

Vahan Huroyan

CONTACT INFORMATION	Department of Mathematics The University of Arizona 617 N. Santa Rita Ave. Tucson, AZ 85721-0089 USA	vahanhuroyan@math.arizona.edu http://math.arizona.edu/~vahanhuroyan
EDUCATION	Ph.D. in Mathematics , 2012 -2018, University of Minnesota, Minneapolis, MN Adviser: Gilad Lerman Masters in Mathematics , 2016, University of Minnesota, Minneapolis, MN Adviser: Gilad Lerman B.S. in Mathematics , 2008-2012, Yerevan State University, Yerevan, Armenia Exchange Fellow , 2010-2011, Mathematics, University of Minnesota, Minneapolis MN.	
PRESENT OCCUPATION	The University of Arizona, Department of Mathematics, <i>August 2018 to Present</i> Postdoctoral Research Associate	
PROFESSIONAL EXPERIENCE	<i>MERL – Mitsubishi Research Electric Lab</i> , May 2016 - August 2016 Internship, host: Hassan Mansour <i>Instigate – Parallel System development</i> , August 2011 - August 2012 <i>Mobile developer (Android/iOS)</i>	
GRANTS, AWARDS AND HONORS	<i>Postdoc Collaborative Research Grant</i> ; Title: <i>Kernel Methods for Manifold Clustering</i> ; with Keaton Hamm, May 2020 <i>SIAM Student Travel Award to attend the 2016 SIAM Annual Meeting (AN16)</i> , MS, July 2016 <i>Graduate Research Fellow at SAMSI (Statistical and Applied Mathematical Sciences Institute)</i> , NC, September 2013 - May 2014 <i>Recipient of the highly competitive Global Undergraduate Exchange Fellowship</i> , U.S. State Department, August 2010 - May 2011 <i>International Math Olympiad 2008</i> in Madrid, Spain - <i>Honorable Mention</i> . <i>International Zhautykov Olympiad, Mathematics</i> January, 2008 in Almaty, Kazakhstan - <i>Bronze Medal</i> . <i>International Math Online Ariel Olympiad 2010</i> (Israel/Russia) - <i>Silver Medal</i> . <i>Putnam Math Competition</i> North America 2011 - <i>top 10%</i>	
RESEARCH INTERESTS	Mathematical Data Analysis, Machine Learning, Computer Vision, Distributed Computing, Probability Theory.	
TEACHING EXPERIENCE	<i>Classes taught at</i> University of Arizona MATH 466 - <i>Theory of Statistics, Instructor</i> MATH 464 - <i>Theory of Probability, Instructor</i> MATH 310 - <i>Applied Linear Algebra, Instructor</i>	Fall 2020 Fall 2019 Spring 2019

Classes taught at University of Minnesota

Math 3283W - <i>Sequences, Series, and Foundations: Writing Intensive</i> , Teaching Assistant	Spring 2018
Math 3283W - <i>Sequences, Series, and Foundations: Writing Intensive</i> , Teaching Assistant	Fall 2017
Math 3283W - <i>Sequences, Series, and Foundations: Writing Intensive</i> , Teaching Assistant	Spring 2016
Math 2243 - <i>Linear Algebra and Differential Equations</i> , Instructor	Summer 2014
Math 1272 - <i>Calculus 2</i> , Teaching Assistant	Spring 2013
Math 1271 - <i>Calculus 1</i> , Teaching Assistant	Fall 2012

Class taught at Phymath high school after A. Shahinyan at Yerevan State University, Yerevan, Armenia

High school *Geometry/Algebra*, Teaching Assistant Spring 2012

ADDITIONAL TRAINING *Summer Graduate School in Modern Harmonic Analysis and Applications*, July 20 - August 07, 2015
University of Maryland,

INVITED TALKS, PRESENTATIONS, POSTERS IEEE VIS 2020 Virtual Conference Oct. 25-30, 2020
Title: Multi-Perspective, Simultaneous Embedding

Data Science Seminars, IMA, The University of Minnesota, Minneapolis, MN Sept. 29, 2020
Title: Multi-Perspective, Simultaneous Embedding and Theoretically Guaranteed Projected Power Method for the Multi-way Matching Problem

Science and Technology Convergence Conference 2019, Yerevan, Armenia October, 2019
Panel Speaker

Arizona, Los Alamos Days, The University of Arizona, Tucson, AZ April, 2019
Title: Non-Convex Analysis of Multi-way Matching

7th International Conference on Computational Harmonic Analysis in conjunction with the 33rd annual Shanks Lecture, Vanderbilt University, Nashville, TN May, 2018
Title: Jigsaw Puzzles and Graph Connection Laplacian

Information Theory and Applications (ITA) Workshop, Graduation Day, San Diego, CA February, 2018
Title: Jigsaw Puzzles and Graph Connection Laplacian

SIAM Conference on Analysis of Partial Differential Equations (PD17), Baltimore, MA December, 2017
Title: Jigsaw Puzzles and Graph Connection Laplacian

Midwest Machine Learning Symposium (MMLS), Chicago, IL June, 2017
Title: Distributed Robust Subspace Recovery

Information Theory and Applications (ITA) Workshop, Graduation Day, San Diego, CA 2017 February
Title: Distributed Robust Subspace Recovery

SIAM Annual Meeting, Minisymposium on LOBPCG and related methods, Boston, MA 2016 July
Title: Distributed Principal Component Analysis and Distributed Robust Subspace Recovery

JOURNAL PUBLICATIONS

1. V. Huroyan, G. Lerman, H.-T. Wu "Solving Jigsaw Puzzles By The Graph Connection Laplacian" SIAM Journal on Imaging Sciences (SIIMS), 13 (4), 1717-1753, 2020
2. I. Hossain, V. Huroyan, S. Kobourov, R. Navarrete, "Multi-Perspective, Simultaneous Embedding," IEEE Transactions on Visualization and Computer Graphics (TVCG), 2020.
3. H. Chen, V. Huroyan, U. Soni, Y. Lu, R. Maciejewski and S. Kobourov, "Same Stats, Different Graphs: Exploring the Space of Graphs in Terms of Global Graph Properties," IEEE Transactions

4. V. Huroyan, G. Lerman ” *Distributed Robust Subspace Recovery and Distributed Principal Component Analysis*” SIAM Journal on Scientific Computing (SISC) 40(5):A3067-A3090, 2018.

CONFERENCE
PUBLICATIONS

1. I. Hossain, V. Huroyan, S. Kobourov, R. Navarrete, “ *Multi-Perspective, Simultaneous Embedding*,” 26th IEEE Symposium on Information Visualization (INFOVIS), 2020.
2. H. Mansour, V. Huroyan, M. Benosman, ” *Crowd Flow Completion From Partial Spatial Observations Using Kernel Dynamic Mode Decomposition*”, Sampling Theory and Applications (SAMPTA), 12th International Conference, July 3 - 7, 2017, Tallinn, Estonia.
3. M. Benosman, H. Mansour, V. Huroyan, ” *Koopman-operator Observer-based Estimation of Pedestrian Crowd Flows*”, The 20th World Congress of the International Federation of Automatic Control (IFAC), 9-14 July 2017, Toulouse, France.

PATENTS

H. Mansour; M. Benosman; V. Huroyan ” *Methods and Systems for Predicting Flow of Crowds from Limited Observations*”, Patent No.: 10,210,398, Issue Date: Feb 19, 2019

WORK UNDER
REVIEW

Properties of Erdős-Rényi Graphs with Hang Chen and Stephen G. Kobourov.

WORK IN
PROGRESS

Theoretically Guaranteed Projected Power Method for the Multi-way Matching Problem with Gilad Lerman and Deepti Pachauri.

SERVICE AND
OUTREACH

Elected Postdoc Representative to the Undergraduate Committee: Department of Mathematics Postdocs 2020 - 2021

Co-organizer (with Keaton Hamm, Faryad Sahneh, Raymundo Navarrete, and Brooke Valmont) of the TRIPODS Southwestern Summer Conference on Data Science, University of Arizona, May 2019.

Organizer of the TRIPODS Metropia Research Group, University of Arizona, May 2019.

Panel Speaker at ” *Science and Technology Convergence Conference*”, Yerevan, Armenia Oct. 2019

SIAM 5-Minute Thesis Showcase, Dec. 2015

REVIEW
EXPERIENCE

Conference on Neural Information Processing Systems (NIPS) 2015

Conference on Neural Information Processing Systems (NIPS) 2016

Conference on Automation Science and Engineering (CASE) 2019

Conference on Graph drawings (GD) 2020

COMPUTER
SKILLS

- Matlab
- Python
- Java
- SDK
- LaTeX
- C++
- Objective C
- Android
- R
- SQL

LANGUAGE
SKILLS

- *Armenian* (mother tongue)
- *English* (native fluency)
- *Russian* (fluent)