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Stephen Huan

Education

2021–present **Undergraduate**, *Georgia Institute of Technology*, Atlanta, GA, GPA *4.00/4.00*
Bachelor of Science in Computer Science, expected graduation 05/2024.

- Courses taking: differential geometry, analysis, machine learning
- Courses taken: algorithms, computer organization, linear algebra, probability, number theory

2017–2021 **High School**, *Thomas Jefferson High School for Science and Technology*, Alexandria, VA

Experience

Florian Schäfer
Fall 2021–present **Undergraduate researcher**, *School of Computational Science and Engineering*, Atlanta, GA
Improve state of the art algorithms for sparse Cholesky factorization of dense covariance matrices by using ideas from optimal experimental design and compressive sensing. The resulting algorithm extends k-nearest neighbors to maximize conditional mutual information instead of proximity.

ASSIP
summer 2020 **Research intern**, *George Mason University*, Fairfax, VA
Studied improvements to word embeddings by accounting for nonlinear phenomena in language for automated essay grading during the Aspiring Scientists Summer Internship Program (ASSIP).

Awards

$1000, 08-2022 PURA Travel Award to present at SIAM Conference Mathematics of Data Science (MDS22).

$150, 04-2022 2nd place poster in College of Computing at the Undergraduate Research Spring Symposium.

Projects

cs-lectures
spring 2020–present Lectures on various topics in computer science and mathematics, from explanations of the Fast Fourier Transform, using k-d trees to speed up k-means, to the importance of differential equations in geology & guidance. https://stephen-huan.github.io/cs-lectures/

milfp
fall 2021 An extension of the Python-MIP linear programming library to solve mixed-integer linear fractional programs (MILFPs), along with other linearizations of nonlinear programs. https://github.com/stephen-huan/milfp

MAL privacy attack
spring 2021 Attack on the popular TV show rating site MyAnimeList (MAL) to reconstruct private users' lists from public information. https://github.com/stephen-huan/MAL-affinity-attack

AMQ bot
spring 2020 Computer plays Anime Music Quiz (AMQ), where the objective is to identify which show a song came from. Uses a k-nearest neighbors approach, where similarity is efficiently calculated with the Fast Fourier Transform. https://github.com/stephen-huan/anime-music-quiz

Interests

Big O Theory Club
fall 2021–present Officer of Georgia Tech's official theoretical computer science club in the College of Computing. Responsibilities include preparing lectures, problem sets, and events for weekly meetings.

Rubik's Cubing In competitions, average under 11 seconds to solve a Rubik's cube, 15 seconds one-handed.

Skills

Languages Python, LaTeX, Cython, Java *decreasing familiarity*

OS Linux *archlinux*