

CVitae – Mike Pierce

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Education

MSc Mathematics, University of California Riverside 2015–Present

PhD Candidate in Mathematics • Master of Science in Mathematics, 2017

Advisor Jacob Greenstein • Research on the Representation Theory of Quantum Groups and Categorification

Dissertation Year Program Fellowship 2020 • Early Promise Award • Eugene Cota Robles Fellowship

BS Math Education, California State University Chico 2010–15

BS Mathematics with Honors • BS Mathematics Education

Minor in Computer Science • Magna Cum Laude with Honors in General Education

Frank Burk Scholarship • Lt. Rawlins Merit Scholarship • Michael Dixon Scholarship

Professional Experience

Math Faculty Instructor, Colorado Mesa University [↗](#) 2021–Present

Full-time mathematics instructor teaching Precalculus and Math Investigations

Marine Expeditionary Unit Instructor/Grader, Camp Pendleton 2020–Present

Remotely taught College Algebra & Statistics • Assessed exams of deployed marines

Lecturer, UC Berkeley Summer 2021

Remotely taught MathN16B Analytic Geometry & Calculus

Associate Instructor, UC Riverside [↗](#) Summers 2018–2021

Math6B, College Algebra (Remote) • Math5, Precalculus (Remote) • Math7B, Calculus for Life Sciences

Algebra Qualifying Exam Prep Seminar, 2018–19 • Math46, Ordinary Differential Equations

Lead Instructor, Advanced Mathematics Program [↗](#) Summers 2019–20

Both in-person and remotely, introduced transitioning and underrepresented math majors to proof-writing in abstract algebra in a supportive and personalized environment.

Erdős Institute Data Science Boot Camp [↗](#) May 2021

Classified songs into genres from their lyrics using TF-IDF measure and k -means clustering;

Learned general data gathering/cleaning techniques, supervised/unsupervised learning,

and statistical analysis with BeautifulSoup, sklearn, pandas, and seaborn

Secretary of Math Graduate Student Association, UC Riverside [↗](#) 2018–20

Acted as webmaster, and redesigned the organization's website and wiki. I kept hours, managed and scheduled meetings, and compiled documents and resources useful to future graduate students.

Papers and Preprints

Six Variations on a Theme: Almost Planar Graphs

Lipton, Mackall, Mattman, Pierce, Robinson, Thomas, Weinschelbaum

Involve, a Journal of Mathematics 11-3 (2018), 413–448. msp.org/involve/2018/11-3/p03.xhtml

The K_{n+5} and $K_{3^2,1^n}$ families are obstructions to n -apex

Thomas W. Mattman, Mike Pierce

Appears in Contemporary Mathematics 689; 2017 doi.org/10.1090/conm/689

Classifying the Finite Set of Minor-Minimal Non-Apex Graphs

Mike Pierce, supervised by Dr. Thomas Mattman;

CSU Chico Honors Thesis in Mathematics, 2014 www.csuchico.edu/~tmattman/mpthesis.pdf

Selected Presentations

The Hall Algebra Approach to Quantum Folding

Young Researchers Seminar, RT Trimester

Institut Henri Poincaré in Paris, 2020

Model Theory, and the Ax-Grothendieck Theorem

Graduate Student Seminar

UC Riverside 2018

Introduction to Quiver Varieties

Graduate Representation and Lie Theory Seminar

UC Riverside 2019

Functional Programming in Mathematica

Graduate Student Seminar

UC Riverside 2017

Bergman's Diamond Lemma

Representation Theory Seminar

UC Riverside 2018

Examples of Obstructions to Apex Graphs, Edge-Apex Graphs, and Contraction Apex Graphs

International Workshop on Spatial Graphs

Waseda University in Tokyo 2016

Examining the Proof of the Ax-Grothendieck Theorem

Algebraic Geometry Seminar

UC Riverside 2018

Selected Software Projects

Minor-Minimal Graph Functions Package (Mathematica) [↗](#)

A package containing tools, written in the functional programming style, related to finding the forbidden minors of a given graph property, specifically the properties apex, edge-apex, and contraction-apex.

Useful Haskell Module (Haskell) [↗](#)

A collection of functions I've written to solve some recreational math and programming challenges.

Wye-Triangle-Wye Graph Transforms Package (Mathematica) [↗](#)

A package for performing triangle-wye and wye-triangle transforms on simple undirected graphs.

Mathematics Conference Website Template (HTML/CSS) [↗](#)

A template website designed for a small academic conference with support for displaying mathematics.

All of these projects can be found on my Github at github.com/mikepierce.

Academic Activities and Service

Facilitated a reading/research course about persistent homology and topological data analysis, 2020 [↗](#)

Participated in and presented in the UCR University Teaching Certificate Program, 2020 [↗](#)

Recipient of the Graduate Student Diversity Certificate, 2019 [↗](#)

Authored a blog post detailing how to create accessible documents for the classroom [↗](#)

Facilitated a reading course of Kac and Cheung's *Quantum Calculus* with undergraduate students, 2019

Organized the Graduate Student Lie & Representation Theory Seminar, 2019–20

Worked as an organizer, webmaster, and website designer for the MathConnections Conference, 2018 & 19 [↗](#)

Co-organized and worked as webmaster for the UCR Graduate Student Seminar, 2017–18 [↗](#)

Department and Administrative Service

Volunteered as UCR Math Department Recruitment Ambassador to SACNAS, 2019–20 [↗](#)

Served as UC Riverside's Election Coordinator for the UAW 2865, 2019 [↗](#)

Administrated, redesigned, and contributed to the UCR Math Wiki and MathGrad Wiki, 2019–20 [↗](#)

Volunteered to host for *Preview Day* for prospective incoming UC Riverside graduate students, 2019

Volunteered as a student representative on the UCR Math Department *Faculty Candidate Hiring Panel*, 2019

First-Aid/CPR/AED certified [↗](#)

Links and Online Profiles

`coloradomesa.edu/~mapierce2`

My personal website at CMU, where I host teaching materials and other projects.

`math.ucr.edu/~mpierce`

My personal website from UC Riverside, where I host teaching materials and other projects.

`github.com/mikepierce`

My GitHub page with all my coding projects.

`math.ucr.edu/~mpierce/video-portfolio`

A selection of recordings of my teaching on YouTube.

`math.stackexchange.com/users/167197/mike-pierce`

My contributions to the Math Stack Exchange site.

Software, Technologies, & Keywords

A list of keywords of mathematical topics I've studied, software that I am proficient with, programming languages I have coded with, technologies with which I have expertise, and pedagogical concepts that I've practiced. Feel free to start a conversation with me about any of these.

Representation Theory • Category Theory • Quantum Groups • Spatial Graph Theory
Topological Data Analysis • Persistent Homology • Quantum Calculus • Categorification

Andragogy • Flipped Classroom • Student-Centered Learning • Ungrading
Accessible Document Design [!\[\]\(dfbd6b3763a6d1d9afaa974f64e2e4b5_img.jpg\)](#) • Typography

Haskell • Wolfram Mathematica[®] • Functional Programming • GAP and QPA • C++
Artificial Neural Networks (AI) • C • Object-Oriented Design • Python • \LaTeX
Linux and Unix Administration • HTML/CSS • Website Design • Unison (file sync)
Git/Github • Relational Database Design (SQL) • G Suite (Google) • Amazon Web Services
AutoHotkey • Blackboard • Canvas • Desire2Learn • Crowdmark • Gradescope
IPython and Jupyter • Gnuplot • YouTube • Raspberry Pi • Yuja • Zoom • Knewton Alta •
Pearson MyLab