

# RAYMOND MATSON

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## EDUCATION

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**University of California, Riverside** *2019 - 2024*  
Ph.D. in Mathematics under the supervision of Peter Samuelson Current GPA: 3.94

**University of California, Riverside** *2019 - 2021*  
Masters in Mathematics

**University of California, Davis** *2012-2015*  
Bachelors of Science in General Mathematics

## RESEARCH INTERESTS

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Quantum representation theory, Hecke algebras, skein theories, character varieties, homology theories

## PAPERS

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E. Sharafzadeh, R. Matson, J. Tourrilhes, P. Sharma, S. Ghorbani, *Self-Clocked Hybrid Scheduling for Fast Packet Processing Pipelines* (Submitted to SIGCOMM 2024 for publication)

D Tootaghaj, L. Cao, B. Lantz, R. Matson, P. Sharma, *A Carbon-Aware Container Platform for Heterogeneous GPU Data Centers* (In preparation for submission to SIGCOMM 2025)

R. Matson, J. Tourrilhes, P. Sharma, *Optimal TCP Policer Burst Size* (In progress)

R. Matson, P. Samuelson, *Stated Skein Theory and DAHA Representations* (In progress)

## TEACHING

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**Department Instructor** *Summer 2021 - Present*  
Mathematics Department *University of California, Riverside*

Math 197: Research for Undergraduates, Spring 2022

Algebra Qualification Exam Workshop, Summer 2022

Algebra Qualification Exam Workshop, Summer 2021

**Teaching Assistant** *September 2019 - Present*  
Mathematics Department *University of California, Riverside*

Math 9C: Calculus III, Spring 2024

Math 9B: Calculus II, Winter 2024

Math 31: Applied Linear Algebra, Fall 2023

Math 10A: Calculus of Several Variables, Spring 2022

Math 9B: Calculus II, Spring 2022

Math 22: Calculus for Business, Winter 2022

Math 4: Introduction to College Mathematics for Business, Winter 2022

Math 31: Applied Linear Algebra, Fall 2021

Math 10A: Calculus of Several Variables, Fall 2021

Math 7B: Integral Calculus for Life Sciences, Fall 2021

Math 31: Applied Linear Algebra, Spring 2021  
 Math 4: Introduction to College Mathematics for Business, Winter 2021  
 Math 31: Applied Linear Algebra, Fall 2020  
 Math 5: Precalculus, Fall 2020  
 Math 31: Applied Linear Algebra, Spring 2020  
 Math 7A: Differential Calculus for Life Sciences, Spring 2020  
 Math 31: Applied Linear Algebra, Winter 2020  
 Math 7B: Integral Calculus for Life Sciences, Fall 2019

## CONFERENCE PRESENTATIONS & INVITED TALKS

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<b>USTARS 2024</b> Stated Skein Theory and DAHA Representations	<i>University of Iowa</i> 04/20/2024
<b>USTARS 2023</b> The Stated Skein Algebra of the Marked Torus	<i>University of Washington</i> 03/18/2023
<b>MSRI Workshop: New Directions in Representation Theory</b> Stated Skein Modules of DAHAs	<i>University of Hawai'i at Hilo</i> 06/27/2022
<b>What is Mathematics</b> Technology and Mathematics	<i>University of California, Davis</i> 05/01/2018

## UC RIVERSIDE DEPARTMENT TALKS

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<b>Graduate Student Seminar</b> Representation Theory of Finite Monoids	02/02/2024
Getting in Line: An Introduction to Queuing Theory	10/13/2023
Towards Defining DAHAs	02/03/2023
Research Lightning Talk	01/13/2023
Stated Skein Modules of DAHAs	09/30/2022
Stated Skein Theory	04/15/2022
Heegaard Splittings and Dehn Surgery	02/25/2022
Intro to Machine Learning and Neural Networks	04/02/2021
The Game of Cops and Robbers on Graphs	01/17/2020
<b>Lie Theory Seminar</b> Quantum Groups, Part II: Representations of $U_q(\mathfrak{sl}_2)$	04/25/2024
The Kazhdan-Lusztig Presentation	05/02/2023
Stated Skein Modules of DAHAs	10/04/2022
Representation Theory in the BGG Category $\mathcal{O}$	01/25/2022
Supercharacter Theories of Pattern Groups	03/03/2020
<b>Math Club</b> Quantum Representations and Skein Theory	03/03/2023
<b>Topology and Geometry Seminar</b> Heegaard Splittings and Dehn Surgery	02/23/2022

## Representation Theory Seminar

Approaches to Hecke Algebras	02/09/2023
Stated Skein Modules of DAHAs	10/13/2022
Two Truths and a Lie	10/06/2022
From Knot Invariants to Double Affine Hecke Algebras	04/28/2022
Quantum Groups and Skein Theory	03/03/2022
An Introduction to Supercharacter Theory	10/28/2021

## SERVICE

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### Introduction to Group Theory Seminar

Winter 2024

Organized and delivered a seminar for undergrads that were concurrently enrolled in an abstract algebra course as well as a preparatory course beforehand.

### Teaching Fellow

Fall 2023

I provided essential mentorship and teaching training for first year graduate students, including teaching observations, individual meetings, and progress reports.

### Representation Theory Seminar

Fall 2022 - Spring 2023

Invited and scheduled speakers for the Representation Theory seminar at UCR as well as collected and announced titles and abstracts on a weekly basis.

### Recruitment Ambassador

Fall 2022 - Spring 2023

Attended local and national recruitment events, actively participated in recruiting efforts, communicated department research interests, and created a welcoming environment for prospective students.

### AMS Student Chapter

Fall 2021 - Spring 2022

Co-organized UCR's AMS student chapter by scheduling events and applied for grants through the American Mathematical Society to run a Graduate Student Seminar.

### OOP in Python Workshop

February 19, 2021

Organized and ran a workshop to teach graduate students how to code using object oriented programming in python.

## HONORS AND AWARDS

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### Vernon A. Kramer Memorial Service Award

Fall 2022 - Spring 2023

For "going the extra mile with contributions to the mathematics department, consistently helping other grads and instructors, helping with events, and more."

### Outstanding Teaching Award

Fall 2020 - Spring 2021

For "consistent superior teaching performance" as recognized by the Department of Mathematics and Graduate Division at UCR.

## SKILLS

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### Programming Languages

Proficient: Python, C/C++, Java, Perl, Tcl, LaTeX, SQL, and Bash.

Familiar: HTML/CSS, JavaScript, Ruby, Matlab, Mathematica, and Excel.