Calvin Beideman

calvinbeideman.com
beideman@tamu.edu
979-845-2479

Office: 113 Peterson Building
435 Nagle St,
College Station, TX 77843
USA

Education: **University of Illinois at Urbana Champaign**, 08/2023
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

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Teaching: **Texas A&M University, College Station, TX**
Instructional Assistant Professor of Computer Science August 2023-Present

- Program Design & Concepts: CSCE 120 – Fall 2023

University of Illinois, Urbana, IL
Instructor

- Discrete Structures: CS173 – Summer 2022

Head Teaching Assistant

- Algorithms and Models of Computation: CS374 – Spring 2023, Fall 2022

Teaching Assistant

- Combinatorial Optimization: CS586 – Spring 2023
- Algorithms and Models of Computation: CS374 – Spring 2021, Fall 2019, Fall 2018
- Algorithms: CS473 – Fall 2020
- Discrete Structures: CS173 – Spring 2019

Carnegie Mellon University, Pittsburgh, PA
Head Teaching Assistant

- Great Theoretical Ideas in Computer Science: 15-251 – Spring 2018, Fall 2017

Teaching Assistant

- Great Theoretical Ideas in Computer Science: 15-251 – Spring 2017, Fall 2016, Spring 2016, Fall 2015

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)
- 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)
- 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

Multicritera 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

Other 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.

Multicritera 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	