Kai Weixian Lan

Davis, CA, USA

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Education

University of California, Davis **Davis, CA**
PhD in Computer Science 2021–present
University of Northern British Columbia **Prince George, BC**
BSc in Computer Science, Mathematics 2018–2021
University College Dublin **Dublin, Ireland**
Engineering 2017–2018

Publications

[1] A Neural-preconditioned Poisson Solver for Mixed Dirichlet and Neumann Boundary Conditions. Kai Weixian Lan, Elias Gueidon, Ayano Kaneda, Julian Panetta, Joseph Teran. Arxiv, 2023.

[2] Efficient Layer-by-Layer Simulation for Topology Optimization. Weixian Lan, Julian Panetta. ACM Symposium on Computational Fabrication, 2022.

Work Experience

UC Davis **Davis, CA**
Teaching assistant Sept 2022–Dec 2022
– Coordinated with students and the intructor, hosted office hours and graded assignments for course ECS 289A Special Topic: Massive Data Computing.
Teaching assistant Jan 2022–March 2022
– Led tutorials, hosted office hours and graded assignments for course ECS 032A Introduction to Programming

The Wood Innovation and Design Center **Prince George, BC**
Mobile software developer May 2021–Aug 2021
– Developed a mobile application to collect data on vibrations of mass timber floor with Flutter
– Deployed accelerometers on smartphones and on MbientLab boards.

University of Northern British Columbia **Prince George, BC**
Undergraduate tutor Sep 2019–April 2021
– Offered one-to-one tutorials for low-division courses in mathematics and sciences
Student assistant Jan 2020–Dec 2020
– Graded assignments for a few courses in mathematics

Easter Seals Camp Sunnyside **Des Moines, IA**
Camp counsellor Jun 2018–Aug 2018
– Acted as a camp counselor for campers with a variety of special needs
– Managed the behavior and emotions of campers and provided personal care

Academic Projects

Fluid simulation for incompressible flow March 2023–June 2022
MAT 228C Numerical methods, UC Davis
– Implemented the numerical methods for fluid simulation with imcompressible Euler equations.

Finite element method for elasticity March 2022–June 2022
MAT 280 Special topic in elasticity, UC Davis
– Implementing Lagrangian finite element method on simple objects with hyperelasticity properties and simulating deformation with supposed external forces.

Outlier detection using Voronoi k-distance Sep 2020–Dec 2020
CPSC 473 Data mining, UNBC
– Implemented a computational method for generating Voronoi partitions
– Performed density-based outlier detection by means of the Voronoi k-distace measure

Conformal mapping of the Laplace's equations May 2019–Aug 2019
Summer research, UNBC
- Applying conformal mapping techniques to solve 2D Laplace's equations on polygonal domains

Finding conserved quantities of dynamic systems May 2020–Aug 2020
Summer research, UNBC
- Introduced a systematic approach to finding a special form of conserved quantity for polynomial systems
- Reduced the original problem to solving a sequence of linear recurrences equations

Wallpaper groups and the magic theorem Sep 2019–Dec 2019
MATH 320 Group theory, UNBC
- Studied wallpaper groups of plane symmetries
- Introduced Conway's magic theorem and applications in constructing wallpaper patterns

Services

Graduate Voting Member, alternate Oct 2023–Present
Council on Student Affairs and Fees, UC Davis
- Provide a more comprehensive oversight of student fees
- Assure the highest degree of transparency and accountability regarding the use of student fees

2022 Siggraph Student Volunteer Aug 8 - 11 2022
ACM SIGGRAPH, Vancouver
- Provided support for conference operations in person
- Helped the attendee to navigate and explore the conference events

2022 Spring GSA Travel Award Commitee Jan–Feb 2022
Graduate Student Association, UC Davis
- Read and rated travel award applications
- Sent out the final list for successful applicants

Skills

Python, PyTorch, C++, LaTeX, Markdown, Git, VSCode, Flutter

Awards

Summer Graduate Student Research Fellowship	May–Sept 2023
Graduate Student Fellowship	Sep–Dec 2021, May–Aug 2022
International Student Research Award	May–Aug 2020, May–Aug 2021
Global Excellence Undergraduate Scholarship	Sept 2017–May 2018