David Moon

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Education

2018–present **Ph.D. Computer Science**, *University of Colorado*, Boulder, CO.

2011–2016 **B.A. Mathematics & Computer Science**, *Williams College*, Williamstown, MA.

Employment

2016–2018 **Software Engineer**, *Addepar*, New York City, NY.
Full-stack web development using Ember.js and Java. Addepar is an online platform for managing complex investment portfolios. Developed several features for benchmarking portfolios, a central workflow for our users.

Summer 2015 **Research Intern**, *Computer Science Department*, Williams College.
Worked with Stephen Freund on optimizing the FastTrack dynamic race detector. Using hash consing and a novel synchronization-based caching technique, significantly reduced space overhead and slightly reduced mean time overhead on the Java Grande and DaCapo benchmark suites.

Summer 2014 **Research Intern**, *Data Research Training Grant REU*, Duke University.
Worked with Paul Bendich on topological data analysis. Proved a new result toward run-time analysis of algorithm for computing persistent homology.

Summer 2013 **Research Intern**, *SMALL REU*, Williams College.
Worked with Steven Miller in the Number Theory & Probability group. Co-authored three publications in the *Journal of Number Theory*. Received an honorable mention for a talk given at the 2013 Young Mathematicians Conference.

Publications

Refereed Journal Articles

Thao Do, Archit Kulkarni, Steven J. Miller, David Moon, Jake Wellens, James Wilcox. *Sets characterized by missing sums and differences in dilating polytopes*, Journal of Number Theory 147 (2015), 123-153.

Thao Do, Archit Kulkarni, Steven J. Miller, David Moon, Jake Wellens. *Sums and differences of correlated random sets*, Journal of Number Theory 147 (2015), 44-68.

Philippe Demontigny, Thao Do, Archit Kulkarni, Steven J. Miller, David Moon, Umang Varma. *Generalizing Zeckendorf's Theorem to f-decompositions*, Journal of Number Theory 141 (2014), 136-158.

Reports & Posters

David Moon. *Specifying and Enforcing Synchronization Disciplines in Multithreaded Programs*. Honors thesis for the Williams CS department. May 2016.

David Moon, Stephen Freund. *Optimizing Dynamic Race Detection with Hash Consing*. Summer research poster for the Williams CS department. August 2015.

David Moon. *Maximum Number of Nonzero Persistence Cycles in a Vietoris-Rips Filtration*. Technical report on summer research results for the Data RTG group at Duke. July 2014.

Speaking

May 2016 *Specifying and Enforcing Synchronization Disciplines in Multithreaded Programs*.
Honors thesis defense presented to the Williams CS department.

January 2016 *Circle Packing: From Cookie Cutting to Complex Analysis*.
Expository colloquium talk presented to the Williams math department.

July 2014 *Maximum Number of Nonzero Persistence Cycles in a Vietoris-Rips Filtration*.
Summer research talk presented to the Data RTG REU group at Duke University.

August 2013 *Sets Characterized by Missing Sums and Differences in Z^D*.
Summer research talk co-presented with Archit Kulkarni at the Young Mathematicians Conference. Received an honorable mention out of 37 talks.

April 2013 *A Space-Filling Curve*.
Expository talk presented at the Hudson River Undergraduate Mathematics Conference.

Teaching

Spring 2018 **Adjunct Instructor**, *Front-End Web Application Development (CSC 59940)*, The City College of New York.
Inaugural member of the NYC Tech-In-Residence Corps, a municipal-industry-academic partnership designed to bring industry professionals into classrooms. Co-designed and co-taught a project-based course to introduce students to modern front-end web technologies and software engineering practices. Course reviews averaged 4.7/5.0.

- "Very interesting, [sic] peaked my interest in web development."
- "The instructors were very knowledgable, I felt confident in their skills and the information they gave."
- "Mentors were helpful and available outside of classroom."
- "Would recommend because this is the best course in CCNY."

2012-2015 **Teaching Assistant**, Williams College.
Graded homework assignments and held weekly office hours. Worked 5-10 hours per week.

- *Galois Theory (MATH 394)*, Fall 2015
- *Data Structures (CSCI 136)*, Spring 2014
- *Discrete Mathematics (MATH 200)*, Fall 2012

Other Interests

Former professional ensemble member of Choral Chameleon. Avid rollerblader.