

C. Eric Overton-Walker

~Curriculum Vitae~

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Education.

PhD in Mathematics; advisor: Prof. Lance Edward Miller; thesis: <i>Derived jet schemes and arc spaces, and arithmetic arc space representability.</i>	University of Arkansas	May 2024
MS in Mathematics.	University of Arkansas	May 2018
BA cum laude with distinction in Mathematics and in Spanish; math advisor: Prof. Christopher S. Camfield; thesis: <i>An Open Door to Geometric Measure Theory.</i>	Hendrix College	May 2016

Research Interests.

Homological and homotopical algebra; derived methods in commutative algebra, algebraic geometry, and arithmetic geometry; deformations, arcs, and jets; Kähler differentials and the cotangent complex; singularities and F -singularities; derivations and p -derivations; F -isocrystals and Galois representations.

Publications and Preprints.

<i>Derived jet schemes and arc spaces, and arithmetic arc space representability</i> Thesis	Submitted to ProQuest
<i>Derived jets and arcs</i> In preparation with Roi Docampo and Lance Edward Miller	[arXiv forthcoming]
<i>Non-representability of arithmetic arc spaces</i> In preparation with Taylor Dupuy and Lance Edward Miller	[arXiv forthcoming]
<i>Isocrystals associated to arithmetic differential equations in algebraically closed fields</i> In preparation with Lance Edward Miller and Arnab Saha	[arXiv forthcoming]
<i>Noncommutative resolutions of singularities in positive characteristic</i> In preparation	[arXiv forthcoming]

Talks.

Algebraic geometry seminar (University of Utah) <i>Cotangent complexes of derived jet and arc spaces</i>	7 November 2023
Graduate student colloquium (internal) <i>Bézout's theorem — to infinity and beyond</i>	30 August 2023
CATS: Commutative Algebra in The South (University of Alabama) <i>Deriving differentials and derivatives</i>	15 April 2023
CARES: Commutative Algebra Regional Expository Seminar (virtual) <i>Spectral sequences aren't scary (no, really!)</i>	24 October 2022
Graduate student colloquium (internal) <i>Video game character creation is a moduli problem</i>	19 October 2022
Graduate student colloquium (internal) <i>Algebraic geometry for new grad students</i>	6 September 2022
URiCA: Upcoming Researchers in Commutative Algebra (University of Nebraska-Lincoln) <i>Derived algebraic geometry and jet schemes</i>	7 May 2022
ARTS: Algebra and Representation Theory Seminar (University of Oklahoma) <i>Derived algebraic geometry and jet schemes</i>	1 April 2022

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Talks, continued.

Algebra seminar (internal) <i>Derived algebraic geometry and jet schemes</i>	4 February 2022
Graduate student colloquium (internal) <i>UARK GSC What is...? #1: Tropical geometry</i>	26 January 2022
Graduate student colloquium (internal) <i>What's on the mind of air traffic controllers and algebraic geometers? #2 (Blowing up points on the plane)</i>	17 November 2021
CARES: Commutative Algebra Regional Expository Seminar (virtual) <i>The module of Kähler differentials</i>	12 October 2021
Jet spaces / arc spaces learning seminar (University of California San Diego, virtual) <i>Jets, arcs, and cylinders</i>	19 May 2021
CARES: Commutative Algebra Regional Expository Seminar (virtual) <i>Macaulay2 panel (joint with Michael DeBellevue, Alexander Duncan, David Smith)</i>	15 April 2021
CARES: Commutative Algebra Regional Expository Seminar (virtual) <i>Jet and arc spaces from a commutative algebra point of view</i>	11 March 2021
The Curry Seminar: Algebra and topology seminar (internal) <i>The Silmarillion: K-theory</i>	13 October 2020
Graduate student colloquium (internal) <i>What's on the mind of air traffic controllers and algebraic geometers? (An introduction to jet spaces)</i>	11 March 2020
Spectral sequence seminar (internal) <i>Differentially bigraded algebras and spectral sequence constructions</i>	31 July 2019
Spectral sequence seminar (internal) <i>Perfectly balanced: Using spectral sequences to balance Tor and Ext, and the Universal Coefficient Theorem</i>	25 July 2019

Honors and Awards.

Julia Hicks Endowed Graduate Teaching Award	University of Arkansas	2023-2024
NSF-supported participant in AMS MRC 2023 <i>Derived Categories, Arithmetic and Geometry</i>	Beaver Hollow, New York	4-10 June 2023
John C. Massie Memorial Fund	University of Arkansas	2022-2023
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William Alton Anderson Endowed Scholarship in Arts & Sciences	University of Arkansas	2019-2020
Julia Hicks Endowed Graduate Teaching Award	University of Arkansas	2018-2019
Lawrence Jesser Toll, Jr. Endowed Fund	University of Arkansas	2017-2018

Service.

Arkansas Math Discovery Day Volunteer.	Fall 2023-Spring 2024
University of Arkansas Graduate Student Colloquium Co-organizer, Vice President.	Spring 2022-Spring 2024
STAG: <i>Students Teaching Algebraic Geometry</i> discussion seminar Co-organizer.	Fall 2020-Summer 2022

Teaching Experience.

Linear Algebra (MATH 3083) instructor 1 section, 25 students	Summer 2023.
Calculus 1 (MATH 2554) instructor/coordinator 5 sections, avg 20.2 students	Summer 2022, Summer 2020 (coord.), Summer 2019 (coord.), Summer 2018, Summer 2017.

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Teaching Experience, continued.

Survey of Calculus (MATH 2043) instructor 3 sections, avg 43 students	Summer 2021, Spring 2021.
College Algebra (MATH 1203) instructor 23 sections, avg 34.4 students	Spring 2024, Fall 2023, Spring 2023, Fall 2022, Spring 2022, Fall 2021, Fall 2020, Spring 2020, Fall 2019, Spring 2019, Fall 2018, Spring 2018, Fall 2017.
Calculus 1 (MATH 2554) teaching assistant 5 drills, avg 25.6 students	Spring 2017, Fall 2016.
Math Spot tutor	Fall 2016-Spring 2024.