

## CONTACT INFORMATION

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## EDUCATION

**Texas A&M University**

August 2013 – August 2019 (expected)

*PhD in Mathematics*

**Advisors:** Volodymyr Nekrashevych & Zoran Šunić

**Texas A&M University**

August 2009 – May 2013

*Bachelor of Science in Applied Mathematics with minor in Statistics*

## RESEARCH INTERESTS

- Group Theory: self-similar groups, groups generated by automata, iterated monodromy groups, Burnside problem, growth, amenability
- Dynamical Systems: complex dynamics, Julia sets, groups defined by their action on a Cantor set or a rooted tree
- Graph Theory: Cayley graphs and orbital graphs

## ACADEMIC EMPLOYMENT

- *Graduate Teaching Assistant*, Texas A&M University Fall 2014 – present
- *Student Teacher/Grader*, Texas A&M University Spring 2013 – Spring 2014

## TEACHING EXPERIENCE

**Texas A&M University:**

- *Math Concepts in Calculus Instructor of Record* Fall 2016
  - prepared and gave three weekly lectures to a section of 41 students
  - wrote and graded weekly quizzes, three midterm exams, and a final exam
  - held weekly office hours
- *Engineering Math II Teaching Assistant* Spring 2018, Spring 2016, Spring 2015
  - led weekly recitations and MATLAB sessions for 100 students across 3 sections
  - wrote and graded weekly quizzes
  - held weekly office hours

- *Engineering Math I Teaching Assistant* Fall 2017, Fall 2014
  - led weekly recitations and MATLAB sessions for 100 students across 3 sections
  - wrote and graded weekly quizzes
  - held weekly office hours
- *Business Calculus I Help Sessions* Summer 2017, Summer 2016, Summer 2015
  - tutored undergraduate students on weekdays during specified hours
- *Engineering Math II Help Sessions* Summer 2018
  - tutored undergraduate students on weekdays during specified hours
- *Calculus Student Teacher* Spring 2014, Fall 2013
  - led weekly recitations
  - wrote and graded weekly quizzes

**Other:**

- *Personal Tutor* 2010 – 2015
  - helped high school students prepare for the math portion of the SAT and ACT
  - tutored undergraduate students in several math classes

**RESEARCH EXPERIENCE**

1. *Tree-like orbital graphs and periodic groups*, **Justin Cantu**, in preparation
2. *Twin Towers of Hanoi : diameters of small components*, **Justin Cantu** and Zoran Šunić, in preparation

**PRESENTATIONS**

- *Bounded automata groups and tile inflation*, December 2018  
Student Working Seminar in Groups and Dynamics, Texas A&M University
- *Tree-like orbital graphs and periodic groups*, November 2017  
Student Working Seminar in Groups and Dynamics, Texas A&M University
- *Cellular automata II*, February 2017  
Student Working Seminar in Groups and Dynamics, Texas A&M University
- *Cellular automata I*, December 2016  
Student Working Seminar in Groups and Dynamics, Texas A&M University
- *Twin Towers of Hanoi*, February 2016  
Student Working Seminar in Groups and Dynamics, Texas A&M University
- *Self-similar groups and Towers of Hanoi*, November 2015  
Student Working Seminar in Groups and Dynamics, Texas A&M University

## HONORS AND AWARDS

- **Outstanding TA Award** from the Texas A&M University Department of Mathematics, May 2016
  - annual award for high rankings in student TA evaluations
- **Thomas S. Gathright Scholar Award** from The Association of Former Students of Texas A&M University, Spring 2013
  - recognized as the outstanding scholar of the senior class of the College of Science for 2012–2013.
- **Koss/McGee/Hillman Endowed Scholarship in Mathematics** from Texas A&M University College of Science, Fall 2012 – Spring 2013
- **Mr. William Triche Endowed Scholarship in Science** from Texas A&M University College of Science, Fall 2012 – Spring 2013
- **HSF Scholarship** from Hispanic Scholarship Fund, 2012 – 2017
- **College of Science Outstanding Junior** from The Honor Society of Phi Kappa Phi, Spring 2011

## SERVICE & OUTREACH

- **Co-organizer**, Student Working Seminar in Groups and Dynamics, Texas A&M University, Spring 2017 – present
- **Peer Mentor**, Peer Mentor Program, Texas A&M University, Fall 2018, Spring 2019
  - met weekly with a third year PhD student to give research advice and answer any questions they had from their courses
- **Volunteer**, Physics and Engineering Festival, Texas A&M University, April 2018
  - helped staff the math booth and interacted with students, children, and parents through mathematical puzzles and games
- **Host**, Texas A&M Mathematics Graduate Student Visitor's Weekend, March 2018
- **Volunteer**, Texas A&M Mathematics Library, February 2018
  - helped set up, organize, and catalog the math library
- **Volunteer**, Texas Algebraic Geometry Symposium, Texas A&M University, April 2015
- **Volunteer**, Pi Day of the Century (3/14/15), Texas A&M University, March 2015

## CONFERENCES & WORKSHOPS ATTENDED

- *Workshop: Groups of Dynamical Origin II*, January 21–25, 2019, Institute of Mathematics, Mexico City, Mexico
- *Joint Mathematics Meetings 2019*, January 16–19, 2019, Baltimore, Maryland
- *Workshop on Analysis on Groups and Measured Group Theory*, September 1–3, 2018, University of Texas
- *Trees, Dynamics, and Locally Compact Groups*, June 25–29, 2018, Heinrich Heine University, Dusseldorf, Germany

- *Young Geometric Group Theory VII*, March 12–16, 2018, Les Diablerets, Switzerland
- *Ergodic Theory and Operator Algebras*, June 5–9, 2017, Texas A&M University
- *CombinaTexas*, May 7–8, 2016, Texas A&M University
- *Workshop in Analysis and Probability: Random Spatial Processes and Dynamics concentration week*, April 11–15, 2016, Texas A&M University
- *Geometric and Probabilistic Methods in Group Theory and Dynamical Systems*, November 9–12, 2015, Texas A&M University
- *Summer 2015 Workshop: Asymptotic Properties of Groups and Dynamical Systems*, August 26, 2015, Texas A&M University
- *Texas Algebraic Geometry Symposium*, April 10–12, 2015, Texas A&M University
- *Joint Mathematics Meetings 2015*, January 10–13, 2015, San Antonio, Texas
- *Groups, Groupoids, and Dynamics*, June 9–13, 2014, Texas A&M University
- *MathFest*, August 2–4, 2012, Madison, Wisconsin

## MISCELLANEOUS

### Languages

English - native

Spanish - good written and auditory comprehension; moderate speaking ability

### Computing

OS: Mac, Windows, Linux

Math: MATLAB, Mathematica, GAP, L<sup>A</sup>T<sub>E</sub>X

Education: eCampus, WebAssign, SMART Notebook

Basic knowledge of: C++, Java, R, Python, HTML