Acadia Larsen

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Education

Ph.D in Applied Mathematics, University of California, Davis, 2020- 2025 (Expected).
M.Sc. in Mathematics, The University of Texas Rio Grande Valley, December 2018.
Dean's Graduate Research Assistant
Thesis: *Partition Identities for Partitions with Parts from a Finite Set*.

B.A. in Mathematics, Minor in Economics, Whittier College, *cum laude*, May 2014.

Budapest Semesters Abroad in Mathematics, Spring 2013.

Full Employment History

University of Texas: Rio Grande Valley Part-Time Lecturer, August 2019- August 2020
Course Hero, Item Writer (contract), June 2019 - March 2020
I author high quality supplemental textbook resources for popular collegiate mathematics textbooks in a collaborative environment. Additional duties include scripting explanatory graphs in JSX graph environment, accurately recording key notations in the text, and providing clear and concise explanations that help students succeed.

The University of Texas: Rio Grande Valley, Graduate Assistant, September 2017 - December 2018.
My duties were to assist Dr. Kronholm in research projects, grade papers from an introduction to proofs class, and serve as a Graduate Teaching Assistant teaching one section of College Algebra with 39 students.

Exl Learning, Tutor and Summer Camp Instructor, February 2017- August 2017.
I effectively tutored 5th to 12th grade students in core mathematics skills, algebra, grade level material, college admission test perpetration, and calculus for Denver's premiere tutoring center. My students expended growth and increased test scores in every instance. Additionally, I lead a variety of summer camps in which 3rd though 8th graders learned about puzzles, engineering, and fiction. Parents reported that their students gave high praise for the instruction and activities in these summer camps.

Royal Crest Dairy, Route Driver, August 2016 - December 2016.
I delivered fresh milk products to 150+ homes in the greater Denver Metro area meeting delivery deadlines and ensuring customer satisfaction. During the month of November, I was awarded Driver of the Month for high customer satisfaction and accurate deliveries.

Denver Math Fellow (Americorps), Lead Fellow, August 2014 - August 2016.
I effectively tutored, taught, and mentored small groups (1 - 5 students) of 9th grade students in math for Algebra 1, Geometry, Algebra 2, and foundational topics at Denver Center for International Studies at Montbello, an under served school in Denver Public Schools school district. Furthermore, I worked in a team environment to develop individualized objective oriented lesson plans for small group instruction. After my first year, I became a Lead Fellow which provided an approximate 10% salary increase and am supported by an Americorps grant.

Whittier College Math Department, Grader, September 2010-December 2011, September 2012-December 2012, September 2013-May 2014.
A work study position where I quickly and accurately graded homework for courses including Calculus and Analytic Geometry I & III, College Mathematics, and Introduction to Linear Algebra and Differential Equations.

Whittier College Information Technology Services, Student Computer Technician, September 2010-December 2012, September 2013-May 2014.

Successfully repaired hardware and software issues with student and faculty laptop and desktop computers in both Windows and Mac environments. Additionally, I performed accurate installation and repair of network printers for various facilities around campus. Additional duties included courteously answering faculty and student questions as well as professional delivery of classroom technology.

Target Pleasant Hill, Remodel Team Member, June 2011- August 2011.
As a temporary remodel employee, I accurately set up new shelving and store plans in a team environment. Furthermore, I assisted customers find items in the store are well as preformed cash register duties when needed.

Grants and Awards

Japan Society for Promotion of Science , (2018), a ¥538000 ($5300) award to conduct research on algorithms and voting games in Japan.

SMART Award, (2018), a $2000 award for the semester to lead three undergraduate students in mathematical research via the Student Mentoring and Research Training program at UTRGV.

Dean's Graduate Research Assistant at UTRGV, (2017-2018), a $15000 research stipend and 2 years of tuition wavers at UTRGV.

Pyle Prize for outstanding graduate in mathematics, (2014), an award recognizing one outstanding graduate in mathematics at Whittier College.

Mellon Mays Undergraduate Fellowship, (2012-2014) A $10,000 award to conduct research as an underrepresented undergraduate.

Research Interest and Experience

I am interested in enumerative combinatorics, partition theory, number theory, combinatorial optimization, applications of computer aided proofs, algorithm design, and education.

Oregon State University: Research Experience for Undergraduates, June 2013-August 2013.
I studied overpartitions with Dr. Holly Swisher. I made key advances on a conjecture of Mao regarding inequalities of rank and crank moments of overpartitions. This work lead to an academic paper published in the International Journal of Number Theory.

California State University: Channel Islands Research Experience for Undergraduates, June 2012 - August 2012.
I studied representations of Young tableaux with Dr. Heather Russel. With Dr. Russel and other students, I created a program to quickly diagram SL_n webs creating a valuable tool in our research. Additionally, we made progress in finding an irreducible basis for SL_4 webs.

Technical Skills

Programming Languages: I am proficient programming in C++ and Python. I have a rudimentary understanding of SQL.

Computer Algebra Systems/Specialty Packages: I am experienced in AMPLE, Maple, Mathematica, and Sage.

Algorithm Design: I have experience designing mathematically sound and efficient algorithm for discrete problems including optimization problems.

Office Software: I am proficient in Microsoft Office Suite and LaTeX.

Publications

• *Cranks for partitions with bounded largest part.* With Brandt Kronholm and Dennis Eichhorn, Submitted. • *A Generalization of Partition Identities for First Differences of Partitions of n into at Most m Parts.* Electronic Journal of Combinatorics, July 2021.

• *Quasipolynomials and Maximal Coefficients of Gaussian Polynomials.* with Angelica Castillo, Stephanie Flores, Anabel Hernandez, Brandt Kronholm, and Arturo Martinez. Annals of Combinatorics, November 2019.

• *A Survey of Divisibility Proprieties of the Partition Function and Related Functions.* The Mellon Mays Undergraduate Fellowship Journal, February 2015.

• *Inequalities For Positive Rank and Crank Moments of Overpartitions* with Alexa Rust and Holly Swisher. International Journal of Number Theory, December 2014.

• *Symmetry and Prime Divisibility Properties of the Generating Function for Partitions of n into Exactly m Parts* with Brandt Kronholm. Annals of Combinatorics, March 2014.

Conference Presentations

South Texas Discrete Geometry and Algebraic Combinatorics Conference, South Padre Island, '' . September 28, 2019.

Joint Mathematics Meetings 2018, Baltimore, 'A Generalization of First Difference Identities for Partitions of n Into at Most m Parts' (invited talk) - Special Secession on Partitions, January 16-20 2019.

Graduate Student Combinatorics Conference, University of Texas at Dallas, 'First Difference Identities for Partitions of n Into at Most m Parts' (talk), April 7, 2018.

Pacific Coast Undergraduate Mathematics Conference, Pepperdine University, 'Inequalities for Rank and Crank Moments of Overpartitions' (talk), March 8, 2014.

Joint Mathematics Meetings 2014, Baltimore, 'Inequalities for Rank and Crank Moments of Overpartitions' (poster), January 15-18, 2014.

Southern California Undergraduate Research Conference, 'Ramanujan-like Restricted Integer Partitions Sums' (talk), Whittier College, November 23, 2013.

Mellon Mays Undergraduate Fellowship West Coast Conference, 'Ramanujan-like Restricted Integer Partitions Sums', University of California: Berkeley, October 31- November 3, 2013.

Southern California Undergraduate Research Conference, 'Ramanujan-like Restricted Integer Partitions Sums' (talk), University of California: Channel Islands, November 17, 2012.

Ramanujan 125, University of Florida, Attended, November 5-7, 2012.

Ivy STEM+ Symposium, University of Pennsylvania, , 'Ramanujan-like Restricted Integer Partitions Sums' (poster), October 4-6, 2012.

Activities

Secret Student Seminar (University of Texas: Rio Grande Valley), Organizer, Spring 2018.

Mathematics Club (Whittier College), Member 2010-Spring 2012, Treasurer, Fall 2012-Spring 2012, President, Fall 2013-Spring 2014.

Pi Mu Epsilon Whittier College Chapter, Member Spring 2012-Spring 2013, President Fall 2013-Spring 2014.

References

Dr. Timothy Huber

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Dr. Brandt Kronholm

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Karmen Smith

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Jamie Spears

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