



Timothy J Dunn

RESEARCHER - COMPUTER SCIENTIST - BIOINFORMATICIAN - ATHLETE - BOOKWORM

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EDUCATION

University of Michigan , Ann Arbor MI	2019-Present
• PhD Candidate in Computer Science and Engineering	4.00 GPA
Clarkson University , Potsdam NY	2015-2019
• Honors BS in Electrical Engineering and Computer Science	3.99 GPA

PREVIOUS INTERNSHIPS

Microsoft Research: Biomedical Platforms and Genomics	Summer 2022
• Developed cloud pipeline for integrating genomic and clinical data	
Assured Information Security (AIS)	Summer 2019
• Integrated virtual Trusted Platform Module into OpenXT	
• vTPM provides additional security features to hypervisor VMs	
Technical University of Darmstadt	Summer 2018
• Wrote semidefinite optimization problem solver in CUDA C++	
• Researched in Germany through an international DAAD RISE program	
Los Alamos National Laboratory (LANL)	Summer 2017
• Ported a computational x-ray imaging algorithm from CUDA to OpenMP	
• Implemented conjugate gradient descent for beam position refinement	

PUBLICATIONS

“vcfdist: Accurately benchmarking variant calls.” Submitted, Nature Methods. ¹	2023
“GenDP: a framework of genomics dynamic programming acceleration.” ISCA. ³	2023
“A cloud-based pipeline for FHIR & long-read data.” Bioinformatics Advances. ¹	2023
“nPoRe: n-Polymer Realigner for pileup variant calling.” BMC Bioinformatics. ¹	2023
“SquiggleFilter: an accelerator for portable virus detection”, IEEE/ACM MICRO. ¹	2021
“GenomicsBench: a benchmark suite for genomics”, IEEE ISPASS. ³	2021
“Detection of touchscreen swipe pressure using a thermal camera”, IEEE MMSP. ¹	2018
“GPU acceleration of document similarity measures for bug triaging”, IWSF. ¹	2016
<i>Notes: superscripts denote author position; some paper titles are abbreviated.</i>	

SCHOLARSHIPS & AWARDS

IEEE MICRO Top Picks Honorable Mention	(<i>SquiggleFilter</i> accelerator)	2022
NSF Graduate Research Fellowship	(<i>3-year annual \$37,000 research stipend</i>)	2021
William A. Dart Award	(<i>presented to one EE senior at Clarkson</i>)	2019
David M. Craig Outstanding Honors Graduate Award	(<i>voted by Honors peers</i>)	2019
Phalanx Commendable Leadership Award	(<i>one of several recipients</i>)	2019
MMSPP Top 5% Paper Award	(<i>Honors undergraduate thesis</i>)	2018
Barry M. Goldwater Scholarship	(<i>\$15,000 award for undergraduate research</i>)	2017
Lynch & Searleman Award	(<i>presented to one CS sophomore at Clarkson</i>)	2017

SELECT PROJECTS

- Wrote CUDA long-read alignment package	(<i>with two peers</i>)	2020
- Designed hardware accelerator for nanopore basecaller	(<i>with three peers</i>)	2019

SKILLS

Programming: Python, C++, CUDA, MATLAB, C, Haskell, HTML, CSS
Familiar with: \LaTeX , Linux, Git, Vim, GDB, CMake, PyTorch, Cython, Azure...
Hard: algorithms, bioinformatics, ML, genomics, dynamic programming
Soft: communication, teamwork, writing, creative problem solving, integrity

LEADERSHIP

Teaching Assistant/Lecturer , Introductory MATLAB Programming Class	2016-2019
Captain/Member , Clarkson Varsity Nordic Skiing Team	2015-2019
President , Clarkson Juggling Club	2016-2018
Trip Leader , Clarkson University Outing Club (CUOC)	2015-2018
• Have hiked all of the 46 Adirondack High Peaks in New York	