# Shaan Pakala

https://shaanpakala.github.io/

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LinkedIn & GitHub

I am an incoming Computer Science Ph.D. student at the University of California, Riverside. I will be continuing my ongoing work with Professor Vagelis Papalexakis, where we look into interdisciplinary research applications of tensor decomposition, mainly for the surrogate modeling of various combinatorial problems. This summer I will intern at the Lawrence Livermore National Laboratory Data Science Institute.

# Education

# Ph.D. in Computer Science (incoming)

To begin Sept. 2025

University of California, Riverside

· Advisor: Professor Vagelis Papalexakis

# B.S. in Data Science & Engineering

Sept. 2021 – June 2025

University of California, Riverside

· Upper Division GPA: 3.93

# Research Experience

# Data Science Graduate Research Intern (incoming)

Summer 2025

Lawrence Livermore National Laboratory

· Selected for 2025 Data Science Summer Institute (DSSI) for graduate students

### Data Science Undergraduate Researcher

Sept. 2024 – Present

University of California, Riverside

- · Led research work on using tensor completion to predict material properties (e.g. energy, band gap)
- · Presented preliminary work [2] at AAAI 2025 Bridge on Knowledge-Guided Machine Learning
- · Extended work into full paper [3] (currently under review at Scientific Reports)

### NSF REU Undergraduate Research Intern

Summer 2024

University of California, Riverside

- · Led team of 3 undergraduates in research project, in collaboration with UCR Ph.D. students
- · Presented full conference paper [1] at IEEE International Conference on Big Data 2024
- · Modeled hyperparameter tuning, neural network architecture search, and SQL query cardinality estimation as tensor completion problems to predict their optimal configurations
- · Developed task-specific tensor completion algorithm to cut parameters without losing performance

### Bioinformatics Undergraduate Researcher

March 2024 – Dec. 2024

University of California, Riverside

- · Worked on bioinformatics research problems using machine learning, for protein sequence analysis
- · Developed machine learning model to classify protein subsequences as antimicrobial peptides
- · Conducted literature reviews, and experimented with data processing techniques and ESM (LLM)

#### 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]

### Poster

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

### Under review

[3] <u>Shaan Pakala</u>, E. Papalexakis, "Accelerating Material Design with Tensor Completion," Under review in *Scientific Reports*.

# Awards

# Dean's Distinguished Award

2025

· To fully fund my first year of Ph.D. studies at UC Riverside

# IEEE BigData Travel Award

2024

· Travel award (\$800) to present my research at IEEE BigData in Washington, D.C.

### Chancellor's Honor List

2023 - 2024

· For academic achievement in coursework at UC 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
- · Used electrocardiogram time-series data to create machine learning disease classification tool, as well as displaying 3D activity map of heart (electrical activity of 75 locations in the heart over 500ms)

### References

# Dr. Evangelos E. Papalexakis

Associate Professor

Department of Computer Science & Engineering

University of California, Riverside

https://www.cs.ucr.edu/~epapalex/

### Additional references available upon request.