

# Calvin Beideman

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Office: 3101, Siebel Center for Computer  
Science, UIUC  
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Urbana, IL 61801-2302  
USA

Education: **University of Illinois at Urbana Champaign**, Expected 05/2023  
PhD in Computer Science advised by Karthekeyan Chandrasekaran  
Thesis title: Cuts and Partitions, Solving, Counting, and Enumerating

**Carnegie Mellon University**, 05/2018  
B.S. in Computer Science, & Discrete Math and Logic (Double Major)  
Dean's List—F14, S15, F15, S16, S17, S18

Research: Broadly interested in CS Theory, particularly combinatorial optimization as well as graph theory and algorithms.

Publications: **Approximate minimum cuts and their enumeration**  
(with Karthekeyan Chandrasekaran and Weihang Wang)  
- (To appear in) Symposium on Simplicity in Algorithms (SOSA), 2023

**Approximate Representation of Symmetric Submodular Functions via Hypergraph Cut Functions**  
(with Karthekeyan Chandrasekaran, Chandra Chekuri, and Chao Xu)  
- (To appear in) Foundations of Software Technology and Theoretical Computer Science (FSTTCS), 2022

**Counting and enumerating optimum cut sets for hypergraph k-partitioning problems for fixed k**  
(with Karthekeyan Chandrasekaran and Weihang Wang)  
- International Colloquium on Automata, Languages and Programming (ICALP), 2022

**Faster Connectivity in Low-rank Hypergraphs via Expander Decomposition**  
(with Karthekeyan Chandrasekaran, Sagnik Mukhopadhyay, and Danupon Nanongkai)  
- Integer Programming and Combinatorial Optimization (IPCO), 2022

**Deterministic enumeration of all minimum k-cut-sets in hypergraphs for fixed k**  
(with Karthekeyan Chandrasekaran and Weihang Wang)  
- ACM-SIAM Symposium on Discrete Algorithms (SODA), 2022

**Multicriteria Cuts and Size-Constrained k-cuts in Hypergraphs**  
(with Karthekeyan Chandrasekaran and Chao Xu)  
- Mathematical Programming, 2022 (Preliminary version in RANDOM 2020)

**The Sprague-Grundy Function for Some Selective Compound Games**  
(with Matthew Bowen, and Alp Müyesser)  
- Integers, 2020

Teaching: **University of Illinois**, Urbana, IL  
Instructor for CS173 “Discrete Structures”

June 2022-August 2022

Head TA for CS374 “Algorithms and Models of Computation”	August 2022-December 2022
TA for CS586 “Combinatorial Optimization”	January 2022-May 2022
TA for CS374 “Algorithms and Models of Computation”	January 2021-May 2021
	August 2019-December 2019
	August 2018-December 2018
TA for CS473 “Algorithms”	August 2020-December 2020
TA for CS173 “Discrete Structures”	January 2019-May 2019
<b>Carnegie Mellon University</b> , Pittsburgh, PA	
Head TA for 15-251 “Great Theoretical Ideas in CS”	August 2017-May 2018
Teaching Assistant for 15-251	August 2015-May 2017

Employment: **Dropbox**, San Francisco, CA  
Software Engineering Intern  
May 2017 – August 2017

- Improve the reliability and speed of the Webhooks system
- Improve data collection and logging for Webhooks

**ChemImage Corporation**, Pittsburgh PA  
Software Intern Summer 2011-2015

- Improved the effectiveness and efficiency of C# algorithms for ink analysis
- Researched, developed, and implemented algorithms for biomedical applications
- Translated automated ink discrimination algorithms from MATLAB to C#
- Optimized image processing functions for speed and memory use

Honors: **List of Teachers Ranked as Excellent by Their Students:**

CS 173 “Discrete Structures”	Summer 2022
CS 374 (Spring 2021)	
CS 374 (Fall 2019)	

**Saburo Muroga Endowed Fellowship** (Awarded to up to 5 UIUC CS grad students per year)  
**Alan J. Perlis Undergraduate Student Teaching Award** (awarded to one CMU CS student per year)  
**Carnegie Mellon Senior Leadership recognition** (for contributions to 15-251)

Talks: **Faster Connectivity in Low-rank Hypergraphs via Expander Decomposition** 2022  
Integer Programming and Combinatorial Optimization (IPCO '22). Eindhoven, NL.

**Deterministic enumeration of all minimum k-cut-sets in hypergraphs for fixed k** 2020  
ACM-SIAM Symposium on Discrete Algorithms (SODA '22). Online.

**Multicriteria Cuts and Size-Constrained k-cuts in Hypergraphs** 2020  
International Conference on Randomization and Computation (RANDOM '20). Online.

Skills: Python, C#, Java, C, SML, OCaml, LaTeX

Service: Organized UIUC Theory Seminar Spring 2022

External reviewer for ACM Transactions on Algorithms (2022), STOC 2022