Angeles, CA  
*Researcher* 03/2022-01/2023

- Used non-convex L1-L2 based ADMM method to achieve lower error in the low sampling ratio case.
- Extended matrix CUR completion method to its tensor version with resampling procedure; reduced the completion time by around 100 times.
- Outperformed classical colored image reconstruction method in accuracy.
- Published in ICASSP 2023 conference.

**UCLA Applied Math REU: Active Learning** Los Angeles, CA  
*Researcher* 06/2022-08/2022

- Ameliorated the existing active learning process of SAR satellite image classification algorithm.
- Utilized transfer learning as unsupervised data embedding for graph-based Laplace learning.
- Replaced sequential active learning by batch learning to improve time efficiency by 15 times and exceeded state-of-the-art accuracy results with fewer amount of training data.
- Won the conference best student paper award.

**Directed Reading Program** Los Angeles, CA  
*Mentee* 01/2022-06/2022

- Learned measure theory, functional analysis, and related applications with the lead of a Ph.D. candidate in analysis.
- Participated in weekly discussions and discussed progress.

- Gave a presentation on strict inductive limit topology.

## **TEACHING EXPERIENCE**

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### **UCLA Olga Radko Endowed Math Circle**

*Assistant Instructor*

09/2021-Present

- Teach various topics in elementary math to 9-11 grades students, including but not limited to combinatorics, dynamic systems, and abstract algebra.
- Prepare lessons with instructors.

### **UCLA Department of Mathematics**

*Grader*

09/2020-12/2020

- Graded homework in Linear Algebra Class (Math 33A).
- Assisted the professor in analyzing the weak part of student's knowledge and designing further teaching plan.

*Teaching Assistant*

09/2023-

- Fall 2023: Introduction to Python (PIC 16A)
- Winter 2024: Advanced Numerical Analysis (Math 269B)
- Spring 2024: Applied Numerical Methods (Math 151B)

## **HONORS AND AWARDS**

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- Math Department Scholar Program: receive B.S./M.S. degree within four years.
- Math Department Honor Program.
- 2023 Daus Memorial Award.

## **LANGUAGES & SKILLS**

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**Languages:** Fluent in English, Native in Mandarin

**Computer skills:** MATLAB, Python, C++, Java, JavaScript, R, LaTeX