Shaan Pakala

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Google Scholar, LinkedIn & GitHub

About

I am a 1^{st} year Computer Science Ph.D. student at the University of California, Riverside, where I work on machine learning research problems with Professor Vagelis Papalexakis. Generally, I am interested in developing machine learning methods for interdisciplinary scientific applications in domains such as material design, physics, and healthcare. The majority of my work involves learning from multidimensional data through the use of tensor decomposition. I have also interned and collaborated with scientists at Lawrence Livermore National Laboratory.

Education

Ph.D. in Computer Science Sept. 2025 – Present
University of California, Riverside

· Advisor: Prof. Vagelis Papalexakis

B.S. in Data Science Sept. 2021 – June 2025
University of California, Riverside

· 3.9 upper division GPA
· Chancellor's Honor List

Research Experience

Graduate Research Assistant June 2025 – Present
University of California, Riverside

· Worked on using tensor decomposition to efficiently train image generation models [3]
· Worked on surrogate modeling in material design with Lawrence Livermore National Laboratory [4]

Graduate Research Intern June 2025 – Present
Lawrence Livermore National Laboratory

· Worked in the predictive healthcare group with Dr. Braden Soper & Dr. Priyadip Ray, in collaboration with clinicians/neuroscientists from Stanford & The University of Tokyo

Undergrad Research Assistant June 2024 – June 2025
University of California, Riverside

· Worked with Professors Papalexakis, Tsotras, and Chen on surrogate modeling to efficiently design optimal data science pipelines (hyperparameter optimization, SQL query cardinality estimation) [1]
· Also worked on using machine learning based surrogate modeling for material design [2]

Undergrad Research Assistant March 2024 – Dec. 2024
University of California, Riverside

· Worked with Professor Lonardi on using machine learning for accelerated protein sequence analysis

Papers

Main Conference

[1] Shaan Pakala, B. Graw, D. Ahn, T. Dinh, M. T. Mahin, V. Tsotras, J. Chen, E. Papalexakis, "Automating Data Science Pipelines with Tensor Completion," *IEEE International Conference on Big Data* (2024). **Received Student Travel Award.** [Link] [PDF] [Code]

Workshop

[2] Shaan Pakala, D. Ahn, E. Papalexakis, "Tensor Completion for Surrogate Modeling of Material Property Prediction," *AAAI Bridge on Knowledge-Guided Machine Learning* (2025). [PDF]

[3] P. Goulart*, Shaan Pakala*, E. Papalexakis, "Efficiently Generating Multidimensional Calorimeter Data with Tensor Decomposition Parameterization," *ICCV Workshop on Representation Learning with Very Limited Resources* (2025). [PDF] [Code]

[4] Shaan Pakala, A. Gongora, B. Giera, E. Papalexakis, "Surrogate Modeling for the Design of Optimal Lattice Structures using Tensor Completion," *NeurIPS Workshop on AI for Accelerated Materials Design* (2025). [Code]

** denotes equal contribution*

Awards

Undergraduate Research Spotlight 2025
IEEE International Conference on Big Data

Student Travel Award 2024
University of California, Riverside

NSF REU Fellowship 2024
University of California, Riverside

Chancellor's Honor List 2023 – 2024
University of California, Riverside

Other Experience

Computer Science Grader March 2024 – June 2024
University of California, Riverside

Data Science Challenge July 2023
Lawrence Livermore National Laboratory

Data Science Camp Mentor July 2022 – Sept. 2022
Spotline, Inc.