

Chris Cai

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SUMMARY

Seeking for SDE intern, DS intern position. I am a sophomore with junior standing in Computer Science and Mathematics from University of Wisconsin Madison with strong mathematics background.

EDUCATION

University of Wisconsin-Madison

Sep. 2021 - Present

B.S in Computer Science and Mathematics, **GPA: 4.00/4.00, Dean's List**

Madison, WI

Coursework: Mathematics Analysis, Algorithm, Java/C++ Programming, Object-Oriented Programming, Linear Algebra, Differential Equations, Machine Learning, Probability, Discrete Mathematics, Combinatorics, Multi-Variable Calculus, Cryptography, Coursera Deep Learning Series from Andrew Ng

Achievement: National Gold Award in Canadian Open Mathematics Challenge, Golden Award in Math Kangaroo, China, Second Prize in China High School Mathematics League Competition, Certificate of High Distinction in Australian Mathematics Competition level E (First Prize)

EXPERIENCE

Machine Learning Research Assistant with Professor Frederic Sala

June 2022 - present

- Hands on experience with **GAN** model for Machine Learning.
- Currently working on Research related to **Diffusion Model** with PyTorch.
- Understand theoretical-level how weak supervision works and the math behind it, using covariance matrix to retrieve accuracy of the weak supervision model.

Undergraduate Mathematics Research with Professor Caglar Uyanik

Jan. 2022 - Sep. 2022

Madison Experimental Mathematics Lab

- We researched on given two random elements of $SL_2(Z)$, what is the probability that they generate a free group.
- Involves Hyperbolic Geometry, Ping-Pong lemma, Group theory, Abstract Algebra, and Algorithms to help experiment.
- We implemented algorithms from [GS07] and did two experiments with python to show that most matrices are loxodromic.

Grader for Cryptography 435

Sep. 2022 - present

Working as a grader for Professor Eric Bach, require Cryptography, Linear Algebra, Elementary Set Theory knowledge for grading.

SKILLS

Programming Languages: C++/C, Java, Python, Bash, HTML, CSS, JavaScript, R

Mathematics Skills: Analysis, Linear Algebra, Differential Equation, Multi-Variable Calculus, Group theory, Probability, Combinatorics, Cryptography

Technologies and Tools: TensorFlow, PyTorch, VS Code, PyCharm, Linux, Vim, IntelliJ, Git