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Research Interests	Algorithms for High Dimensional Data Sets, Sparse Fourier Transform, Compressive Sensing, Signal/Image Processing		
Education	<ul> <li>Michigan State University, East Lansing</li> <li>Ph.D., Applied Mathematics, 2012–present</li> <li>Co-Advisors: Andrew Christlieb and Mark Iwen</li> </ul>		
	<ul> <li>Ewha W. University, Seoul, South Korea</li> <li>M.S., Mathematics, August 2012</li> <li>Thesis Title : "A New Iterative Non-Local Means for Image Denoising"</li> <li>Advisor : Jungho Yoon</li> <li>B.S., Mathematics, August 2010</li> </ul>		
Publications			
Submitted Journal Articles	• B. Choi, A. J. Christlieb and Y. Wang, <i>Multi-Dimensional Sublinear Sparse Fourier Algorithm</i> , 2017		
IN PREPARATION	<ul> <li>B. Choi, A. J. Christlieb and Y. Wang, A Multiscale High-Dimensional Sparse Fourier Algorithm for Noisy Samples</li> <li>B. Choi, M. Iwen and F. Krahmer, Sparse Harmonic Transforms : A New Class of Sublinear-time Algorithms for Approximating Functions of Many Variables</li> </ul>		
Contributed Talks and Other Presentations	<ul> <li>Fast Algorithms for High Dimensional Sparse Pro Learning(ML) Symposium, 2017</li> <li>Multi-Dimensional Sublinear Sparse Fourier Algori ysis Seminar(NMAS) and Conference Board of the on Sparse Approximation and Signal Recovery Algories Multi-Dimensional Sublinear Sparse Fourier Algories Multi-Dimensional Sublinear Sparse Fourier Algories matics and its Applications (IMA) Workshop on T 2016</li> <li>Sublinear Sparse Fourier Algorithm for High Dimen Meeting, 2014</li> </ul>	r High Dimensional Sparse Problems, Poster Presentation, Midwest Machine aposium, 2017 Sublinear Sparse Fourier Algorithm, Contributed talk, 16th New Mexico Anal- S) and Conference Board of the Mathematical Sciences(CBMS) Conference mation and Signal Recovery Algorithms, 2017 Sublinear Sparse Fourier Algorithm, Contributed talk, SIAM CSE17, 2017 Sublinear Sparse Fourier Algorithm, Poster presentation, Institute for Math- plications (IMA) Workshop on Transdisciplinary Foundations of Data Science, ourier Algorithm for High Dimensional Data, Contributed talk, SIAM Annual	
Selected Workshops and Conferences Attended	<ul> <li>CBMS Conference on Sparse Approximation and S (Funded Participant)</li> <li>The 26th Annual PCMI Summer Session, The M (Funded Participant)</li> <li>IMA 2015 : Modern Harmonic Analysis and Applie MD, July 20 - August 7, 2015 (Funded Participant)</li> </ul>	Signal Recovery Algorithms, May 22-26, 2017 athematics of Data, June 30 - July 20, 2016 cations, University of Maryland, College Park, t)	

## TEACHING AND MENTORING

TEACHING	Michigan State University, East Lansing, MI		
Experience	Instructor : Survey of Calculus I(MTH 124) Recitation Instructor : Calculus II(MTH 133) Instructor : Survey of Calculus I(MTH 124)	Spring 2016 Fall 2015 Spring 2015	
	Recitation Instructor : Calculus II(MTH 133)	Fall 2014	
	Instructor : Survey of Calculus I(MTH 124) Recitation Instructor : Calculus III(MTH 234)	Summer 2013 - Spring 2014 Fall 2012 - Spring 2013	
	<b>Ewha W. University</b> , Seoul, South Korea		
	Recitation Instructor : Set Theory	Fall 2011	
	Recitation Instructor : Advanced Calculus II	Spring 2011	
	Recitation Instructor : Calculus II	Fall 2010	
Undergraduate Research Mentored	• Discovering America Research Team Assistant, Michigan State University Fall 2017 (Ongoing) Assisting a team of 4 undergraduate students including an exchange student working with their research project. This project involves implementing a numerical method for very rapidly and concisely approximating a function of many variables based on only a few (random) function evaluations. This problem is very challenging for arbitrary smooth functions due to the rapid blow up of the complexity of such functions with the dimension of their domain (i.e., the number of variables on which they depend), a phenomenon generally known as the "curse of dimensionality". As part of this project the student participants are trying to undo the curse by using a collection of techniques from compressive sensing, probability, and computer science in order to implement an ultra-fast method for accurately approximating, integrating and interpolating a large class of functions which are simply too hideously high-dimensional to handle in any other way.		
Educational Outreach	• Group Testing: How to find out what's important in life, March 4th, 2017. Assisted activity for middle school students as part of "Girls Math and Science Day" at Michigan State University. The activity provided a good opportunity to discuss chemistry, biology, computer science, basic probability, and WWII history, among other topics. Ultimately, the students learned general "binary search" techniques. After the discussion of these aforementioned topics, the girls then performed a safe experimental implementation of a group testing procedure. Each group of students was given 4 to 8 "mystery cups" each containing one of two possible types of powder (either bleached flour, or flour mixed with baking soda). The group's job was to identify which mystery cups contained flour mixed with samples of the powder from various subsets of the mystery cups in a separate "test cup". Each group deduced from the experiments the fewest number of test cups to correctly identify the one (or two) mystery cups containing baking soda.		
Society Memberships	<ul> <li>Society for Industrial and Applied Mathemetics(SIAM)</li> <li>American Mathematical Society(AMS)</li> </ul>		
Computer skills	<ul><li>MATLAB</li><li>C</li></ul>		