

# Jamie Haddock

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Harvey Mudd College  
Department of Mathematics  
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## Research Interests

Mathematical Data Science, Convex and Combinatorial Optimization,  
Randomized Algorithms, Polyhedral Theory, Convex Geometry

## Education

### University of California, Davis

**Ph.D.**, Applied Mathematics, May 2018.

Dissertation Title: *Projection Algorithms for Convex and Combinatorial Optimization.*

Advisor: Jesús A. De Loera.

**M.S.**, Applied Mathematics, 2016.

### Gonzaga University

**B.S.**, Mathematics (Minor in Computer Science), 2013.

## Academic Experience

### Harvey Mudd College, Department of Mathematics

Assistant Professor, July 2021 -

*Courses taught:* Numerical Analysis, Intro. to Probability and Statistics,  
Mathematical Data Science & Topic Modeling

*Student mentorship:* Clinic 2021-2022, Thesis 2021-2022

### University of California, Los Angeles Mathematics Department

CAM Assistant Adjunct Professor (non-tenure-track), July 2018 - June 2021

CAM REU Academic Mentor, June 2018 - August 2018, June 2021 - August 2021

*Courses taught:* Intro. to Probability and Statistics, Probability Theory, Machine Learning

### University of California, Davis Mathematics Department

Graduate Student Researcher, Teaching Assistant, Associate Instructor, 2013 - 2017

*Courses taught:* Linear Algebra, Precalculus

*Curriculum development:* Calculus for Biosciences

*Courses TAed:* Calculus for Biosciences, Advanced Problem Solving, History of Mathematics,  
Introduction to Abstract Mathematics, Calculus I, Calculus III

### COSMOS (California State Summer School for Mathematics and Science)

Teaching Assistant, Computer Science - Intro to Robotics Cluster, Summer 2016

### Convex Geometry Summer School, Berlin Mathematical School

Teaching Assistant, Convex Geometry Arising in Optimization, Summer 2015

### Computer Science, Johns Hopkins Center for Talented Youth

Teaching Assistant, Theoretical Computer Science and Programming, Summer 2013

### Mathematics Department and Athletics Department, Gonzaga University

Peer Tutor, Drop-in Mathematics Lab and Athletics Tutoring Program, 2012-2013

## Publications & Reports

• undergraduate co-author, \* graduate co-author

### Journal Publications

J. Haddock, D. Needell, E. Rebrova, W. Swartworth\*. “Quantile-based Iterative Methods for Corrupted Systems of Linear Equations.” *SIAM J. Matrix Anal. A.*, to appear, 2021.

J. Haddock, A. Ma. “Greed Works: An Improved Analysis of Sampling Kaczmarz-Motkzin.” *SIAM J. Math. Data Sci.*, to appear, 2020.

J. A. De Loera, J. Haddock, A. Ma, D. Needell. “Data-driven Algorithm Selection and Tuning in Optimization and Signal Processing.” *Ann. Math. Artif. Intel.*, 89(7), 711-735. 2020.

J. Vendrow<sup>•</sup>, J. Haddock, D. Needell, L. Johnson. “Feature Selection on Lyme Disease Patient Survey Data.” *Algorithms*, to appear, 2020.

L. Johnson, M. Shapiro, R. Stricker, J. Vendrow<sup>•</sup>, J. Haddock, D. Needell. “Antibiotic treatment response in persistent Lyme disease: Why do some patients improve while others do not?” *Healthcare*, vol. 8, no. 4, 383-404, 2020.

J. A. De Loera, J. Haddock, L. Rademacher. “The Minimum Euclidean-Norm Point on a Convex Polytope: Wolfe’s Combinatorial Algorithm is Exponential.” *SIAM J. Comput.*, vol. 49, iss. 1, 138-169, 2019.

J. Haddock, D. Needell. “Randomized Projection Methods for Linear Systems with Arbitrarily Large Sparse Corruptions.” *SIAM J. Sci. Comp.*, vol. 41, iss. 5, S19-S36, 2018.

J. Haddock, D. Needell. “On Motzkin’s Method for Inconsistent Linear Systems.” *BIT Numerical Mathematics*, vol. 59, iss. 2, 387-401, 2019.

J. A. De Loera, J. Haddock, D. Needell. “A Sampling Kaczmarz-Motzkin Algorithm for Linear Feasibility.” *SIAM J. Sci. Comp.*, vol. 39, iss. 5, S66-S87, 2017.

## Conference Publications

J. Vendrow<sup>•</sup>, J. Haddock, D. Needell. “Neural Nonnegative CP Decomposition for Hierarchical Tensor Analysis.” *Proc. 55th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2021.

J. Haddock, L. Kassab\*, S. Li<sup>•</sup>, A. Kryshchenko, R. Grotheer, E. Sizikova, C. Wang, T. Merkh\*, R. W. M. A. Madushani, M. Ahn, D. Needell, K. Leonard. “Semi-supervised Nonnegative Matrix Factorization for Document Classification.” *Proc. 55th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2021.

J. Vendrow<sup>•</sup>, J. Haddock, E. Rebrova, D. Needell. “On a Guided Nonnegative Matrix Factorization.” *Proc. Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP)*, 2021.

M. Ahn, N. Eikmeier, J. Haddock, L. Kassab\*, A. Kryshchenko, K. Leonard, D. Needell, A. M. R. W. Mudiyansele, E. Sizikova, C. Wang. “On Dynamic Topic Modeling with Nonnegative Tensor Decomposition.” *Proc. Women in Data Science and Mathematics (WiSDM)*, 2019.

J. Haddock, D. Needell, E. Rebrova, W. Swartworth\*. “Stochastic Gradient Descent Methods for Corrupted Systems of Linear Equations.” *Proc. Conference on Information Sciences and Systems (CISS)*, Princeton, NJ, Mar. 2020.

J. Haddock, L. Kassab\*, A. Kryshchenko, D. Needell. “On Nonnegative CP Tensor Decomposition Robustness to Noise.” *Proc. Information Theory and Applications (ITA)*, San Diego, CA, Feb. 2020.

M. Gao<sup>•</sup>, J. Haddock, D. Molitor<sup>\*</sup>, D. Needell, E. Sadovnik<sup>\*</sup>, T. Will<sup>•</sup>, R. Zhang<sup>•</sup>. “Neural Nonnegative Matrix Factorization for Hierarchical Multilayer Topic Modeling.” Proc. International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP), Guadeloupe, West Indies, December 2019.

J. Haddock, D. Needell, N. Rahnavard, A. Zaeemzadeh<sup>\*</sup>. “Convergence of Iterative Hard Thresholding Variants with Application to Asynchronous Parallel Methods for Sparse Recovery.” Proc. 53rd Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2019.

J. A. De Loera, J. Haddock, A. Ma, D. Needell. “Data-driven Algorithm Selection and Parameter Tuning: Two Case studies in Optimization and Signal Processing.” Proc. International Joint Conference on Artificial Intelligence (IJCAI), Macao, China, August 2019.

J. Haddock, D. Molitor<sup>\*</sup>, D. Needell, S. Sambandam<sup>•</sup>, J. Song<sup>•</sup>, S. Sun<sup>•</sup>. “On Inferences from Completed Data.” Proc. Sampling Theory and Applications (SampTA), Bordeaux, France, July 2019.

J. Haddock, D. Molitor<sup>\*</sup>, D. Needell, S. Sambandam<sup>•</sup>, J. Song<sup>•</sup>, S. Sun<sup>•</sup>. “On Inferences from Completed Data.” (extended version) Proc. Information Theory and Applications (ITA), San Diego, CA, Feb. 2019.

A. Zaeemzadeh<sup>\*</sup>, J. Haddock, N. Rahnavard, D. Needell. “A Bayesian Approach for Asynchronous Parallel Sparse Recovery.” Proc. 52nd Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Oct. 2018.

J. A. De Loera, J. Haddock, L. Rademacher. “The Minimum Euclidean-Norm Point on a Convex Polytope: Wolfe’s Combinatorial Algorithm is Exponential.” Proc. 50th Annual ACM SIGACT Symposium on Theory of Computing, Los Angeles, CA, June 2018.

J. Haddock and D. Needell. “Randomized Projections for Corrupted Linear Systems.” Proc. 15th Int. Conf. Numer. Anal. Appl. Math., Rhodes, Greece, Sept. 2017.

## Other Publications

J. Haddock. “Projection Algorithms for Convex and Combinatorial Optimization.” PhD Dissertation, Applied Mathematics, University of California, Davis, May 2018.

## Preprints

J. Haddock, B. Jarman<sup>\*</sup>, C. Yap<sup>•</sup>. “Paving the Way for Consensus: Convergence of Block Gossip Algorithms.” Submitted. <https://arxiv.org/abs/2110.14609>, 2021.

J. Vendrow<sup>•</sup>, J. Haddock, D. Needell. “A Generalized Hierarchical Nonnegative Tensor Decomposition.” Submitted. <https://arxiv.org/abs/2109.14820>, 2021.

R. Yim<sup>•</sup>, J. Haddock, D. Needell. “Statistical Learning for Best Practices in Tattoo Removal.” Submitted. <https://arxiv.org/abs/2105.09065>, 2020.

E. Chau<sup>•</sup>, J. Haddock. “On Application of Block Kaczmarz Methods in Matrix Factorization.” Submitted. <https://arxiv.org/abs/2010.10635>, 2020.

E. Sizikova, J. Vendrow<sup>•</sup>, R. Grotheer, J. Haddock, L. Kassab<sup>\*</sup>, A. Kryshchenko, T. Merkh<sup>\*</sup>, M. Rajapaksha, H. V. Vo, C. Wang, K. Leonard, D. Needell. “Weakly-Supervised Object Localization using Semi-supervised Nonnegative Matrix Factorization.” Submitted, 2020.

T. Will<sup>•</sup>, J. Haddock, R. Zhang<sup>•</sup>, D. Molitor<sup>\*</sup>, D. Needell, M. Gao<sup>•</sup>, E. Sadovnik<sup>\*</sup>. “Neural Nonnegative Matrix Factorization for Hierarchical Multilayer Topic Modeling.” In preparation, 2019.

## Software & Code

J. Haddock, S. Li, L. Kassab, R. W. M. A. Madushani. *Semi-supervised nonnegative matrix factorization*. <https://pypi.org/project/ssnmf/>, 2020

J. Vendrow, J. Haddock. *Fast nonnegative least-squares*. <https://pypi.org/project/fnnls/>, 2020.

E. Chau, J. Haddock. *Block Kaczmarz methods for matrix factorization*. <https://pypi.org/project/mf-algorithms/>, 2020.

## Grants

**NSF DMS Computational Mathematics Award 07/01/2021 -**  
Title: “Tensor Models, Methods, and Medicine” (solo PI)  
Total award estimate: \$232,568

## Awards & Fellowships

**UCLA Chancellor’s Postdoctoral Research Award Nomination**  
Nominated for award for top postdoctoral scholars, Los Angeles, CA, 2020

**Women in Data Science & Mathematics Grant Support**  
Support for expenses at ICERM WiSDM Workshop, Providence, RI, 2019

**Workshop in Analysis & Probability Grant Support**  
Support for expenses at Texas A&M Workshop in Analysis & Prob., Coll. Stat., TX, 2019

**SIAM Early-Career Travel Award (\$2,500 award)**  
Support for travel to ICIAM in Valencia, Spain, 2019

**Rising Stars in Computational & Data Sciences**  
Support for attendance at intensive workshop in Austin, TX, 2019

**NSF US Junior Oberwolfach Fellows Grant Support**  
Support for travel to MFO New Directions in Stoch. Opt. in Oberwolfach, Germany, 2018

**AMS - Simons Foundation Travel Grant (\$4,000 award)**  
Two year travel grant awarded to young researchers, 2018 - 2020

**ACM SIGACT Travel Award**  
Support for travel to ACM Symposium on Theory of Computing in Los Angeles, CA, 2018

**Microsoft/Google TCS Women STOC Travel Scholarship**  
Support for travel to ACM Symposium on Theory of Computing in Los Angeles, CA, 2018

**American Mathematical Society Travel Award**  
Support for travel to Joint Math Meetings in San Diego, CA, 2018

**University of California, Davis Dissertation Year Fellowship**  
Support for promising doctoral students in their final year of study, 2017 - 2018

**Heidelberg Laureate Forum**  
Attended forum with Abel, Turing, Fields and Nevanlinna laureates (200 participants), 2017

**William K. Schwarze Scholarship (\$10,000 award)**  
Graduate student award for excellence in teaching and academic ability, 2016

**SIAM Student Travel Award**

Support for travel to Boston, MA, 2016

**Grad. Assistance in Areas of National Need (GAANN) Research Fellowship**

Support for graduate students selected by department, 2014 - 2015

**UC Davis Math Department Travel Award**

Support for travel to Bonn, Germany, 2015

**University of California, Davis Math Department Graduate Fellowship**

Support for graduate students selected by department, 2013 - 2014

**Gonzaga University Mathematics Award**

Undergraduate award for excellence in coursework and research, 2012 - 2013

**Gonzaga University Putnam Exam High Score**

Scored 30: top 300 in nation, 2013

**Professional  
Experience**

**IPAM Workshop** Multi-Modal Imaging with Deep Learning and Modeling

Invited to participate in week-long workshop.

Los Angeles, CA, 2022

**MAA Project NExT** Gold '21 cohort

Selected to take part in year-long professional development program.

2021 - 2022

**Fields Institute Focus Program** Data Sci., Approx. Theory, and Harmonic Analysis

Invited to participate in focus week on "Computational Harmonic Analysis and Linear Algebra."

Toronto, ON, 2022

**AMS Mathematics Research Community** Finding Needles in Haystacks

Invited to participate in week-long workshop.

West Greenwich, RI, 2021

**ICERM Women in Data Science & Mathematics (WiSDM) Workshop**

Invited to participate in week-long workshop.

Providence, RI, 2019

**Workshop in Analysis & Probability** Random. & Determin. in Comp. Data Acquis.

Invited to participate in week-long workshop.

College Station, TX, 2019

**Rising Stars in Computational & Data Sciences**

Nominated and selected to participate in intensive workshop for early career women.

Austin, TX, 2019

**Mathematisches Forschungsinstitut Oberwolfach** New Directions in Stoch. Opt.

Invited to participate in week-long workshop.

Oberwolfach, Germany, 2018

**Banff International Research Station** Numer. Anal. & Approx. Theory Meets Data Sci.

Invited to participate in week-long workshop.

Banff, Alberta, Canada, 2018

**Mathematical Sciences Research Institute (MSRI)** Program Associate

Participated in Geometric and Topological Combinatorics Fall program.  
Berkeley, CA, 2017

**Institute for Math and Applications (IMA)** Math-to-Industry Summer Program  
Minneapolis, MN, 2017

**Gene Golub SIAM Summer School** in sparse recovery and optimization  
Berlin, Germany, 2017

**ICCOPT Summer School**  
Tokyo, Japan, 2016

**Hausdorff Research Institute (HIM) Summer School** in combinatorial optimization  
Bonn, Germany, 2015

**Berlin Mathematical School (BMS) Summer School** in convex geometry  
Berlin, Germany, 2015

**Institute for Math and Applications (IMA)** Convexity and Optimization program  
Minneapolis, MN, 2015

**Institute for Advanced Studies (IAS) Women and Math Program** in knot theory  
Princeton, NJ, 2012

**National Security Agency** Cryptanalysis and Signals Analysis Summer Program  
Fort Meade, MD, 2012

**Budapest Semesters in Mathematics**  
Budapest, Hungary, 2011

**Next IT** Intern Developer program  
Spokane, WA, 2010 - 2011

## **Presentations & Posters**

### **Conference Presentations**

IPAM Multi-Modal Imaging with Deep Learning and Modeling (invited), Los Angeles, CA, 2022  
Fields Inst. “Data Sci., Approx. Theory, Harmonic Anal.” program (invited), Toronto, ON, 2022  
AAAI Graphs and More Complex Structures for Learn., Reason. (invited), Vancouver, CN, 2022  
JMM AMS Tensor Modeling and Optimization (invited), Seattle, WA, 2022 (postponed)  
JMM AMS Finding Needles in Haystacks: Inv. Prob. Using Comb., Lin. Alg., Seattle, WA, 2022 (postponed)  
Asilomar Conf. on Signals, Systems, and Comp. (contributed), Pacific Grove, CA, 2021  
Mixed Integer Programming Workshop (invited), DIMACS, virtual format, 2021  
SIAM Conference on Applied Linear Algebra (invited), virtual format, 2021  
AMS Spring Southeastern Sectional Meeting (invited), virtual format, 2021  
IPAM Deep Learning and Medical Applications (invited), Los Angeles, CA, 2020  
AMS Sectional Meeting (invited), Medford, MA, 2020 (cancelled)  
SIAM Conference on Mathematics of Data Science (invited), Cincinnati, OH, 2020 (postponed)  
AMS Sectional Meeting (invited), Fresno, CA, 2020 (cancelled)  
Conference on Information Sciences and Systems (invited), Princeton, NJ, 2020 (virtual format)  
ITA Tensor Methods in Mach. Learning and Signal Processing (invited), San Diego, CA, 2020  
JMM AMS Math. and Comp. Research in Data Science (invited), Denver, CO, 2020  
IEEE Comp. Adv. in Multi-Sensor Adapt. Proc. (invited), Guadalupe, West Indies, 2019  
Asilomar Conf. on Signals, Systems, and Comp. (invited), Pacific Grove, CA, 2019

WiMSoCal (contributed), CSU Channel Islands, Camarillo, CA, 2019  
 International Congress on Indust. and Appl. Math. (contributed), Valencia, Spain, 2019  
 SIAM Conference on Applied Algebraic Geometry (invited), Bern, Switzerland, 2019  
 Information Theory & Applications Workshop (invited), San Diego, CA, 2019  
 Asilomar Conf. on Signals, Systems, and Comp. (contributed), Pacific Grove, CA, 2018  
 50th Annual ACM Symp. on the Theory of Comp. (contributed), Los Angeles, CA, 2018  
 JMM AMS Applied Math, III (contributed), San Diego, CA, 2018  
 Simons Institute for Theory of Comp.: Geom. in Optim. (invited), Berkeley, CA, 2017  
 ICNAAM (contributed), Rhodes, Greece, 2017  
 ICCOPT (invited), Tokyo, Japan, 2016  
 14th Copper Mountain Conf. on Iter. Methods (contributed), Copper Mtn., CO, 2016  
 Davis Mathematics Conference (invited), Davis, CA, 2016

### **Colloquia Presentations**

WSU AWM Colloquium, Pullman, WA, 2021  
 Claremont Center for the Mathematical Sciences (CCMS) Colloquium, Claremont, CA, 2021  
 UCLA CAM Colloquium, Los Angeles, CA, 2019

### **Seminar Presentations**

UW Pac. NW Seminar on Topology, Algebra, and Geom. in Data Sci., virtual format, 2021  
 Colorado State University Data Science Seminar, virtual format, 2021  
 NYU Data Science Lunch Seminar, virtual format, 2020  
 Harvey Mudd Mathematics Connections Seminar, virtual format, 2020  
 CommNLA Seminar, virtual format, 2020  
 UBC Seminar, Vancouver, BC, 2020 (postponed)  
 UCI Probability Seminar, Irvine, CA, 2019  
 CSU Channel Islands Master Students Seminar, Camarillo, CA, 2019  
 UCLA Combinatorics Seminar, Los Angeles, CA, 2019  
 Tulane Probability and Statistics Seminar, New Orleans, LA, 2018  
 USC Combinatorics Seminar, Los Angeles, CA, 2018  
 IPAM Level Set Seminar, Los Angeles, CA, 2018  
 UCLA Math 270C: Computational Linear Algebra guest lecture, Los Angeles, CA, 2018  
 UCLA Math 285J: Math for High Dimensional Data guest lecture, Los Angeles, CA, 2018  
 UC Davis Exit Seminar, Davis, CA, 2018  
 UC Davis Student Math/Applied Math, Davis, CA, 2018  
 CACAO, Davis, CA, 2018  
 Mathematical Sciences Research Institute Graduate Student Seminar, Berkeley, CA, 2017  
 CACAO, Davis, CA, 2017  
 CACAO, Davis, CA, 2016  
 UC Davis Math Club, Davis, CA, 2016  
 UC Davis Student Math/Applied Math, Davis, CA, 2015  
 CACAO, Davis, CA, 2014

### **Poster Presentations**

SampTA, Bordeaux, France, 2019  
 SOCAMS, Pasadena, CA, 2019  
 MAA Sectional Meeting, Hayward, CA, 2018  
 UC Davis Graduate Group in Applied Math Mini-Conference, Davis, CA, 2018  
 Gene Golub SIAM Summer School, Berlin, Germany, 2017  
 UC Davis Graduate Group in Applied Math Mini-Conference, Davis, CA, 2017  
 SIAM Annual Meeting, Boston, MA, 2016  
 MAA Sectional Meeting, Davis, CA, 2016

## Other Presentations

LymeDisease.org Board Meeting, Hollywood, CA, 2018

LymeDisease.org Board Meeting, Burbank, CA, 2019

## Research Mentorship

### Research Students

**Mengdi (Mandy) Gao** (UC Irvine class of 2019, co-mentor Deanna Needell)

*Neural nonnegative matrix factorization for hierarchical topic modeling.*

Conference article in CAMSAP and one journal article in preparation.

Attended masters program in statistics at UC Berkeley upon graduation.

**Sneha Sambandam** (UCLA class of 2020, co-mentor Deanna Needell)

*Statistical inference on incomplete data.*

Two conference articles appearing in SampTA and ITA.

Attended Ph.D. program in computer science at UBC upon graduation, NSF GRFP honorable mention.

**Joy Song** (Tsinghua University class of 2019, co-mentor Deanna Needell)

*Statistical inference on incomplete data.*

Two conference articles appearing in SampTA and ITA.

Attended Ph.D. program in mathematics at Brigham Young University upon graduation.

**Yuanxun (Simon) Sun** (Peking University class of 2019, co-mentor Deanna Needell)

*Statistical inference on incomplete data.*

Two conference articles appearing in SampTA and ITA.

Attended Ph.D. program in mathematics at Peking University after graduation.

**Tyler Will** (Michigan State University class of 2020, co-mentor Deanna Needell)

*Neural nonnegative matrix factorization for hierarchical topic modeling.*

Conference article in CAMSAP and one journal article in preparation.

Attended Ph.D. program in operations research at Columbia University upon graduation.

**Runyu Zhang** (Peking University class of 2019, co-mentor Deanna Needell)

*Neural nonnegative matrix factorization for hierarchical topic modeling.*

Conference article in CAMSAP and one journal article in preparation.

Attended Ph.D. program in applied mathematics at Harvard University upon graduation.

**Eric Chen** (UCLA class of 2020, co-mentor Deanna Needell)

*Classification on Large-scale Lyme Disease Data.*

Poster presentation at JMM.

Attended Ph.D. program in computer science at UC Berkeley upon graduation.

**Rong Huang** (UCLA class of 2019, co-mentor Deanna Needell)

*Classification on Large-scale Lyme Disease Data.*

Poster presentation at JMM.

Attended masters program in biostatistics at Yale School of Public Health upon graduation.

**Diyi Liu** (Shanghai Jiao Tong University class of 2019, co-mentor Deanna Needell)

*Classification on Large-scale Lyme Disease Data.*

Poster presentation at JMM.

Attended Ph.D. program in applied mathematics at University of Minnesota upon graduation.

**Catherine Wahlenmayer** (Gannon University class of 2020, co-mentor Deanna Needell)

*Classification on Large-scale Lyme Disease Data.*



Poster presentation at JMM (presenter).  
Attended Ph.D. program in mathematics at UC San Diego upon graduation.

**Ada (Jiewen) Wang** (UCLA class of 2019, co-mentor Deanna Needell)  
*Classification on Large-scale Lyme Disease Data.*  
Poster presentation at JMM.  
Attended MBA program at MIT Sloan School of Management upon graduation.

**Kevin Liu** (UCLA class of 2020)  
*Topic and trend modeling for National Basketball Association (NBA) data.*  
Attended masters program in business analytics at UCLA upon graduation.

**Olivia Heiner** (UCLA class of 2021)  
*Learning optimal hyperparameters for the Sampling Kaczmarz-Motzkin method.*  
Attended masters program in computer science at University of Utah upon graduation.

**Edwin Chau** (UCLA class of 2021)  
*Kaczmarz methods for matrix factorization and tensor decomposition.*  
Article submitted to SIAM Journal of Undergraduate Research Online (SIURO) and one article in preparation.

**Sixian Li** (UIUC class of 2021)  
*Semi-supervised nonnegative matrix factorization and tensor decomposition.*  
Conference article in ACSSC.  
Attended masters program in mathematics and computer science at NYU upon graduation.

**Joshua Vendrow** (UCLA class of 2022, co-mentor Deanna Needell)  
*Nonnegative matrix factorization and tensor decomposition and applications.*  
Two journal articles appearing in Algorithms and Healthcare, one conference article in ICASSP, one conference article in ACSSC, one conference article submitted, and one journal article in preparation.

**Chuqi Bian** (UCLA class of 2021)  
*Convex semi-supervised nonnegative matrix factorization.*  
Attended masters program in analytics at University of Chicago upon graduation.

**Kalsuda Lapborisuth** (UCLA class of 2021)  
*Convex semi-supervised nonnegative matrix factorization.*  
Journal article in preparation.

**Richard Yim** (UCLA class of 2021, co-mentor Deanna Needell)  
*Statistical feature selection techniques and applications.*  
Article submitted to SIAM Journal of Undergraduate Research Online (SIURO).  
Attended masters program in applied mathematics at UC Davis upon graduation.

**Chen Yap** (UCLA class of 2021)  
*Kaczmarz methods for average consensus systems.*  
Journal article submitted.

**Moisey Alaev** (UCLA class of 2021)  
*Supervised tensor decompositions for echocardiogram analysis and other applications.*  
Article in preparation.

**Austin Froelich** (HMC class of 2023)  
*Kaczmarz methods for rating problems.*

**William Gilroy** (HMC class of 2022)  
*Kaczmarz methods for rating problems.*

**Nathan Hu** (Williams College class of 2022)  
*Kaczmarz methods for rating problems.*

**Hannah Kaufman** (Southwest Baptist University class of 2022)  
*Kaczmarz methods for rating problems.*

**Alexander Sietsema** (Michigan State University class of 2022)  
*Kaczmarz methods for rating problems.*

### Thesis Students

**William Gilroy** (HMC class of 2022)  
*Check Yourself Before You WREK Yourself.*  
Reader: Prof. Heather Zinn-Brooks (HMC)

### Clinic Groups

**Carmen Benitez** (HMC class of 2022), **Cindy Lay** (CMC class of 2022), **An Nguyen** (HMC class of 2022), **Kobe Rico** (HMC class of 2022), **Matthew Waddell** (HMC class of 2022)  
*Semi-automatic Mapping of Medical Data onto Ontologies*  
Sponsor: Harvard Center for Computational Biomedicine

### Service & Leadership

#### Departmental Activities

HMC Math 62 Assessment Team member 2021 - 2022  
HMC Data Science Emphasis Proposal Team member 2021 - 2022  
UCLA Mathematics Equity, Diversity, and Inclusion Committee member 2020 - 2021  
UC Davis Galois Group Graduate Group in Applied Math (GGAM) representative 2016 - 2017  
UC Davis Galois Group Undergraduate Program Committee (UPC) representative 2015 - 2016  
UC Davis Student-Run Math/Applied Math seminar (weekly seminar) co-organizer 2015 - 2017  
UC Davis CACAO (weekly seminar with topics in convexity, optimization) organizer 2014 - 2015  
UC Davis New Graduate Welcome organizer 2014 - 2016  
UC Davis Galois Group Graduate Student Association representative 2014 - 2015

#### Volunteer Activities

UCLA Women in Mathematics (WiM) Research Panel co-organizer 2021  
UC Davis WISE (Women in Science and Engineering) mentor 2013 - 2015  
UC Davis Math Café tutor 2013 - 2015  
UC Davis Explore Math coorganizer 2013 - 2015

#### Professional Activities

Southern California Applied Mathematics Symposium co-organizer, April 2022  
Joint Math Meetings "MAA Session: Establishing Interdisciplinary Collaborations in Teaching and Research" session co-organizer, January 2022 (postponed)  
Asilomar Conference on Signals, Systems, and Computers "Algorithms for Data Analytics" session chair, November 2021  
Annual Conference on Learning Theory (COLT) program committee member, July 2021  
Southern California Applied Mathematics Symposium co-organizer, April 2020 (postponed)

Joint Math Meetings “Special Session on Iterative Methods in Large-Scale Data Analysis” co-organizer, January 2020  
 Asilomar Conference on Signals, Systems, and Computers “Mathematical Data Science” session co-organizer, November 2019  
 AMS Central and Western Sections Joint Meeting Special Session “Sparsity, Randomness, and Optimization” co-organizer, March 2019  
 Joint Math Meetings “Special Session on Geometric and Topological Combinatorics” co-organizer, January 2019  
 Asilomar Conference on Signals, Systems, and Computers “Sparse Signal Processing” session chair, October 2018  
 Joint Math Meetings “AMS Applied Mathematics III” Session chair, January 2018

## Reviewing

### *Journal Reviewing*

Applied Mathematics and Computation (AMC) - 2017  
 BIT Numerical Mathematics - 2018  
 Chemometrics and Intelligent Laboratory Systems - 2021  
 Frontiers in Big Data - 2021  
 INFORMS Journal on Computing - 2020  
 Journal of Global Optimization (JOGO) - 2019  
 Journal of Machine Learning Research (JMLR) - 2021  
 Machine Learning - 2020, 2021  
 Mathematical Programming - 2019, 2020  
 Mathematics of Computation - 2020, 2021  
 Numerical Mathematics: Theory, Methods and Applications (NMTMA) - 2018  
 SIAM Journal on Imaging Sciences (SIIMS) - 2021  
 SIAM Journal on Mathematics of Data Science (SIMODS) - 2019  
 SIAM Journal on Matrix Analysis and Applications (SIMAX) - 2020  
 SIAM Journal on Scientific Computing (SISC) - 2016, 2018

### *Conference Reviewing*

Asilomar Conf. on Signals, Systems and Computers - 2020, 2021  
 Conference on Learning Theory (COLT) - 2021  
 Signal Processing with Adaptive Sparse Structured Representations (SPARS) Workshop - 2019

### *Other Reviewing*

National Science Foundation (NSF) Panel – 2021  
 Doctoral Reviewer for Syed Muhammad Atif (PAFKIET) – 2021

## Languages and Skills

English (native), Spanish (beginner)  
 Matlab,  $\text{\LaTeX}$ , C++, Python, Julia, R, AMPL, Mathematica, Sage

## Memberships

American Association of University Women (AAUW) (member since 2016)  
 American Mathematical Society (AMS) (member since 2013)  
 Association for Women in Mathematics (AWM) (member since 2013)  
 Association for Women in Science (AWIS) (member since 2016)  
 Institute of Electrical and Electronics Engineers (IEEE) (member since 2021)  
 Institute for Operations Research and the Management Sci. (INFORMS) (member since 2021)  
 International Linear Algebra Society (ILAS) (member since 2021)  
 Mathematical Optimization Society (MOS) (member since 2016)  
 Mathematical Association of America (MAA) (member since 2012)  
 National Association of Mathematicians (NAM) (member since 2021)  
 Society for Industrial and Applied Mathematics (SIAM) (member since 2013)  
 Alpha Sigma Nu Honor Society (member since 2012)