

Michail Savvas - Curriculum Vitae

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Webpage | LinkedIn | Google Scholar | arXiv

RESEARCH INTERESTS Enumerative geometry, moduli theory, Donaldson–Thomas theory, derived algebraic & differential geometry, derived categories & stability conditions, logarithmic geometry, artificial intelligence

EMPLOYMENT **The University of Iowa** Iowa City, Iowa, U.S.A.
Tenure-Track Assistant Professor 07/2024 - 06/2025
The University of Texas at Austin Austin, Texas, U.S.A.
Postdoctoral Instructor 07/2021 - 06/2024
University of California, San Diego La Jolla, California, U.S.A.
S.E.W. Visiting Assistant Professor 07/2018 - 06/2021

EDUCATION **Stanford University** Stanford, California, U.S.A.
Ph.D. in Mathematics. Advisor: Jun Li. 09/2012 - 06/2018
Thesis: Generalized Donaldson–Thomas Invariants via Kirwan Blowups.
University of Cambridge, Trinity College Cambridge, U.K.
• Master of Mathematics (“Cambridge Part III”), *Distinction*. 10/2011 - 06/2012
Part III Essay : Cohomology of coherent sheaves on complex algebraic varieties and Hodge theory.
• B.A. Honours Mathematics, *First Class Honours* in each year. 10/2008 - 06/2011

PUBLICATIONS AND PREPRINTS *Good Moduli Spaces in Derived Algebraic Geometry* (with E. Ahlqvist, J. Hekking and M. Pernice). *Submitted*. [arXiv:2309.16574](#).
Cosection Localization for D-Manifolds and (-2) -Shifted Symplectic Derived Schemes, Revisited. **Mathematische Zeitschrift** 308, 42 (2024). [arXiv:2309.03066](#).
Stabilizer Reduction for Derived Stacks and Applications to Sheaf-Theoretic Invariants (with J. Hekking and D. Rydh). *Submitted*. [arXiv:2209.15039](#).
Virtual Riemann–Roch Theorems for Almost Perfect Obstruction Theories. **manuscripta mathematica** 173, 463–498 (2024). [arXiv:2207.14397](#).
The d-critical Structure on the Quot Scheme of Points of a Calabi–Yau 3-fold (with A. Ricolfi). **Communications in Contemporary Mathematics**, Vol. 415, No. 8, 1–45 (2024). [arXiv:2106.16133](#).
Cosection Localization and Vanishing for Virtual Fundamental Classes of D-Manifolds. **Advances in Mathematics**, Volume 398, 2022, 108232. [arXiv:2007.14023](#).
Localizing Virtual Structure Sheaves for Almost Perfect Obstruction Theories (with Y.-H. Kiem). **Forum of Mathematics, Sigma**, Volume 8, 2020, e61. [arXiv:2007.06820](#).
Intrinsic Stabilizer Reduction and Generalized Donaldson–Thomas Invariants. **Journal of the Institute of Mathematics of Jussieu**, 22(4), 1987–2025. [arXiv:2005.13768](#).
K-Theoretic Generalized Donaldson–Thomas Invariants (with Y.-H. Kiem). **International Mathematics Research Notices (IMRN)**, Volume 2022, Issue 3, February 2022. [arXiv:1912.04966](#).
Generalized Donaldson–Thomas Invariants via Kirwan Blowups (with Y.-H. Kiem and J. Li). **Journal of Differential Geometry**, 127 (3) 1149 - 1205, July 2024. [arXiv:1712.02544](#).
Reduce, Reuse, Recycle: Categories for Compositional Reinforcement Learning (with G. Bakirtzis, S. Chinchali, U. Topcu and R. Zhao). Proceedings of the **European Conference on Artificial Intelligence (ECAI)**, 2024. [arXiv:2408.13376](#).

Categorical Semantics of Compositional Reinforcement Learning (with G. Bakirtzis and U. Topcu). **Journal of Machine Learning Research**, Volume 26, 2025. [arXiv:2208.13687](#).

Shutout Games on Graphs (with A. Cioba). **Mathematika**, volume 61 (2015), issue 03, pp. 523-530. Preprint version available [here](#).

GRANTS AND SCHOLARSHIPS	AMS-Simons Travel Grant	07/2019 - 08/2023
	Onassis Foundation Graduate Scholarship	09/2016 - 08/2018
	A.G. Leventis Foundation Scholarship	09/2016 - 08/2017
	Stanford Graduate Fellowship	09/2012 - 08/2017
	William R. and Sara Hart Kimball Fellow for three years.	
	George and Marie Vergottis Bursary	10/2008 - 06/2011
	Three year scholarship from the Vergottis Fund of the Cambridge European Trust.	
	Woods Fund for summer research, Trinity College, Cambridge.	2011
	Heilbronn Prize for outstanding academic performance, Trinity College, Cambridge.	2011
	Senior Scholarship for outstanding academic performance, Trinity College, Cambridge.	2010, 2011
	Junior Scholarship for outstanding academic performance, Trinity College, Cambridge.	2009
	IKY (State Scholarships Foundation, Greece) Scholarships	2007, 2008
INVITED RESEARCH VISITS	Scholarships for ranking third in the entrance examinations for the E.C.E. school of N.T.U.A. and ranking first at the end of the first academic year.	
	Nikolaos G. Papadimitriou Foundation Scholarship	10/2007 - 06/2009
	KTH Royal Institute of Technology , Stockholm, Sweden.	07/2022
INVITED TALKS	Seoul National University , Seoul, South Korea.	05/2018, 05/2022
	Institut des Hautes Études Scientifiques (IHÉS) , Bures-sur-Yvette, France.	06/2019 - 09/2019
	Algebra Seminar, Cornell University.	April 2025
	Spring Central Sectional Meeting of the American Mathematical Society, University of Kansas.	March 2025
	Geometry & Topology Seminar, University of Iowa.	May 2024, August 2024
	Algebraic Geometry Seminar, Columbia University.	March 2024
	Algebra & Geometry Day at Thessaloniki, Aristotle University of Thessaloniki.	December 2023
	Algebra Seminar, University of Oregon.	October 2023
	Geometry Seminar, Texas A&M University.	October 2023
	Algebraic Geometry and Number Theory Seminar, Rice University.	September 2023
	Workshop on Moduli Spaces, Virtual Invariants and Shifted Symplectic Structures, Korea Institute for Advanced Study (KIAS).	June 2023
	Algebra Seminar, Michigan State University.	February 2023
	Mathematical Physics Seminar, University of Pennsylvania.	February 2023
	Algebraic Geometry Seminar, University of Michigan.	February 2023
	Department Colloquium, Stony Brook University.	October 2022
	Algebraic Geometry Seminar, Stony Brook University.	October 2022
	Geometry Seminar, University of Texas, Austin.	September 2022
	Algebra, Number Theory and Combinatorics Session, Second Congress of Greek Mathematicians, National Technical University of Athens.	July 2022
	Greek Mathematical Seminar, online.	June 2022
	Algebraic Geometry Seminar, Seoul National University.	May 2022
	Algebraic Geometry Seminar, Stanford University.	April 2022
	Department Colloquium, University of Hawai'i at Mānoa.	March 2022
	Geometry Seminar, Aristotle University of Thessaloniki, Greece.	November 2021
	Algebraic Geometry in String Theory Seminar, Harvard Center of Mathematical Sciences and Applications (CMSA).	November 2021
	Enumerative Geometry Seminar, University of California, San Diego.	October 2021

Algebraic Geometry Seminar, University of Trieste and SISSA.	May 2021
Geometry Seminar, University of Texas, Austin.	March 2021
Spring Eastern Sectional Meeting of the American Mathematical Society.	March 2021
Algebra Seminar, University of Oregon.	November 2020
Southern California Algebraic Geometry Seminar, University of Southern California.	October 2019
More Algebraic Geometry at Imperial College Seminar, Imperial College London.	June 2019
Algebraic Geometry Seminar, University of California, San Diego.	September 2018
Algebraic Geometry Seminar, Seoul National University.	May 2018
Moduli Spaces and Representation Theory Seminar, Mathematical Sciences Research Institute.	April 2018
Algebraic Geometry Seminar, University of Arizona.	March 2018
Algebraic Geometry Seminar, Columbia University.	February 2018
Shanghai Center for Mathematical Sciences, Fudan University.	August 2017

TEACHING,
MENTORING AND
OUTREACH

The University of Iowa

Instructor of Record

MATH:2700 : Introduction to Linear Algebra.	Spring 2025
MATH:1850 : Calculus I.	Fall 2024

The University of Texas at Austin

Instructor of Record

M 408K : Differential Calculus.	Fall 2023
M 408C : Differential and Integral Calculus.	Fall 2021
M 328K : Introduction to Number Theory.	Spring 2023
M 365C : Real Analysis I.	Fall 2022

Sunday Morning Math Group (SMMG)

Fall 2022 - present

Gave an expository talk on the Banach–Tarski Paradox in April 2023.

Volunteering to lead and assist with SMMG outreach activities for students, teachers, and parents.

Prison Mathematics Project

08/2022 - present

Volunteering as a “pen-pal” mentor for an incarcerated adult to provide support and guidance for self-education in algebra.

UT Math Club

Spring 2023

Gave an expository talk titled “Moduli Spaces in Geometry”.

Mathematicians of Color Alliance of Texas (MoCAT) Pizza Seminar

Spring 2021

Gave an introductory background talk on Diophantine Equations.

University of California, San Diego

Instructor of Record

MATH 10A : Calculus I.	Fall 2018, Fall 2019
MATH 10B : Calculus II.	Winter 2019, Winter 2020, Spring 2021
MATH 18 : Linear Algebra.	Spring 2021
MATH 102 : Applied Linear Algebra.	Spring 2019, Fall 2019
MATH 109 : Mathematical Reasoning.	Winter 2019, Winter 2020, Winter 2021

Research Communications Program Mini-Grant

11/2019 - 09/2020

Grant for project aiming to develop visual metaphors and host presentations to communicate algebraic geometry at a K-12 school in the San Diego area.

Research Brief for General Audience

September 2020

YouTube video, available [here](#), to communicate my research to a wide audience.

Teaching and Learning Commons Content Training Speaker

Winter 2020

Presentation on effective learning strategies for mathematics courses for Supplemental Instruction leaders and tutors.

Association for Women in Mathematics (AWM) Mentor

Spring 2021

Served as a mentor for a graduate student as part of UCSD’s chapter of AWM one-on-one mentoring program for graduate students and postdocs.

Stanford University**Instructor of Record**

MATH 20 : Calculus.

Fall 2017, Winter 2018

Teaching Assistant (TA)

MATH 63CM : Modern Mathematics: Continuous Methods.

Spring 2017

MATH 53 : Differential Equations with Linear Algebra.

Spring 2016

MATH 53H : Honors Multivariable Mathematics, Ordinary Differential Equations.

Spring 2015

MATH 51 : Linear Algebra and Differential Calculus of Several Variables.

Winter 2014

Course Assistant (CA)

MATH 215A : Complex Analysis (graduate level).

Fall 2014

MATH 120 : Groups and Rings.

Fall 2013

Stanford Undergraduate Research Institute in Mathematics (SURIM)

Summer 2016

Graduate student mentor for 4 Stanford undergraduate students working on group research project “Toric Varieties and their Geometry”.

Teaching Assistant Mentor

Spring 2016 & 2017

Provided teaching guidance to 2 Stanford graduate students.

Stanford Math Directed Reading Program (DRP)

Spring 2017

Mentored a first-year undergraduate student learning about complex analysis.

**PROFESSIONAL
SERVICE**

Referee reports and quick opinions for: Geometry & Topology, Documenta Mathematica, Selecta Mathematica, International Mathematics Research Notices, Journal of Algebraic Geometry, Journal of Differential Geometry, Advances in Mathematics, Acta Mathematica Sinica, English Series, Bulletin of the London Mathematical Society, Proceedings of the Royal Society A, Forum of Mathematics, Sigma, Moduli, Compositio Mathematica, Advances in Geometry.

Reviewer for: Zentralblatt MATH, Mathematical Reviews.

Co-organizer of the Geometry and Topology seminar at the University of Iowa during the academic year 2024-2025.

Co-organizer of the Geometry seminar at the University of Texas at Austin during the academic year 2022-2023 and the Algebraic Geometry seminar at the University of California, San Diego during the academic year 2020-2021.

TA for the research project “Compositional Generalization in Reinforcement Learning” of the 2025 Adjoint School.

Led one of the Exercise/Q & A sessions for Richard Thomas’ minicourse on Vafa-Witten invariants for the 2021 IHÉS Summer School “Enumerative Geometry, Physics and Representation Theory”.

**AWARDS AND
HONORS**

Silver medal in the International Mathematics Competition (**IMC**) for University students, Blagoevgrad, Bulgaria. July 2008

Bronze medal in the South Eastern European Mathematical Olympiad for University Students (**SEEMOUS**), Athens, Greece. March 2008

Bronze medal in the International Mathematical Olympiad (**IMO**), Hanoi, Vietnam. July 2007

Bronze medal in the Balkan Mathematical Olympiad (**BMO**), Rhodes, Greece. May 2007

Gold medal in the Hellenic Mathematical Olympiad (**HMO**), Athens, Greece. February 2007