RAYMOND MATSON

Website: https://raymondmatson.com ⋄ Email: email@raymondmatson.com

EDUCATION

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

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

University of California, Davis *2012-2017*
Bachelors of Science in General Mathematics

RESEARCH INTERESTS

Quantum representation theory, Hecke algebras, skein theory, character varieties, (co)homology theories

PAPERS

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, P. Samuelson, *Stated Skein Theory and Double Affine Hecke Algebra Representations* (In preparation for submission to Contemporary Mathematics)

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

TEACHING

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

AMS Graduate Chapter Seminar — *Ohio University*
DAHAs and Knot Complements — 09/19/2024

USTARS 2024 — *University of Iowa*
Stated Skein Theory and DAHA Representations — 04/20/2024

USTARS 2023 — *University of Washington*
The Stated Skein Algebra of the Marked Torus — 03/18/2023

MSRI Workshop: New Directions in Representation Theory — *University of Hawai'i at Hilo*
Stated Skein Modules of DAHAs — 06/27/2022

What is Mathematics — *University of California, Davis*
Technology and Mathematics — 05/01/2018

UC RIVERSIDE DEPARTMENT TALKS

Graduate Student Seminar
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

Lie Theory Seminar
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

Math Club
Quantum Representations and Skein Theory — 03/03/2023

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

Topology and Geometry Seminar

Heegaard Splittings and Dehn Surgery	02/23/2022

SERVICE

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

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

Programming Languages

Proficient: Python, C/C++, Java, Perl, Tcl, LaTeX, SQL, and Bash.
Familiar: HTML/CSS, JavaScript, Ruby, Matlab, Mathematica, and Excel.