Shaan Pakala

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Google Scholar, LinkedIn & GitHub

About

I am an incoming Computer Science Ph.D. student at the University of California, Riverside. I will be continuing my work on machine learning research problems with Professor Vagelis Papalexakis. Currently, we explore interdisciplinary research applications of tensor decomposition, mainly for the surrogate modeling of combinatorial problems. I am also a summer intern at the Lawrence Livermore National Laboratory (LLNL) Data Science Institute.

Education

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

· Advisor: Prof. Vagelis Papalexakis

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

· Upper Division GPA: 3.9

Research Experience

Data Science Research Intern June 2025 – Present
Lawrence Livermore National Laboratory

· LLNL DSSI graduate intern in the predictive biology group
· Advisors: Drs Braden Soper & Priyadip Ray

Data Science Research Assistant Sept. 2024 – Present
University of California, Riverside

· Worked on surrogate modeling for material property prediction [2]
· Also worked on efficient image generation (GANs & Diffusion models) via tensor decomposition [3]

NSF REU Research Intern June 2024 – Sept. 2024
University of California, Riverside

· Led work on predicting performance of hyperparameter combinations and SQL queries' cardinality
· Presented full conference paper [1] at IEEE International Conference on Big Data 2024

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

· Worked on bioinformatics research problems using machine learning, for protein sequence analysis
· Conducted literature reviews, and experimented with data processing techniques and ESM (LLM)

Papers

Full paper

[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]

** denotes equal contribution*

Awards

Undergraduate Research Spotlight 2025
Bourns College of Engineering (University of California, Riverside)

Student Travel Award 2024
IEEE International Conference on Big Data

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

Other Experience

Computer Science Grader Spring 2024
University of California, Riverside

· Grader for upper division Data Analysis Methods (CS 105 at UCR)
· Facilitated lab and project demos, as well as graded quizzes and reports

Data Science Challenge July 2023
Lawrence Livermore National Laboratory

· Participated in the Data Science Challenge, to develop data-driven approaches to cardiology problems