# Kaya Arro

University of California, Riverside
Department of Mathematics
Skye Hall Room 275A

+1 240 405 8050
[kaya.arro@ucr.edu](mailto:kaya.arro@ucr.edu)
[kayaarro.site](https://kayaarro.site)

## Employment

**University of California, Riverside**

Visiting Assistant Professor of Mathematics

Summer 2023—Present

## Education

**Brown University**

Ph.D., Mathematics, 2023

Dissertation: FI-*calculus and representation stability*
Thesis advisor: Tom Goodwillie

M.Sc., Mathematics, 2019

**Amherst College**

B.A., Mathematics, *cum laude*, 2017

Senior thesis: *The maximal and free $(\infty, n)$-categories of an $(\infty, n+1)$-category*
Thesis advisor: Michael Ching

## Research interests

Abstract homotopy theory, $\infty$-category theory, functor calculus, tangent $(\infty, 2)$-categories, representation stability

## Language proficiencies

English, native

Norwegian, B2, self-assessed

Spanish, C1, self-assessed

## Papers and preprints

FI-*calculus and representation stability.* [https://arxiv.org/pdf/2306.13597.pdf](https://arxiv.org/pdf/2306.13597.pdf).

*Corepresentation functor calculus.* in preparation.

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[1]Updated December 15, 2024

# Talks and Travel

## Invited Talks

*Corepresentation functor calculus.* AMS Special Session on Homotopy Theory; Joint Mathematics Meetings; Seattle, Washington, USA; Winter 2025

*Cartesian fibrations lift functor calculus.* AMS Special Session on Homotopy Theory and Category Theory in Interaction; Florida State University; Tallahassee, Florida, USA; Spring 2023

FI-*calculus and representation stability.* UL Lafayette Topology Seminar; University of Louisiana, Lafayette; Lafayette, Louisiana, USA; Winter 2023

FI-*calculus and representation stability.* UCR Category Theory Seminar; University of California, Riverside; Riverside, California, USA; Winter 2023

FI-*calculus and representation stability.* UCLA Algebraic Topology Seminar; University of California, Los Angeles; Los Angeles, California, USA; October 2023

FI-*calculus and representation stability.* Manifolds, Homotopy Theory, and Related Topics Seminar; virtual; January 2023

FI-*calculus and representation stability.* CIRGET Geometry and Topology Seminar; Université du Québec à Montréal; Montréal, Québec, Canada; December 2022

FI-*calculus and representation stability.* AMS eastern sectional meeting, Special session on higher structures and homotopical algebra; University of Massachusetts, Amherst; Amherst, Massachusetts, USA; October 2022

## Contributed Research Talks

FI-*calculus and representation stability.* Symposium for Women and Gender Minorities in Mathematics in Southern California; Pomona College; Claremont, California, USA;

FI-*calculus and representation stability.* Young Homotopy-theorist Online Meeting; virtual; October 2023

*A homotopy-theoretic perspective on representation stability.* Graduate Student Seminar; Brown University; Providence, Rhode Island, USA; Spring 2021

## Contributed Expository Talks

*Calculating $\pi_1(S^1)$ in Homotopy Type Theory.* Category Theory Seminar; University of California, Riverside; Riverside, California, USA; Fall 2023

*Univalence.* Category Theory Seminar; University of California, Riverside; Riverside, California, USA; Fall 2023

*Combinatorics by way of $\infty$-categories.* Graduate Student Seminar; Brown University; Providence, Rhode Island, USA; Spring 2023

*Operads.* Category Theory Seminar; Brown University; Providence, Rhode Island, USA; Fall 2019

*Enriched categories.* Category Theory Seminar; Brown University; Providence, Rhode Island, USA; Fall 2019

*Goodwillie approximations to higher categories.* Workshop on Functor Calculus; University of Ohio; Columbus, Ohio, USA; Spring 2019

*The homotopy theory of non-compact spaces.* Graduate Student Seminar; Brown University; Providence, Rhode Island, USA; Spring 2019

*Homotopy coherent monadicity and descent.* Talbot Workshop 2018: Model-Independent Theory of $\infty$-Categories; Massachusetts Institute of Technology; Government Camp, Oregon, USA; Summer 2018

*Metric spaces, enriched categories, and magnitude homology.* Graduate Student Seminar; Brown University; Providence, Rhode Island, USA; Spring 2018

*The homotopy hypothesis: What are higher categories?.* Graduate Student Seminar; Brown University; Providence, Rhode Island, USA; Fall 2017

## Other Conferences and Workshops

Joint Mathematics Meeting; American Mathematical Society; San Francisco, California, USA; Winter 2024

Tangent Categories and their Applications; Banff International Research Station; online; Summer 2021

Topological and Geometric Methods in QFT; Montana State University; Bozeman, Montana, USA; Summer 2017

Workshop on Homotopy Type Theory and Univalent Foundations of Mathematics; The Fields Institute; Toronto, Ontario, Canada; Spring 2016

## TEACHING EXPERIENCE

### University of California, Riverside

**Teaching**

Math 145A, Introduction to Topology I

Math 10B, Calculus of Several Variables II

Math 7B, Calculus for Life Sciences II

Math 6A, Introduction to College Mathematics for the Sciences I

### Brown University

**Teaching**

CEMA 922, Set Theory

MATH 520, Linear Algebra

MATH 180, Intermediate Calculus

MATH 90, Introductory Calculus I

MATH 60, Analytic Geometry and Calculus II

**TAing**

CEMA 903, Number Theory

MATH 180, Intermediate Calculus

MATH 100, Introductory Calculus II

**Directed Reading Project Mentoring**

*Higher Algebra* by J. Lurie, Fall 2021 with Joe Hlavinka

*Sheaves in Geometry and Logic* by S. Mac Lane and I. Moerdijk, Fall 2019 with Eli Fonseca and Dichuan Gao

*Categorical Homotopy Theory* by E. Riehl, Spring 2018 with Owen Lynch

*Basic Concepts of Enriched Category Theory* by G. Kelly, Fall 2017 with Owen Lynch

**Outreach**

Math Circle instructor and facilitator, Spring 2019, Fall 2021

## SERVICE

### Graduate Labor Organization

Organizing Committee, Fall 2022

Elections Committee, Spring 2022—Fall 2022

Social Justice and Accountability Committee, Fall 2021

### Brown University Department of Mathematics

Diversity and Inclusion Committee, Fall 2017—Spring 2021

Co-organizer of the Directed Reading Program, Fall 2018—Spring 2020

Organizer of the Category Theory Seminar, Fall 2019

## AWARDS

Mathematics Department Outstanding Teaching Award, Brown University, 2022

Beneficiary of the Chandler O. Meyer Fellowship Fund in Mathematics, Brown University, Fall 2017—Spring 2018, Fall 2022—Spring 2023

Schupf Scholar, Amherst College, 2011-2017