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| CONTACT INFORMATION | 400 Dowman Drive Dept. of Mathematics Emory University Atlanta, GA 30322 USA | <i>Phone:</i> (+1) 845 750 3244 <i>Email:</i> mjcerchia@gmail.com <i>Web:</i> https://mjcerchia.github.io/ U.S. citizen |
| RESEARCH INTERESTS | Broad: Number Theory, Arithmetic Geometry, Algebraic Geometry. Specific: Arithmetic of Varieties, Modular Curves, Stacks, Galois Representations. | |
| APPOINTMENTS | Emory University Graduate Research Assistant (2019 - present) | |
| EDUCATION | Emory University , Atlanta, Georgia USA Ph.D., Mathematics, May 2024 (Expected) Dissertation Topic: “The Canonical Ring of Moduli of Abelian Varieties” Adviser: David Zureick-Brown (Amherst) Wake Forest University , Winston-Salem, North Carolina USA M.A., Mathematics, May 2019 Thesis Topic: “Classifying the Image of the Arboreal Galois Representation” Adviser: Jeremy Rouse (Wake Forest) SUNY Geneseo , Geneseo, New York USA B.A., Mathematics and English Literature, May, 2012 Budapest Semesters in Mathematics , Budapest, Hungary Study abroad, Fall 2010 | |
| HONORS AND AWARDS | (Spring 2019) Best Graduating Student in Mathematics (Wake Forest) | |
| PUBLICATIONS (PEER REVIEWED JOURNAL ARTICLES) | 1. Uniform bounds on the image of the arboreal Galois representations attached to non-CM elliptic curves ; with Jeremy Rouse; <i>Proceedings of the American Mathematical Society</i> 2021, no. 2, 583-589. arxiv | |
| PREPRINTS | 2. The canonical ring of the moduli space of abelian varieties for low genus. (In Progress). 3. The section ring of stacky genus 1 curves. (In Progress). With Jesse Franklin and Evan O’Dorney 4. Sporadic Quartic Torsion. (In Progress). With Alexis Newton | |
| PUBLICATIONS (THESIS) | 5. Classifying the Image of the Arboreal Galois Representation ; 2019; Michael Cerchia; Wake Forest M.A. thesis; 31 pages. link | |
| TEACHING (EMORY) | Emory University , Atlanta, GA <i>Graduate Teaching Assistant.</i> Sole Instructor (2 courses) Spring 2022 Calculus I Math 111 Fall 2021 Calculus I Math 111 | |

Teaching Assistant (5 courses) *Wrote quizzes, graded quizzes and exams, taught weekly one hour lab section, and held office hours.*

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|-------------|----------------------------|-------------------|
| Spring 2021 | Combinatorics | Math 330 |
| Fall 2020 | Linear Algebra | Math 221 |
| Fall 2020 | Number Theory | Math 328 (Grader) |
| Spring 2020 | Mathematical Statistics II | Math 362 |
| Spring 2019 | Mathematical Statistics I | Math 361 |

TEACHING
(WAKE FOREST)

Wake Forest University, Winston-Salem, NC
Graduate Teaching Assistant.

Teaching Assistant (6 courses) *Led weekly three hour discussion and problem solving session, wrote quizzes, graded quizzes and exams, and held office hours.*

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| Spring 2019 | Modern Algebra I | Math 321 |
| Fall 2018 | Modern Algebra I | Math 321 |
| Summer 2018 | Linear Algebra I. | Math 121 |
| Summer 2018 | Calculus with Analytic Geometry II. | Math 112 |
| Spring 2018 | Linear Algebra I. | Math 321 |
| Fall 2017 | Multivariable Calculus | Math 113 |

TEACHING
(OTHER)

Emory Math Circle, Atlanta, Georgia USA
Instructor. Enrichment program for advanced local middle and high school students. Designed and taught courses in number theory, combinatorics, and computer science.

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| Spring 2021 | High School A/B Assistant |
| Fall 2020 | High School A/B Assistant |
| Spring 2020 | High School A Instructor |
| Fall 2019 | High School A Instructor |

Mathnasium, Brooklyn, New York USA (2016-2017)
Instructor. Tutored middle and high school students in the standard NYS curriculum.

INDUSTRY
ACTIVITIES

MinedXai Dayton, Ohio USA (Summer 2023)
Intern. Used techniques from topological data analysis to develop a forex forecasting model.

ORGANIZATION

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| (Spring 2022) | Automorphic Forms Student Seminar |
| (Fall 2022) | Modular Forms Student Seminar |

CONFERENCE TALKS

(Spring 2024) **The section ring of a stacky genus 1 curve.** Invited talk at the JMM Special Section: Explicit Computations with Stacks
(Spring 2020) **Classifying the Image of the Arboreal Galois Representation.** Contributed talk at the JMM.
(Fall 2019) **Classifying the Image of the Arboreal Galois Representation.** PANTS (Palmetto Number Theory Series). Contributed talk

STUDENT SEMINAR
TALKS

(Spring 2022) **Formal Immersions.** Mazur Seminar. Emory University (Expository)
(Fall 2021) **Introduction to Modular Forms.** Seminar on Modular Forms. Emory University (Expository)
(Spring 2021) **Geometric Invariant Theory.** RANT. Emory University (Expository)
(Fall 2020) **Introduction to Modular Curve.** RANT. Emory University (Expository)
(Fall 2020) **Infinitude of supersingular primes for elliptic curves over \mathbb{Q} .** RANT. Emory

University (Expository)

(Spring 2020) **An Introduction to Arithmetic Dynamics.** RANT. Emory University (Expository)

(Fall 2019) **The Jacobian.** Nonabelian Chabauty and Other Stuff (NACHOS). Emory University (Expository)

(Spring 2019) **Galois Representations Attached to Elliptic Curves.** Wake Forest Summer Research Seminar. Wake Forest University

SOFTWARE SKILLS Proficient in Python and Magma.