Tuyen Pham

Academic Curriculum Vitae

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RESEARCH INTERESTS

Computational geometry and topology, topological data analysis, data science and machine learning, algorithms and algorithm engineering, computer vision

EDUCATION

PhD in Mathematics, 2026
University of Florida
Thesis: *Efficient algorithms for topological and geometric analysis of machine learning models*
Advisor: Prof. Hubert Wagner

Master of Science in Mathematics (with honors), 2020
California Polytechnic University, San Luis Obispo

Bachelors of Science in Mathematics, 2016
California Polytechnic University, San Luis Obispo
Minor in Statistics

PEER REVIEWED PUBLICATIONS

5. Tuyen Pham, Hubert Wagner, "Fast Kd-trees for the Kullback–Leibler Divergence and other Decomposable Bregman Divergences", Algorithms and Data Structures Symposium (WADS), 2025.

4. Tuyen Pham, Hana Dal Poz Kourimska, H Wagner, "Bregman–Hausdorff Divergence: Strengthening the Connections Between Computational Geometry and Machine Learning", **Machine Learning and Knowledge Extraction**, 7(2), 48, 2025.

3. Tuyen Pham, Hubert Wagner, "Extending Hausdorff Distances to Asymmetric Geometries", Young Researcher Symposium of SoCG, 2024.

2. Tuyen Pham, Hubert Wagner, "Computing Representatives of Persistent Homology Generators with a Double Twist", Canadian Conference on Computational Geometry (CCCG), 2023.

1. Tuyen Pham, Hubert Wagner, "Kd-trees work with separable Bregman divergences", Young Researcher Symposium of SoCG, 2023.

SELECTED TALKS

1. "Fast Kd-trees for the Kullback–Leibler Divergence and other Decomposable Bregman Divergences", Algorithms and Data Structures Symposium (WADS), 2025.
2. "Potential definitions for the Bregman–Hausdorff divergence", UF Topology and Geometry Seminar, 2023.
3. "Extending Hausdorff Distances to Asymmetric Geometries", Young Researcher Symposium of SoCG 2024.
4. "Computing Representatives of Persistent Homology Generators with a Double Twist", Canadian Conference on Computational Geometry (CCCG), 2023.
5. "Kd-trees work with separable Bregman divergences", Young Researcher Symposium of SoCG, 2023.
6. "Image metrics, segmentation, and registration", Cal Poly Frost Research Colloquium, 2019

TEACHING AND ADVISING

University of Florida

- **MAC 2311 – Calculus 1:**
  Teaching assistant
  Fall 2021, Spring 2022, Spring 2025
- **MAD 2502 – Introduction to Computational Math**
  Teaching assistant
  Spring 2023
- **MAS 3114 – Computational Linear Algebra**
  Teaching assistant
  Spring 2024

SLO Classical Academy

- **Algebra I**: August 2020 – September 2021

California Polytechnic, San Luis Obispo

- **MATH 116: Precalculus Algebra I:**
  Instructor of Record
  Fall 2018, Winter 2019, Spring 2019
- **Math 118: Precalculus Algebra:**
  Instructor of Record
  Fall 2019
- **Math 221: Calculus for Business and Economics:**
  Instructor of Record
  Winter 2020, Spring 2020 (Online)

SERVICE & PROFESSIONAL DEVELOPMENT

Professional Service

Organizer of University of Florida Topological Data Analysis Seminar

August 2024 – December 2024

Departmental Service

Committee for the redesign of Algebra I curriculum for SLO Classical Academy

January 2021 – June 2021