

Education

- University of GeorgiaAthens, Georgia, United States

• *Ph.D (Mathematics)*2013–present
  - Dissertation: Efficient algorithms for cluster extraction in graphs, using compressive sensing.
  - Advisor: Professor Ming-Jun Lai
- University of Cape TownCape Town, South Africa

• *M.Sc (Mathematics)*2012–2014
  - Thesis: On Uniformization of Compact Kähler Manifolds with Negative First Chern Class by Bounded Symmetric Domains.
  - Included a three month long research exchange to the University of Bayreuth in Germany
  - Supervisors: Dr. K. Hughes and Dr. R. Martin
  - Degree awarded with distinction.
- University of Cape TownCape Town, South Africa

• *B.Sc(hons) Applied Maths*2007–2010
  - Thesis: Convexity conditions in the direct methods in the calculus of variations
  - Supervisor: Dr F. Ebobisse
  - Obtained degree with distinction and distinctions in Mathematics and Applied Maths.
  - Dean’s Merit list every year

Awards, Grants & Honours

NRF Doctoral Scholarship for Study Abroad	2014–2016
DAAD short term research exchange to the University of Bayreuth	2013
DAAD-NRF joint masters bursary	2012
UCT Council Merit Scholarship	2010
NRF Honours Bursary	2010
Jakob Burlak Memorial Trust Scholarship	2009
Science Faculty Scholarship	2007,2008,2009

Talks and Presentations

- International Conference on Mathematics of Data Science, Norfolk VA, November 2018 (poster).
- AMS Central sectional, Ann Arbor MI, October 2018 (invited talk).
- SIAM Conference on Discrete Mathematics, Denver CO, June 2018 (contributed talk).
- 7th International Conference on Computational Harmonic Analysis, Nashville TN, May 2018 (contributed talk).

- **Meeting on Applied Algebraic Geometry**, Atlanta GA, April 2018 (poster).
- **Georgia Scientific Computing Symposium**, Atlanta GA, February 2018 (poster).

## Papers

- Semi-supervised cluster extraction via a compressive sensing approach, joint with Ming-Jun Lai (*submitted*, arXiv:1808.05780).
- On the neighborliness of dual flow polytopes of quivers, joint with Patricio Gallardo (*in preparation*).
- Semi-supervised path metrics for clustering data in Euclidean space, joint with Steven Damelin (*in preparation*).

## Teaching Experience

- **MATH1113: Precalculus**
  - Instructor of Record for eight sections of precalculus, Fall 2014–Spring 2018, at UGA.
  - Responsible for delivering lectures, writing tests, grading and assigning final grades.
- **MATH2250: Calculus 1**
  - Instructor of Record for two sections of calculus 1, Spring 2015 and Spring 2017, at UGA.
  - Responsible for delivering lectures, writing tests, grading and assigning final grades.
- **MATH1113E: online precalculus**
  - Head TA for fully online version of UGA’s precalculus course, Fall, Spring and Summer 2015.
  - Worked with a team of instructors, software developers and undergraduate TA’s.
  - Responsible for monitoring online discussion boards and answering content related questions, supervising two undergraduate TA’s and running biweekly online discussion sessions.
  - Software used includes Webassign and Blackboard Collaborate
- **TA/ Course Tutor for:**
  - MAM1000 (Integral and Differential Calculus), MAM2000 (Linear Algebra, Multivariate Calculus), MAM1043 (Introduction to Applied Maths) at UCT, 2009–2012.
  - MATH2200 (Differential Calculus) at UGA, Spring 2014.

## Mentoring and Outreach

- **SHAWCO**  
*Volunteer Training Coordinator*

Cape Town, South Africa  
*February 2011, June 2011*

- Part of a team that developed training material for new volunteers at SHAWCO, a large NGO affiliated with the University of Cape Town
- Coordinated training workshops and gave presentations on effective tutoring.

#### • SHAWCO

Cape Town, South Africa

*Deputy project leader - KenSMART project*

2012

- Deputy project leader for a project providing free tuition in Maths and Science in an underprivileged area of Cape Town
- In charge of developing curricula for Maths and Science for the tenth and eleventh Grade.
- Led tutorial sessions once a week.

#### • Directed Reading Program

University of Georgia

*Graduate Mentor*

Fall 2017

- Supervised an undergraduate student in a semester-long reading course on ‘Random Matrices in Compressive Sensing’

#### • UGA High School Math Camp

University of Georgia

*Graduate Student Helper*

Summer 2018

- Guided a group of five high and middle school students through a week-long project on ‘Monster Epidemiology’.
- Discussed the intuition behind differential equations, introductory scientific programming, finding reliable sources and scientific communication.

### Industry Experience

#### • The Wish Dish

Athens, GA

*Data Scientist*

January–August 2016

- Unpaid data scientist position at a local start-up developing an online story-sharing community.
- Analyzed their database of stories and clustered them based on dominant themes, using standard Natural Language Processing techniques.
- Implemented a proof-of-concept recommendation algorithm in Python, using Scikit-learn.

#### • ISS International

Stellenbosch, South Africa

*Student Research Assistant*

June–July 2009

- Winter internship at a seismic technologies company
- Worked on a novel algorithm for calculating s- and p- wave velocities through rock and developed an application in Python implementing this algorithm

### Other Qualifications

#### • deeplearning.ai

(via Coursera.org)

*Deep Learning Specialization*

June – September, 2018

- Five course specialization covering various network architectures and applications.

### Other Relevant Skills

- **Markup Languages:**  $\text{\LaTeX}$ , HTML
- **Programming Languages:** MATLAB, Python & Sage.
- **Deep Learning Frameworks:** Tensorflow, Keras, MATLAB Deep Learning Toolbox.