Alek Westover
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Education

Massachusetts Institute of Technology, Cambridge, MA 2022-2026
Candidate for Bachelor's Degree in Mathematics with Computer Science (intended)
Relevant coursework:
Advanced Algorithms (graduate level), Complexity Theory
Self studied texts covering standard undergraduate CS curriculum, e.g. "Algorithms" by Jeff Erickson
Linear Algebra + Abstract Algebra + Multivariable Calculus
Real Analysis + Functional Analysis

Skills

Data science (Python, Julia); Full-stack web development & creating video games (javascript, Flask / Node.js); C++
Chinese: fluent

Experiences

Theoretical Computer Science Research Internship (MIT CSAIL) 2020, 2022-present
Research scheduling algorithms for parallelizable tasks
Private Tutor (self-employed) 2017-present
Teach math (e.g. calculus) / science / programming (e.g. python)
Theoretical Computer Science Research (MIT PRIMES) 2019-2020
Research program for high school students, Mentor: William Kuszmaul
Software Engineer Intern at Beacon Biosignals (Healthcare AI startup)
Worked in Julia to prepare large datasets for use in machine learning models and on data compression 2019-2020
Teaching Assistant, Harvard University 2019-2020
Graded, held office hours, co-led sections. (Linear Algebra, Real Analysis, Multivariable Calculus, R)
Canada/USA Mathcamp 2019
Research Assistant at Massachusetts General Hospital Sleep Laboratory 2018
Research Assistant at MIT Institute of Medical Engineering Sciences (IMES) 2017

Awards

Regeneron Science Talent Search 2020
National science fair for high school students, 7th place in USA, $70,000.
Project: "Cache-Efficient Parallel-Partition Algorithms using Exclusive-Read-and-Write Memory"
Massachusetts Science Engineering Fair: Second Place Award 2020
Yau Science Award for Computer Science: Bronze Medal 2019

Publications

> William Kuszmaul and Alek Westover. The Variable-Processor Cup Game. In 12th Innovations in *Theoretical Computer Science Conference* (**ITCS**), 2021. 10.4230/LIPIcs.ITCS.2021.16
> William Kuszmaul and Alek Westover. Brief Announcement: Cache-Efficient Parallel-Partition Algorithms using Exclusive-Read-and-Write Memory. In *32nd ACM Symposium on Parallelism in Algorithms and Architectures* (**SPAA**), 551-553, 2020.
Full paper: arXiv:2004.12532, Code: github.com/awestover/Parallel-Partition, Visualization: parallelpartition.surge.sh/
> Alek Westover, David Shapiro, M. Brandon Westover, Matt T. Bianchi. Rule of 100: A Litmus Test for Informationless Diagnostic Tests. Postgraduate Medical Journal. 2018 Jun; 94(1112):364-366. PMCID: PMC6771257.