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EDUCATION

Stanford University, *School of Humanities & Sciences, School of Engineering* **Stanford, CA.**
Expected 06/2025

- Candidate for Bachelor of Science with Honors in Mathematics - Major GPA: 4.14
- Candidate for Masters of Science in Computer Science

Oxford University - Bing Overseas Study Program **Oxfordshire, UK**
04/2024 - 07/2024

- Studied the theory of algebraic stacks and the moduli of smooth nodal curves.

WORK EXPERIENCE

Internship - University of Mary Washington **08/2023 - 01/2024**

- Constructed a classifier for an audio dataset of frog calls as part of a biocomputation project.
- Preprocessed and chunked audio files, used Fourier transforms to construct spectrograms (graphs of frequencies), and trained different CNN architectures on the images with **94%** validation accuracy.

Algorithm Complexity Research - Stanford Department of Computer Science **01/2024 - 03/2024**

- Developed algorithms to exhibit PSPACE-hardness of two-player games including Sticks and Geography in a paper with Tanvi Deshpande.
- Expanded upon previous proof showing Quantified SAT (QSAT) is PSPACE-complete.

Stanford Undergraduate Research in Mathematics **7/2023 - 9/2023 and 6/2024 - 9/2024**

- Proved novel classification of supersingular diagonal curves with Ben Church. (2023)
- Researched approach to Riemann's existence theorem by translating admissible covers to Abramovich's moduli of twisted stable G-covers under Mohan Swaminathan. (2024)

Park City Mathematics Institute - Institute for Advanced Study **7/2022 - 8/2022**

- Engaged with current research by Joe Silverman on hard lattice problems for post-quantum cryptography.
- Contributed to graduate seminars on computer algebra systems like Sage/Magma for algebraic geometers.

Teaching Assistant - Euler Circle **06/2023 - Present**

- Taught and graded cryptography, independent research and paper writing, the mathematics of Euler, and analytic number theory for the Euler Circle math program.

PUBLICATIONS AND PREPRINTS

1. "Supersingular Diagonal Curves and their Genera", with A. Sukhadia and M. Machado, 2023, Stanford University, [SURIM 2023](#)
2. "PSPACE-hardness of Two-Player Games", with Tanvi Deshpande, 2024, Stanford University, available here.
3. "Riemann's Existence Theorem and Admissible Covers", 2024, under the supervision of Mohan Swaminathan, Stanford University, [SURIM 2024](#)
4. "On the Geometric Satake Equivalence". Honors Thesis, Stanford University, 2025, under the supervision of Xinwen Zhu, in preparation.