Jamie Haddock

Harvey Mudd College
Department of Mathematics
320 E. Foothill Blvd.
Claremont, CA 91711

jhaddock@g.hmc.edu
https://jamiehadd.github.io
Phone: +1 (208) 982-4254
Office: Shanahan Center 2048

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•, 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•, 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•, J. Haddock, D. Needell. "A Generalized Hierarchical Nonnegative Tensor Decomposition." Proc. Int. Conf. on Acoustics, Speech, and Signal Provessing (ICASSP), Singapore, May 2022.

J. Vendrow•, 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•, 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•, 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. Mudiyanselage, 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•, J. Haddock, D. Molitor*, D. Needell, E. Sadovnik*, T. Will•, R. Zhang•. "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*. "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*, D. Needell, S. Sambandam•, J. Song•, S. Sun•. "On Inferences from Completed Data." Proc. Sampling Theory and Applications (SampTA), Bordeaux, France, July 2019.

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

A. Zaeemzadeh*, 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*, C. Yap•. "Paving the Way for Consensus: Convergence of Block Gossip Algorithms." Submitted. `https://arxiv.org/abs/2110.14609`, 2021.

R. Yim•, J. Haddock, D. Needell. "Statistical Learning for Best Practices in Tattoo Removal." Submitted. `https://arxiv.org/abs/2105.09065`, 2020.

E. Chau•, J. Haddock. "On Application of Block Kaczmarz Methods in Matrix Factorization." Submitted. `https://arxiv.org/abs/2010.10635`, 2020.

E. Sizikova, J. Vendrow•, R. Grotheer, J. Haddock, L. Kassab*, A. Kryshchenko, T. Merkh*, 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•, J. Haddock, R. Zhang•, D. Molitor*, D. Needell, M. Gao•, E. Sadovnik*. "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
Conference on Information Sciences and Systems (invited), Princeton, NJ 2022 (virtual format)
AAAI Graphs and More Complex Structures for Learn., Reason. (invited), Vancouver, CN, 2022
JMM AMS Tensor Modeling and Optimization (invited), Seattle, WA, 2022 (virtual)
JMM AMS Finding Needles in Haystacks: Inv. Prob. Using Comb., Lin. Alg., Seattle, WA, 2022 (virtual)
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

UC Davis Math of Data and Decisions at Davis (MADDD) Seminar, virtual format, 2022
UNM Applied Math Seminar, virtual format, 2022
Claremont Center for the Math. Sciences (CCMS) Applied Math Seminar, Claremont, CA, 2022
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.
Journal article submitted.

Hector Tierno (Harvey Mudd College class of 2023)
Iterative methods analysis for opinion dynamics models.

Alicia (Kunyang) Lu (Harvey Mudd College class of 2023)
Tensor decomposition models for echocardiogram analysis.

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 and College 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

ICCOPT "Tensor Modeling and Optimization" session co-organizer, July 2022
ICCOPT "Randomized Iterative Methods beyond Least-squares" session co-organizer, July 2022
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 (virtual)
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, 2022
Doctoral Reviewer for Syed Muhammad Atif (PAFKIET) – 2021

Languages and Skills English (native), Spanish (beginner)
Matlab, 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)