Kevin Yeh

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(articles, preprints, and drafts available on personal website)

Nationality: U.S.A.

Current position

Doctoral Candidate, Boston College. Advisor: Prof. Dr. John Baldwin

Areas of specialization

Knot theory. Computational topology and geometry. Solving knot detection problems with computational methods. Application of machine learning to low-dimensional topology.

Education

2026 PhD in Mathematics, Boston College. Chestnut Hill, Massachusetts, USA
Advisor: Prof. Dr. John Baldwin
2020 MSc in Mathematics, ETH Zürich. Zürich, Switzerland (Incomplete due to COVID pandemic)
2017 BA in Mathematics, New York University. New York, New York, USA

Research output

PhD Dissertation

2026 *Knot Floer homology, folding automata of train tracks, and the connect-sum of trefoils*

Preprints

In preparation *Knot Floer homology, folding automata, and $T(2,3)\#T(2,3)$*
In preparation *Khovanov homology, knot Floer homology, and the (2,7) torus knot*
In preparation *An algorithm generating the folding automaton of train tracks on the disk with n marked points*
2019 *Kontsevich's formula for rational plane curves, Gromov-Witten invariants, and quantum cohomology*

Software

2024 *Autofolder.* Automated Construction of Folding Automata for Train Tracks on the Disk. Open-source software package. Available at https://github.com/epsilon-less-than-0/autofolder

2025 *KnotML.* Modern deep learning approach to predict topological invariants of knots. Currently focusing on predicting the slice genus. Improves upon Hughes (2016) using transformer architectures and SageMath's KnotInfo database. Available at https://github.com/epsilon-less-than-0/KnotML

Talks given

Invited

2026 (planned) Princeton University. *Train track folding automaton and the detection of* $T(2,3)\#T(2,3)$ *by knot Floer homology*

Dec 2025 (confirmed) Tech Topology Conference 2025. *Train track folding automaton and the detection of* $T(2,3)\#T(2,3)$ *by knot Floer homology*

Contributed

14 Feb 2023 *Introduction to Heegaard Floer Homology*. Involutive Heegaard Floer Homology Learning Seminar, Boston College.

13 Dec 2022 *Khovanov-Jacobsson Number is NOT a Good Invariant*. Exotic Surfaces Learning Seminar, Boston College.

6 Sep 2022 *An Introduction to the Classification of 4-Manifolds*. Topology Reading Group, Boston College.

3 April 2019 *The Classical Theta Function and the Riemann Zeta Function*. Modular Forms Seminar, ETH Zürich

Teaching

Autumn 2025 Lead instructor, Calculus 1

Autumn 2024 Teaching assistant, Analysis 2

Spring 2024 Lead Instructor, Probability

Autumn 2023 Lead Instructor, Calculus 1

Spring 2023 Lead instructor, Principles of Statistics for the Health Sciences

Autumn 2022 Lead Instructor, Calculus 1

Spring 2022 Teaching assistant, Analysis 2

Autumn 2021 Teaching assistant, Calculus 1

Spring 2021 Teaching assistant, Analysis 2

Autumn 2020 Teaching assistant, Multivariable calculus

Conferences attended

Dec 2025 Tech Topology Conference. Georgia Institute of Technology, Atlanta, GA, USA

Nov 2025 Geometry and Topology Seminar at Brown and Yale (GATSBY). Yale University, New Haven, CT, USA

Autumn 2024 Mathematics and Machine Learning Program. Harvard CMSA, Cambridge, MA, USA

Jul 2024 New structures in low-dimensional topology. Budapest, Hungary

Jul 2024	New structures in low-dimensional topology summer school. Budapest, Hungary
Jul 2023	Tech Topology Summer School. Georgia Institute of Technology, Atlanta, GA, USA
May 2023	Tangled in Knot Theory. ICERM, Providence, RI, USA
May 2023	Boston Graduate Topology Seminar. MIT, Cambridge, MA, U.S.A.
May 2023	Gauge Theory and Low Dimensional Topology U. Miami, Coral Gables, FL, USA
Dec 2022	Tech Topology Conference. Georgia Institute of Technology, Atlanta, GA, USA
May 2022	Cornell Topology Festival. Cornell University, Ithaca, NY, USA
April 2022	Braids in Low-Dimensional Topology. ICERM, Providence, RI, USA
Dec 2021	Tech Topology Conference. Georgia Institute of Technology, Atlanta, GA, USA
Nov 2021	Boston Graduate Topology Seminar MIT, Cambridge, MA, USA
Feb 2020	Hausdorff School: Perverse Sheaves in Enumerative Geometry. Max Planck Institute for Mathematics, Bonn, Germany

Service to the profession

Autumnl 2022	Organizer, Exotic Surfaces Seminar, Boston College.
2022 to 2023	Organizer, Topology Reading Group, Boston College.
Spring 2017	Organizer, Reading Course in Spectral Graph Theory, NYU Courant Institute
2016 to 2017	Organizer, Foundation and Philosophy of Quantum Physics Discussion Group, NYU Courant Institute
Spring 2016	Organizer, Topology and Geometry Discussion Group, NYU Courant Institute
Autumn 2015	Organizer, Guided Independent Study Group in Differential Geometry, NYU Courant Institute

Technical skills

Programming: Python, MATLAB, SageMath, SnapPy
Software: Git/GitHub, Jupyter

Additional training

Autumn 2025	Erdős Institute Data Science Training Program

References

Prof. Dr. John Baldwin
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Prof. Dr. Ian Biringer
Professor of Mathematics, Boston College
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