

Kris Hollingsworth
Curriculum Vitae
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PRESENT POSITION

University of Delaware - Newark, DE **2017-Present**
PhD Student and RA, Department of Mathematical Sciences
Advisors: Mahya Ghandehari and Dominique Guillot
Expected Graduation: May 2020

EDUCATION

University of Delaware - Newark, DE **2017**
MS, Mathematics

University of Central Arkansas - Conway, AR **2014**
BA, Mathematics, *summa cum laude*
Minor: Studio Art

North Arkansas College - Harrison, AR **2012**
AA, *summa cum laude*

TEACHING EXPERIENCE

University of Delaware - Newark, DE **2015 to Present**
Instructor
· Finite Mathematics Winter 2019
 (Probability, Linear Programming, and Matrix Theory) Summer II, 2017
· Pre-Calculus and Trigonometry Summer I, 2017
· Pre-Calculus and Trigonometry

Teaching Assistant
· Analytic Geometry and Calculus B - Honors Program Fall 2017
· Analytic Geometry and Calculus C Spring 2017
· Analytic Geometry and Calculus C Fall 2016
· Analytic Geometry and Calculus B - Computer Labs Spring 2016
· Calculus I for Business Fall 2015

North Arkansas College - Harrison, AR **2014-2015**
Adjunct Instructor
· Photography 1 Spring 2015

Tutor Fall 2014–Spring 2015
· Fundamentals of Algebra
· College Algebra
· Trigonometry
· Calculus I
· Calculus II
· English Composition

University of Central Arkansas - Conway, AR
Federal Workstudy (Spring 2013, Fall 2013)
· Grader for Calculus I and Calculus II

2013

North Arkansas College - Harrison, AR
Federal Workstudy (Fall 2011, Spring 2012)
· Art department studio assistant

2003, 2011-2012

Federal Workstudy (Fall 2010, Spring 2011)
· Tutor for mathematics classes through TRIO Student Support Services

Tutor for Disability Services (Fall 2003)
· Introduction to C++

MENTORING EXPERIENCE

2018-2020 · AWM New Student Mentor
2018 REU Summer Research Mentor · Mentored Undergraduate Paige Shumskas
2018 RAMPs Teaching Assistant · Review of Vector Spaces for Incoming Graduate Students
2017 Teaching Assistant · Review for Preliminary Exams—Analysis
2016 RAMPs Teaching Assistant · Review of Analysis for Incoming Graduate Students
2016 GEMs Summer Research Mentor · Mentored Undergraduate Nathaniel Kim

PUBLICATIONS

M. Ghandehari, D. Guillot, and K. Hollingsworth. “A non-commutative viewpoint on graph signal processing,” in *Proceedings of the International Conference on Sampling Theory and Applications (SampTA), Bordeaux, July 2019.*, July, 2019. (Accepted)

M. Ghandehari, D. Guillot, and K. Hollingsworth. “Signal Processing on Cayley Graphs.” (In preparation)

M. Ghandehari and K. Hollingsworth. “Constructing Discrete Frames for $L^2(\mathbb{R}^{n^2})$ from Continuous Wavelet Transforms.” (In preparation)

RECENT TALKS

Mathematical Techniques in Signal Processing at Graduate Students’ Forum for Research and Creative Works (U. of Delaware) (Upcoming)

Fourier Analysis on Graphs at Mid-Atlantic Analysis Meeting 2018 (Virginia Tech)

Constructing Discrete Frames from Continuous Wavelet Transforms at Northeast Analysis Network 2018 (U. of Albany, NY)

An Introduction to Frame Theory at the Undergraduate Math Club 2018 (U. of Delaware)

Constructing Discrete Frames from the Continuous Wavelet Transform at the Summer Research Symposium 2018 (U. of Delaware)

Sound Exploder: Viewing Audio as a Mathematical Object at MathCounts Day 2018 (U. of Delaware)

Constructing Discrete Frames from Continuous Wavelet Transforms at the Hollenbeck Graduate Student Seminar 2018 (U. of Delaware)

An Introduction to Graph Signal Processing at PRODAG Seminar 2017 (U. of Delaware)

Some Fun With Hypercubes at the Hollenbeck Graduate Student Seminar 2017 (U. of Delaware)

Constructing a Frame from a Continuous Wavelet Transform at the What's Hot in Mathematics Workshop 2016 (U. of Delaware)

Constructing a Discrete Frame from a Continuous Wavelet Transform at the Summer Research Symposium 2016 (U. of Delaware)

A (brief) Introduction to Frame Theory at the Summer Research Seminar 2016 (U. of Delaware)

CONFERENCE PARTICIPATION

January, 2020 – *Joint Mathematics Meeting* (Denver, CO) (Upcoming)

August, 2019 – *Finite Geometry and Extremal Combinatorics* (U. of Delaware) (Upcoming)

May, 2019 – *DelMar Numerics Day* (U. of Maryland, College Park) (Upcoming)

November, 2018 – *Mid-Atlantic Analysis Meeting* (Virginia Tech)

September, 2018 – *AMS Sectional Meeting* (U. of Delaware)

September, 2018 – *Northeast Analysis Network* (U. of Albany SUNY)

July, 2018 – *Algebraic and Extremal Graph Theory* (U. of Delaware)

May, 2018 – *DelMar Numerics Day* (U. of Delaware)

April, 2017 – *Workshop on Information-Theoretic Inequalities* (U. of Delaware)

April, 2017 – *Graduate Student Combinatorics Conference* (U. of Kansas–Lawrence)

DEPARTMENTAL SERVICE

2017 Organizer · Department Picnic

2012 Student Representative · North Arkansas College's Presidential Search Committee

2012 Student Representative for North Arkansas College's Strategic Planning Council

2011 New Student Orientation Leader · North Arkansas College

EXTRACURRICULAR UNIVERSITY SERVICE

2017-2018 Vice President · University of Delaware SIAM Student Chapter

2013-2014 Vice-President · University of Central Arkansas Mathematics Club

2013 Course Note Taking for Disability Services · University of Central Arkansas

2012 Technical Director · Drama Department at North Arkansas College

2011-2012 Editor · *Cave Region Review: A Journal of Literary and Visual Art*

2010-2012 Vice-Chair and Student Ambassador · North Arkansas College Green Team

COMMUNITY INVOLVEMENT

2019 Delaware Science Olympiad - Event Supervisor for Codebusters

2018 Delaware Science Olympiad - Volunteer and Organizer of Fermi Problems

2008-2012 Help-Portrait NWA - Volunteer photographer

2008-2012 North Arkansas Photography Club - Founding board member, workshop leader

2000-2009 Ozark Arts Council - Volunteer assisting in theatre productions
1998-2008 Academy of Self-Defense and Karate - Volunteer instructor for self-defense courses

AWARDS AND HONORS

2019 Unidel Research Fellowship (Spring and Summer)
2018 First Place—University of Delaware Winter Research Symposium Poster Competition
2016 GEMS Summer Research Fellowship
2014 O.L. Hughs Award
2012 Phi Theta Kappa and Coca-Cola New Century Scholar
2012 Graduating departmental honors in mathematics, speech, and theatre
2012 Student Speaker for graduating class, North Arkansas College
2012 All-USA Community College Academic Team
2011 Arkansas Academic All-Star Scholarship
2010 Second Effort Scholarship

PROFESSIONAL SKILLS

Operating Systems:	Windows and Linux (CentOS, Ubuntu)
Programming:	PHP, SQL, XHTML, CSS, Java, J2ME, C#, C++
Databases:	MySQL, PostgreSQL, SQL Server
Applications:	LaTeX, Mathematica, Maple, Sage, MS Visio
Services:	Apache HTTP Server, DNS, DHCP

PROFESSIONAL EXPERIENCE

Trianglehead Photography - Harrison, AR Owner/Operator	2007 to 2009
Konaware, Inc. - Harrison, AR & Fayetteville, AR Application Engineer, IT Systems Administrator	2005 to 2007
Advanced Computer Services - Harrison, AR Computer Programmer, IT Systems Administrator	2003 to 2005

PROFESSIONAL MEMBERSHIPS

American Mathematical Society (AMS)
Society for Industrial and Applied Mathematics (SIAM)
Association for Women in Mathematics (AWM)
Delaware Science Olympiad (DSO)