

# Sami Davies

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Department of Mathematics  
University of Washington

## EDUCATION

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### University of Washington

2016 - present

M.S. in Mathematics, 2019

Ph.D. in Mathematics

### University of Illinois at Chicago

2015-2016

M.S. in Mathematics

### Carnegie Mellon University

2011-2015

B.S. in Mathematical Sciences, Minor in Economics

## RESEARCH INTERESTS

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I design algorithms for a wide range of problems, including combinatorial optimization questions in scheduling and allocation, as well as statistical reconstruction problems.

## PUBLICATIONS

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1. Sami Davies, Miklós Z. Rácz, Benjamin Schiffer, Cyrus Rashtchian. “Approximate Trace Reconstruction,” <https://arxiv.org/abs/2012.06713>, Arxiv 2020, in submission.
2. Sami Davies, Janardhan Kulkarni, Thomas Rothvoss, Jakub Tarnawski, Yihao Zhang. “Scheduling with Communication Delays via LP Hierarchies and Clustering II: Weighted Completion Times on Related Machines,” in SODA 2021.
3. Sami Davies, Janardhan Kulkarni, Thomas Rothvoss, Jakub Tarnawski, Yihao Zhang. “Scheduling with Communication Delays via LP Hierarchies and Clustering,” in FOCS 2020.
4. Sami Davies, Thomas Rothvoss, Yihao Zhang. “A Tale of Santa Claus, Hypergraphs and Matroids,” in SODA 2020.
5. Sami Davies, Miklós Z. Rácz, Cyrus Rashtchian. “Reconstructing Trees from Traces,” in COLT 2019.
6. Sami Davies, Chenxiao Xue, Carl R. Yeger, “Algorithms for finding knight’s tours on Aztec diamonds,” *Involve, a Journal of Mathematics*, Vol. 10 (2017), No. 5, 721-734.

## INVITED PARTICIPATION AND INTERNSHIPS

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### Microsoft Research Intern

Summer 2020

Redmond, WA (held virtually)

Hosted by Janardhan Kulkarni in the Algorithms group

### Dagstuhl Seminar in Scheduling

February 2020

Shloss Dagstuhl

### Nebraska Conference for Women in Mathematics

February 2019

University of Nebraska Lincoln

**Women in Theory** June 2018  
Harvard University

**Leadership Alliance Summer Research Program** Summer 2014  
Brown University  
*Examining Euler Equations.* Joint work with Johnny Guzman, Gopal Yalla

**Summer Undergraduate Applied Mathematics Institute** Summer 2013  
CMU  
*Patterns of the Bhargava Defined Factorial.* Joint work with Joe Gault and Gregory Johnson.

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#### AWARDS AND FELLOWSHIPS

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**Tanzi-Egerton Fellow** 2020  
University of Washington  
Awarded to an outstanding female, senior graduate student in mathematics

**Microsoft Research Dissertation Grant** 2020  
Microsoft Research  
Awarded to 10 graduate students in computer science across the US to support them in finishing their Ph.D. work

**McKibben and Merner Endowed Fellowship in Mathematics** 2017-2019  
University of Washington  
Awarded to two students who were exceptional in their preliminary exams and first year courses

**Department of Mathematics, Statistics, and Computer Science Fellowship** 2015  
University of Illinois at Chicago  
Awarded to outstanding incoming first year students in the department of MSCS at UIC

**Senior Leadership Recognition Award** 2015  
Carnegie Mellon University  
One of 40 students honored for making significant contributions to CMU's community

**College and University Honors** 2015  
Carnegie Mellon University

**Leadership Alliance Scholar** 2014

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#### TEACHING

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I taught the following courses:

<b>Math 107</b>	Math in Society	FEPPS Summer 2018
<b>CSE 311</b>	Foundations of Computing I	UW Spring 2020

I served as a teaching assistant for the following courses:

<b>Math 111</b>	Algebra with Applications	UW Fall 2017
<b>Math 124</b>	Calculus I	UW Winter & Spring 2017
<b>Math 126</b>	Multivariable Calculus	UW Fall 2016
<b>Math 121</b>	Pre-Calculus	UIC Fall 2015 & Spring 2016
<b>21-241</b>	Matrices and Linear Transformations	CMU Spring 2015

**External Reviewer**

SODA 2020, ICALP 2020, *IEEE Transactions on Information Theory*, MFCS 2020, ISAAC 2020, *Operations Research*

**Washington Directed Reading Program**

2018-present

Mentor for the WDRP, which pairs undergraduate students with mathematics graduate student mentors for quarter-long independent reading project, in the spring of 2019 and the fall of 2020. Helped conceive and write grants for the WDRP in the summer of 2018.

**Freedom Education Project Puget Sound (FEPPS)**

2017-2019

Tutor during fall and winter of 2017. Course instructor during the summer of 2018 at the Washington Corrections Center for Women.

**Math Circle**

2018

Instructor spring of 2018.

**Association for Women in Math**

2016-present

Member since 2016. Secretary of the UW student chapter 2018-2019 academic year.