

# XIAOJING (CAELAN) WANG

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## SUMMARY OF KEY STRENGTHS

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- 9 years of teaching experience at undergraduate level
- Well-established mathematical background by earning a Doctorate in a field of combinatorics
- Unique work experience as an Educational Developer focused on graduate students
- Strong communication and facilitation skills as demonstrated from teaching and workshop evaluations
- Designed and maintained numerous workshops on teaching, diversity, and inclusivity

## EDUCATION

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### University of Waterloo

*Aug 2019*

Ph.D. of Mathematics, Combinatorics and Optimization

*Waterloo, ON*

**Dissertation:** Constructing Cospectral and Comatching Graphs

**Research Supervisor:** Dr. Chris Godsil

### University of Waterloo

*Aug 2015*

Master of Mathematics, Combinatorics and Optimization

*Waterloo, ON*

**Thesis:** Two-Slope Inequalities for the Master Equality Polyhedron (MEP) and Their Extensions

**Research Supervisor:** Dr. Ricardo Fukasawa

### Worcester Polytechnic Institute (WPI)

*May 2013*

Bachelor of Science with Distinction, Mathematical Sciences and Physics

*Worcester, MA*

**Major Qualifying Project:** Analysis for the Electrolyte Surface Pathway in Nanoparticles of Solid-Oxide Fuel Cells

**Research Supervisor:** Dr. Joseph Fehribach

## RELEVANT WORK EXPERIENCE

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### Lecturer

*Jan 2020 - Present*

*Department of Mathematics, University of Florida*

*Gainesville, FL*

- Responsible for threes sections of second-year students, with about 60 students in each section
- Utilizing the Flipped Classroom method to provide a more individualized learning experience and a more collaborate classroom environment
- Topics include limits, continuity, differentiation, integration, fundamental theorem of calculus

### Instructor, Applied Linear Algebra I and Calculus III

*Sep 2019 - Dec 2019*

*Faculty of Mathematics, University of Waterloo*

*Waterloo, ON*

- The sole instructor for both courses
- Experimented with Reflective Questionnaires as a way to obtain timely feedback on the teaching while building rapport with the learners
- Independently developed the material and the assessment for both courses
- Topics include system of linear equations, fundamental subspaces of a matrix, determinants, eigenvalues and eigenvectors; partial derivatives, double and triple integrals, vector calculus

**Instructor, Introduction to Combinatorics***Faculty of Mathematics, University of Waterloo**Sep 2018 - Dec 2018**Waterloo, ON*

- Responsible for one section of approximately 70 upper-year students
- Implemented a variety of teaching and learning activities that ensured open communication, such as reciprocal questioning, think-pair-share, and start-stop-continue
- Collaboratively developed the leadership and management structure of the teaching team, including 4 instructors and 16 TAs
- Topics include generating series, enumeration of binary strings, minimum spanning tree search, planar graphs, duality, and matchings

**Teaching Assistant***Faculty of Mathematics, University of Waterloo**Sep 2013 - Apr 2019**Waterloo, ON*

- Conducted tutorials, managing graders, marking, and holding officer hours
- Courses taught include the following.
  - *Math 239: Introduction to Combinatorics* (Fall 2017, Fall 2016, Spring 2016, Fall 2014, Spring 2014)
  - *CO 487: Applied Cryptography* (Winter 2019 (tentative), Winter 2017)
  - *CO 250: Introduction to Optimization* (Winter 2016)
  - *CO 380: Mathematical Invention and Discovery* (Spring 2018)
  - *MATH 674: Special Topics in Mathematical Connections - Cryptography* (Winter 2018)
  - *CO 342: Introduction to Graph Theory* (Spring 2017, Fall 2015, Spring 2015)
  - *MATH 136: Linear Algebra 1 for Honours Mathematics* (Winter 2015)
  - *CO 353: Computational Discrete Optimization* (Winter 2014)
  - *MATH 127: Calculus 1 for the Sciences* (Fall 2013)

**Graduate Educational Developer***Centre for Teaching Excellence, University of Waterloo**Jan 2018 - Aug 2018, Jan 2019 - Aug 2019**Waterloo, ON*

- Working with graduate students individually to develop self-aware, critically-reflective teachers with both theoretical knowledge and practical skills that contribute to success in an academic career
- Leading discussions about teaching and learning in small groups
- Providing detailed written feedback to upon observation of teaching
- Facilitating workshops on teaching skills such as lesson planning and teaching international students

**TA Workshop Facilitator***Centre for Teaching Excellence, University of Waterloo**Sep 2016 - Dec 2017, Sep 2019 - Dec 2019**Waterloo, ON*

- Facilitated workshops using active learning strategies to discuss various topics in teaching
- Developed and maintained the Centre's workshops, such as Building Rapport with Students, Game-based Learning, and Assessing and Improving Your Teaching
- Interviewed, evaluated, and trained new TA workshop facilitators

**Peer Learning Assistant***Department of Mathematical Sciences, Worcester Polytechnic Institute**Aug 2010 - Dec 2010, Aug 2011 - May 2013**Worcester, MA*

- Instructed conference sessions, advised student projects, held office hours, and graded assignments
- Courses taught include the following.
  - *MA 1024: Calculus IV (Multi-variable Calculus)* (Spring 2013, Fall 2012)

- MA 1022: *Calculus II* (Fall 2012)
- Math 2271: *Graph Theory*(Spring 2013)

## PROFESSIONAL PROJECTS

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### **Supporting Students' Mental Wellness**

*July 2018 - Sep 2018*

*Centre for Teaching Excellence, University of Waterloo*

*Waterloo, ON*

- Co-developed this workshop to educate instructors and TAs about students' mental wellness
- Introduced the Mental Health Continuum model
- Provided practical techniques for supporting students' mental wellness from an educator's perspective
- Advocated for self-care and peer support

### **Is What You See Really What You Get - Explore the Art of Anamorphosis**

*March 2018*

*National Museum of Mathematics (MoMath)*

*New York, NY*

- Invited to deliver a 90-minute evening program at MoMath for children and the general public
- Introduced the history and the formation of various types of anamorphosis
- Designed numerous interactive activities for the participants to create their own anamorphic art

### **Teaching International and Multilingual Students**

*Jan 2017 - May 2017*

*Certificate in University Teaching Research Project, University of Waterloo*

*Waterloo, ON*

- Presented the findings as an interactive workshop numerous times, with the most recent time being a invited speaker for Women in Math
- Identified the current challenges international and multilingual students face
- Developed teaching techniques to accommodate specific scenarios
- Created space for deeper discussion about how to help students with diverse backgrounds

## PUBLICATIONS AND PRESENTATIONS

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1. Xiaojing Wang and Karen Yeats. Limbs and cospectral vertices in trees. *In Preparation*, 2018+
2. X. Wang, G. Iannacchione, and J. Fehribach. Analysis for the electrolyte surface pathway in nanoparticles of solid-oxide fuel cells. *Canadian Applied Math Quarterly*, 21(3):449–464, 2013
3. Ricardo Fusakawa and Xiaojing Wang. The master equality polyhedron: Two-slope facets and separation algorithm. 2015
4. Xiaojing Wang. A nonlinear reaction-diffusion-conduction problem for solid oxide fuel cells (sofcs). Apr 2013

## PROFESSIONAL DEVELOPMENT

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### **Mathematics Teaching Seminar**

*Sep 2018 - Aug 2019*

*Faculty of Mathematics, University of Waterloo*

- Bi-weekly seminar on various topics about teaching math at a university level, including motivating students, assessment design, implementing interactive teaching methods, etc.
- Gave a talk on Supporting Student Mental Health

### **Mathematics Teaching Reading Group**

*Sep 2017 - August 2018*

*Faculty of Mathematics, University of Waterloo*

- Read publication about teaching university mathematics, such as how to teaching induction as a proof technique and common misconceptions in linear algebra

- Read and discussed the book "How to Teach Mathematics" by Krantz over a semester with instructors in the Faculty of Mathematics

**Teaching Square Faculty Development Program**  
*Centre for Teaching Excellence, University of Waterloo*

*Sep 2018 - Dec 2018*

- A peer evaluation group of 4 where participants visited each others lectures throughout the term and gave feedback on their teaching
- Most participants were early career tenure-track faculty members

**Instructional Skills Workshop**  
*Centre for Teaching Excellence, University of Waterloo*

*Oct 2018*

- An internationally recognized 3-day interactive workshop on instructor development and teaching enhancement

**Masters of Mathematics for Teachers Capstone Project Reviewer**  
*Centre for Education for Mathematics and Computing, University of Waterloo*

*May 2018 - July 2018*

- Reviewed and critiqued the capstone project, which are interactive math curriculum for high school students, for the students enrolled in the Masters of Mathematics for Teachers program

**Fryer and Hypatia Mathematics Contest Marker**  
*Centre for Education for Mathematics and Computing, University of Waterloo*

*Apr 2018*

- Marked the 9th Grade and 12th Grade math competitions conducted by the Centre for Education for Mathematics and Computing at University of Waterloo

**Student Leadership Certificate**  
*Student Success Office, University of Waterloo*

*May 2017 - Dec 2017*

- Enriched myself with practical leadership skills such as team management, conflict management, and working with diversity

**Certificate in University Teaching**  
*Centre for Teaching Excellence, University of Waterloo*

*Sep 2015 - Aug 2017*

- Advanced teaching and learning certificate program that included a research project on university teaching, teaching philosophy development, and teaching observations

**Fundamentals of University Teaching**  
*Centre for Teaching Excellence, University of Waterloo*

*Sep 2013 - Aug 2014*

- Provided hands-on professional development opportunities via a number of workshops focused on enhancing university teaching skills

**SELECTED LEADERSHIP & SERVICE**

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**Membership Officer**  
*Southwestern Ontario Mensa, Mensa Canada*

*Nov 2016 - Dec 2019*  
*Waterloo, ON*

- Organizing numerous educational and recreational events
- Maintaining a roster of current members
- Conducting annual membership surveys and analyzed the results

**Chair, Mathematics Graduate Student Association (Math GSA)**  
*Faculty of Mathematics, University of Waterloo*

*Oct 2017 - Apr 2019*  
*Waterloo, ON*

- Coordinating workshops and training on diversity, community building, and career development

- Organizing social and networking opportunities for 1000 graduate students in the Faculty of Math
- Managing and delegating tasks to graduate students serving on the Math GSA board
- Serving as the liaison between the Faculty of Mathematics and its graduate students

**Student Wellbeing Committee**

*Oct 2018 - Apr 2019*

*Faculty of Mathematics, University of Waterloo*

*Waterloo, ON*

- Initiating and maintaining discussions and events to promote student wellbeing in the Faculty

**Math Faculty Strategic Plan Implementation Working Group**

*Sep 2018 - Apr 2019*

*Faculty of Mathematics, University of Waterloo*

*Waterloo, ON*

- Developing and implementing plans to connect the students, faculty, and staff members, in order to form a more diverse and accepting community

**Organizer and Facilitator, Fall Orientation TA Training**

*Sep 2017, Sep 2018*

*Faculty of Mathematics, University of Waterloo*

*Waterloo, ON*

- Initiated and proposed the training to the Math Graduate Office
- Designed and delivered a 60-minute workshop on marking, teaching tutorials, and holding office hours
- Shared personalized teaching tips as an invited panelist

**Amit & Meena Chakma Award Selection Committee**

*Sep 2016 - Aug 2018*

*Centre for Teaching Excellence, University of Waterloo*

*Waterloo, ON*

- Reviewed nominations packages for the award for exceptional teaching by a student
- Actively participated in discussions of the committee to provide insights in selecting the award recipients

**Proposal Reviewer**

*Feb 2018 - Apr 2018*

*University of Waterloo Teaching and Learning Conference, University of Waterloo*

*Waterloo, ON*

- Reviewed session proposals submitted to the conference
- Provided constructive feedback to better prepare the speakers for the conference

**Facilitator, Math Teaching Seminar**

*Jan 2018 - Apr 2018*

*Faculty of Mathematics, University of Waterloo*

*Waterloo, ON*

- Actively provided insights in discussions about teaching and learning in math undergraduate courses
- Facilitated microteachings and provided positive and constructive feedback to participants
- Observed teaching practicums and organized individual debrief to provide personalized feedback

**International Peer Mentor**

*Sep 2014 - Dec 2014*

*Student Success Office, University of Waterloo*

*Waterloo, ON*

- Guided incoming international students to get familiarized with the campus and university life
- Organized numerous of social and cultural events to connect new international students with the campus community

**President**

*Apr 2012 - May 2013*

*SIAM Student Chapter, Worcester Polytechnic Institute*

*Worcester, MA*

- Organized educational and professional development events such as a graduate school panel, a series of L<sup>A</sup>T<sub>E</sub>X workshops, talks by invited external speakers, and a trip to an AMS sectional conference

**Founder and Interim Secretary**

*Dec 2011 - May 2013*

*WPI Circle, Omicron Delta Kappa National Leadership Society*

*Worcester, MA*

- Founded a chapter (circle) of the organization to recognize the thriving student leaders on campus and to foster active discussions about leadership

**Founder and Vice President**

*Alpha Lambda Chapter, Theta Nu Xi Multicultural Sorority Inc.*

*Dec 2010 - Feb 2012*

*Worcester, MA*

- Encouraged cultural exchange, raised awareness of under-represented groups, and served on multiple leadership roles through various workshops, social events, and philanthropic events

**Leadership Development Committee**

*Student Activities Office, Worcester Polytechnic Institute*

*Aug 2011 - May 2013*

*Worcester, MA*

- Facilitated and maintained workshops to enhance students' leadership skills

**AWARDS**

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**Amit & Meena Chakma Award for Exceptional Teaching as a Student**

*University of Waterloo*

*Mar 2019*

*\$1000*

- Awarded annually to up to 4 undergraduate/graduate students at University of Waterloo in recognition of excellence in teaching

**Outstanding Teaching Assistant Award**

*University of Waterloo*

*Aug 2015*

**Sinclair Graduate Scholarship**

*University of Waterloo*

*Jan 2017, Sep 2014*

*\$2,500*

**William Tutte Postgraduate Scholarship**

*University of Waterloo*

*May 2015, Sep 2014*

*\$1,000*

**Provost Master's Entrance Award for Women**

*University of Waterloo*

*Sep 2013*

*\$5,000*

**Provost's Major Qualifying Project Award**

*Worcester Polytechnic Institute*

*Apr 2013*