

MJ. Latifi

1 Contact Information

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2 Education

- University of Arizona, United States, Fall 2017 to present, PhD in Pure Mathematics.
- University of Texas at Arlington, United States, 2015-2017, MS in Applied Mathematics.
- Iran University of Science and Technology, Tehran, Iran, 2010-2012, MS Program in Pure Mathematics (Mathematical Analysis).
- Damghan University, Damghan, Iran, 2006-2010, Bachelor in Applied Mathematics.

Publications

- Exponential of the S^1 trace of the free field and Verblunsky coefficients , MJ.Latifi, Doug Pickrell, preprint arXiv:2002.06455
- The V-line transform with some generalizations and cone differentiation, MJ.Latifi, G. Ambartsoumian, Inverse Problems, Vol.35 (3),2019.
- Star Radon Transform, MJ.Latifi, G. Ambartsoumian , Tomographic Inverse Problems: Theory and Applications
- Approximation algorithms and an integer program for multi-level graph spanners, MJ Latifi, Reyan Ahmed, Keaton Hamm, Stephen Kobourov, Faryad Darabi Sahneh, Richard Spence, International Symposium on Experimental Algorithms, 2019
- Graph spanners: A tutorial review, MJ Latifi, Reyan Ahmed, Greg Bodwin, Faryad Darabi Sahneh, Keaton Hamm, Stephen Kobourov, Richard Spence, preprint arXiv:1909.03152, submitted
- A General Framework for Multi-level Subsetwise Graph Sparsifiers, MJ Latifi, Reyan Ahmed, Keaton Hamm, Stephen Kobourov, Faryad Darabi Sahneh, Richard Spence, preprint arXiv:1905.00536

Presentations

- Star Radon Transform, Talk in Cormack Conference 2019, Modern Challenges in Imaging
- The broken-ray transform and its generalizations, Plenary talk in the Radon Institute of Computational and Applied Mathematics, Linz, March 2017 (I was the coauthor of the presentation)

- Inversion of Broken-Ray and Conical Radon Transforms Using Cone Differentiation, Inverse Problems Seminar, Spring 2017, Texas A&M
- Solving Differential Equations using Geometry, Seminar in Damghan University, May 2008.
- How we can use Linear Algebra to compress everything (Using Singular Value Decomposition for compressing images, sounds and 3D animations), Seminar in Damghan University, Nov 2009.

Attended Workshops and Conferences

- Cormack Conference 2019, Modern Challenges in Imaging
- Winter School in Analysis and Mathematical Physics, University of Arizona, Winter 2018
- Workshop in Analysis and Probability, Texas A&M University, Summer 2016
- Workshop on Inverse Problems, Colorado State University, Summer 2016

3 Research

Geometry and Quantum Field Theory

Since 2019 I have been working with my PhD advisor Doug Pickrell on problems arising from Geometry and Physics. We have made progress on establishing a relationship between Verblunsky Coefficients and Gaussian free field on the unit circle (arXiv:2002.06455).

Data Science

I am a member of TRIPODS research groups in University of Arizona. I am currently working on the project involving large scale networks, graphs and Machine Learning (We have successfully produced some research papers via an interdisciplinary group work).

Medical Imaging

Dr. Gaik Ambartsoumian was my advisor in UT Arlington and we are still collaborating on problems related to medical imaging. Specially we are working on explicit inversion formulas and necessary and sufficient range conditions for Radon type operators appearing in medical imaging.

Master's at IUST

My interest in Quantum Mechanics started during my Masters project at IUST, supervised with Professor A. Aghajani in IUST. I worked on exploring a result of William Arveson (Maximal vectors in Hilbert space and quantum entanglement, Functional Analysis). The main purpose of the work was to distinguish between entangled states of a quantum system in a general situation.

Bachelor's Thesis

In my thesis project, I worked on a new steepest-edge simplex algorithm for solving Linear Programming problems. I implemented a program using C language to solve LP problems based on new method.

4 Software Development History

Programming Languages and Technologies

I have more than six years of experience as a software programmer.

- Professional Experience in C++, C#, SQL, Python, MATLAB, Javascript, nodeJs, Object Oriented Design
- Familiar with R and microcontroller programming