

D. Zack Garza

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EDUCATION	University of Georgia ▪ Ph.D. in Mathematics. Supervised by Valery Alexeev. Thesis: <i>Complete compact moduli spaces of Enriques surfaces and related spaces.</i> UC San Diego ▪ B.S. in Mathematics, minor in Computer Science. University of California, Berkeley (<i>Concurrent enrollment</i>) Sierra College ▪ A.A. in Mathematics, A.S. in Physics, A.A. in Fine Arts.	Aug 2019 – May 2024 Aug 2015 – Jun 2018 Sep 2014 – Jun 2015 Sep 2011 – Jun 2014
RESEARCH INTERESTS	Algebraic geometry, complex analytic surfaces, moduli spaces, lattice theory, Coxeter groups, mirror symmetry, Calabi-Yau varieties, hyperkahler geometry, GW/DT theory, derived geometry.	
PUBLICATIONS	▪ <i>Complete moduli of enriques surfaces</i> . Preprint. Joint with Valery Alexeev, Philip Engel, Luca Schaffler.	Nov 2023
OTHER WRITING	▪ Talbot workshop proceedings: scissors congruence and K-theory. Expanded exposition of workshop talks, with added figures and citations.	June 2022
SELECTED HONORS	▪ UGA at Oxford graduate assistantship. (<i>Oxford</i>) ▪ UGA Capturing Science Contest, 2nd Place. (<i>UCSD</i>) ▪ Louise Hoffmaster and Frank R. Etchberger Graduate Scholarship. ($\times 4$, <i>UGA</i>) ▪ UCSD AEP Undergraduate Research Scholarship. (<i>UCSD, Declined</i>) ▪ Diana C. Miles Scholarship. (<i>UCSD</i>) ▪ Errett Bishop Scholarship. (<i>UCSD</i>) ▪ Richard L. and Fern W. Erion and Laidlaw-Erion Scholarship. (<i>UCSD</i>) ▪ Muir College Provost Honors. (<i>UCSD</i>)	Summer 2022, Spring 2023, Summer 2023 2020 2019 – 2023 2018 2017 – 2018 2016 – 2017 2016 – 2017 2015 – 2016
TEACHING	▪ Calculus I. (<i>UGA</i>) ▪ Complex Analysis (<i>Recitation, UGA</i>) ▪ Precalculus. (<i>UGA</i>) ▪ Precalculus. (<i>2 sections, UGA</i>) ▪ Calculus I. (<i>UGA</i>) ▪ Calculus I. (<i>UGA</i>) ▪ Qualifying exam review courses. (<i>UGA</i>) <i>Algebra, Topology, Real Analysis, Complex Analysis.</i> ▪ Precalculus. (<i>2 sections, UGA</i>) ▪ Precalculus. (<i>UGA</i>) ▪ Qualifying exam review courses. (<i>UGA</i>) <i>Algebra, Topology, Real Analysis, Complex Analysis.</i> ▪ Calculus I. (<i>Recitation, UGA</i>) ▪ Math department study hall tutoring. (<i>UGA</i>)	Spring 2024 Fall 2023 Fall 2023 Fall 2022 Spring 2022 Fall 2021 Summer 2021 Spring 2021 Fall 2020 Summer 2020 Fall 2019 Fall 2019 – Spring 2022
SERVICE AND OUTREACH	▪ Co-organizer, GROOT. (<i>seminar series</i>) ▪ Treasurer, Student Chapter of the AMS. (<i>UGA</i>) ▪ Organizer, Mock AMS Conference. (<i>UGA</i>) ▪ Co-organizer, Graduate Student Seminar. (<i>UGA</i>) ▪ Organizer, GOSS. (<i>seminar series</i>) ▪ Co-organizer, GOATS. (<i>conferences, 3 iterations</i>) ▪ President, Society of Undergraduate Mathematics Students. (<i>UC San Diego</i>)	Summer 2023 Fall 2022–Spring 2023 Summer 2021 Spring 2021 – Spring 2023 Summer 2021 Summer 2020 2016 – 2018

	<ul style="list-style-type: none"> Officer, Mathematics Club. (<i>Sierra College</i>) 	2013 – 2014
MENTORSHIP	<ul style="list-style-type: none"> Complex analysis qualifying exam review sessions. (<i>UGA</i>) 	Fall 2023, Spring 2022
	<ul style="list-style-type: none"> Directed reading program: <i>Hodge theory</i>. <i>Student: Hugh Cunningham</i> 	Fall 2023
	<ul style="list-style-type: none"> Directed reading program: <i>Generatingfunctionology</i>. <i>Student: Sage Bobrow-Goss</i> 	Fall 2022
	<ul style="list-style-type: none"> Algebra/Topology/Analysis qualifying exam review sessions. (<i>UGA</i>) 	Spring 2022
	<ul style="list-style-type: none"> Directed reading program: <i>Fourier analysis</i>. <i>Student: Joshua Konfrst</i> 	Spring 2022
	<ul style="list-style-type: none"> Directed reading program: <i>Diophantine geometry, introductory algebraic number theory</i>. <i>Student: Sage Bobrow-Goss</i> 	Fall 2021
	<ul style="list-style-type: none"> Directed reading program: <i>L-functions, the prime number theorem</i>. <i>Student: Aaron Cofer</i> 	Summer 2021
	<ul style="list-style-type: none"> Workshop: Mathematics Subject GRE. (<i>UCSD</i>) 	Mar 2019
	<ul style="list-style-type: none"> Workshops: Intermediate \LaTeX. (<i>7 iterations, UCSD</i>) 	2016–2017
	<ul style="list-style-type: none"> Workshops: Functional programming in Haskell. (<i>3 iterations, UCSD</i>) 	2016–2017
SELECTED TALKS	<ul style="list-style-type: none"> Compact moduli of Enriques surfaces via “folding” K3 moduli data. (<i>UGA</i>) 	TBA
	<ul style="list-style-type: none"> Hodge/lattice-theoretic compactifications of moduli spaces of K3 surfaces. (<i>UGA</i>) 	Feb 2023
	<ul style="list-style-type: none"> A_∞ categories and defining the Fukaya category. (<i>UGA</i>) 	Dec 2022
	<ul style="list-style-type: none"> Engel’s proof of Looijenga’s conjecture via integral-affine geometry. (<i>UGA</i>) 	Oct 2022
	<ul style="list-style-type: none"> Applications of Torelli: Faltings’ proof of the Mordell conjecture. (<i>UGA</i>) 	Jun 2022
	<ul style="list-style-type: none"> The annihilator of the Lefschetz motive. (<i>MIT Talbot</i>) 	May 2022
	<ul style="list-style-type: none"> Why derived geometry? (<i>UGA</i>) 	Feb 2022
	<ul style="list-style-type: none"> Betz-Cohen’s graph moduli spaces and cohomology operations. (<i>UGA</i>) 	Nov 2021
	<ul style="list-style-type: none"> Catalan’s Conjecture, the cases $q = p = 2$. (<i>UGA</i>) 	Nov 2021
	<ul style="list-style-type: none"> Computing volumes of moduli spaces. (<i>Mock AMS conference, UGA</i>) 	Nov 2021
	<ul style="list-style-type: none"> Regularity for J-holomorphic curves. (<i>UGA</i>) 	Jun 2021
	<ul style="list-style-type: none"> On the de Rham cohomology of algebraic varieties. <i>CRAAG, UGA</i> 	Jul 2021
	<ul style="list-style-type: none"> Sarkar-Wang’s algorithm to compute Heegaard-Floer homology. (<i>UGA</i>) 	May 2021
	<ul style="list-style-type: none"> An overview of stable homotopy theory. (<i>UGA</i>) 	Mar 2021
	<ul style="list-style-type: none"> Constructing the Adams spectral sequence. (<i>Stable homotopy seminar</i>) 	Mar 2021
	<ul style="list-style-type: none"> Homotopy groups of spectra. (<i>Stable homotopy seminar</i>) 	Mar 2021
	<ul style="list-style-type: none"> <i>Morse Theory and Floer Homology</i>, multiple talks. (<i>UGA</i>) 	Fall 2020
	<ul style="list-style-type: none"> Classification theorems in topology and geometry. (<i>Mock AMS conference, UGA</i>) 	Jul 2020
	<ul style="list-style-type: none"> Homotopy groups of spheres. (<i>UGA</i>) 	Apr 2020
	<ul style="list-style-type: none"> Zeta functions and the Weil conjectures. (<i>CRAAG, UGA</i>) 	Feb 2020
	<ul style="list-style-type: none"> The Arnold conjecture: periodic orbits in symplectic geometry. (<i>UGA</i>) 	Feb 2020
	<ul style="list-style-type: none"> Poincaré conjecture and the Kervaire invariant one problem. (<i>UGA</i>) 	Oct 2019
	<ul style="list-style-type: none"> Spectral sequences: a primer. (<i>UGA</i>) 	Oct 2019
	<ul style="list-style-type: none"> Singular, simplicial, de Rham, and Čech cohomology. (<i>UGA</i>) 	Sep 2019
	<ul style="list-style-type: none"> Homotopy and the Hopf fibration. (<i>UCSD</i>) 	Jun 2018
	<ul style="list-style-type: none"> Conference poster: Spectral sequences and higher homotopy groups of spheres. (<i>Undergraduate Research Symposium, UCSD</i>) 	May 2018
	<ul style="list-style-type: none"> Topological fixed point theorems. (<i>UCSD</i>) 	Mar 2018
	<ul style="list-style-type: none"> Homology and the snake lemma. (<i>UCSD</i>) 	Nov 2017
	<ul style="list-style-type: none"> Algebraic geometry: a historical primer. (<i>UCSD</i>) 	Oct 2017
	<ul style="list-style-type: none"> Introduction to category theory. (<i>UCSD</i>) 	Oct 2016, Nov 2016, Jan 2017
	<ul style="list-style-type: none"> The combinatorics of graphs and trees. (<i>Sierra College</i>) 	May 2014
MISC.	<ul style="list-style-type: none"> Expository writing and open-source collection of course notes in \LaTeX: https://dzackgarza.com/writing/ 	