

Victoria Kala

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EDUCATION

University of California, Los Angeles Ph.D. Mathematics Advisor: Joseph Teran	Los Angeles, CA Expected: June 2022
University of California, Santa Barbara M.A. Applied Mathematics	Santa Barbara, CA June 2017
Utah Valley University B.S. Mathematics, <i>cum laude</i> B.S. Physics, <i>cum laude</i>	Orem, UT May 2014

RESEARCH INTERESTS

My research interests include physics-based simulations, material point methods, continuum mechanics, elasticity, plasticity, computer graphics, computational and applied mathematics.

RESEARCH EXPERIENCE

University of California, Los Angeles <i>Graduate Student Research</i>	Los Angeles, CA Apr 2019 – Present
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I collaborated with several team members to develop and manage a codebase for physics-based simulations involving material point methods, finite element methods, and hybrid Lagrangian material point methods using C++ and multithreading. I developed experience with constitutive models such as elasticity and plasticity.

University of Michigan, Ann Arbor Institut d'Optique Graduate School <i>Optics in the City of Light International REU</i> <i>Simulation and Optimization of Multilayer Mirrors</i>	Ann Arbor, MI Palaiseau, France Jun 2013 – Aug 2013
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I performed simulation and optimization of period and aperiodic multilayer mirrors using MATLAB and IMD. I also assisted with multilayer mirror deposition in a clean room.

California State University, Fresno <i>CSU Fresno Mathematics REU</i> <i>A Survival Analysis of the Duration of Olympic Records</i>	Fresno, CA Jun 2012 – Jul 2012
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I performed statistical analysis on Olympic data to determine the duration of Olympic records. My research group also made predictions on which Olympic records were at risk of being broken for the 2012 Olympics. Programming languages SAS and R were used to perform the analysis and predictions.

Utah Valley University
Astrophysics Research Project
Calibrating the IR Surface Brightness Fluctuation Distance Scale Using HST WFC3

Orem, UT
May 2012 – Jun 2012

I performed image processing techniques and data analysis on several galaxy images taken by Hubble Telescope WFC3/IR. These techniques were used to calculate surface brightness fluctuation magnitudes and determine distances to galaxies.

TEACHING EXPERIENCE

University of California, Los Angeles
Graduate Teaching Assistant

Los Angeles, CA
Jun 2018 – Present

I hold weekly discussion sections and office hours, tutor in the Student Math Center, and grade homework and exams. I have been a teaching assistant for Precalculus, Integral Calculus, Vector Calculus, Linear Algebra, Differential Equations, and Applied Numerical Methods.

University of California, Santa Barbara
Graduate Teaching Assistant

Santa Barbara, CA
Sep 2014 – Jul 2017

I held weekly discussion sections and office hours, tutored in the Math Lab, and graded homework and exams. I was a teaching assistant for Integral Calculus, Vector Calculus, Linear Algebra, Differential Equations, Methods of Analysis, and Introduction to Numerical Analysis. I received the Graduate Student Association's campus-wide Excellence in Teaching Award for the 2015–2016 school year.

Utah Valley University
Teaching Assistant

Orem, UT
Aug 2013 – May 2014

I taught workshops and graded exams for a College Algebra course with 400 students.

Utah Valley University
Grader

Orem, UT
Oct 2012 – May 2014

I graded for several lower and upper division mathematics courses, including College Algebra, Trigonometry, Single- and Multi-variable Calculus, Linear Algebra, Ordinary Differential Equations, and Foundations of Abstract Algebra.

Utah Valley University
Tutor

Orem, UT
Sep 2007 – Oct 2012

I tutored lower and upper division mathematics and physics courses at the Math Lab, Academic Tutoring Lab, and Multicultural Center. I am a certified Level III Master Tutor through the College Reading & Learning Association.

PUBLICATIONS

Kala, Victoria, Katherine Guo, Elizabeth Swantek, Alan Tong, Monique Chyba, Yuriy Mileyko, Chris Gray, Thomas Lee, and Alice Koniges. “Pandemics in Hawai’i: 1918 Influenza and COVID-19.” IARIA, 2020, 26-31.

Hollifield, Elliott, **Victoria Treviño**, and Adam Zarn. “A Survival Analysis of the Duration of Olympic Records.” arXiv preprint arXiv:1207.6133 (2012).

French, Brigham S., Joseph B. Jensen, John P. Blakeslee, Nathan Boyer, and **Victoria Treviño**. “Calibrating the IR Surface Brightness Fluctuation Distance Scale Using HST WFC3.” AAS 220 (2012): 332-02.

SKILLS

- **Mathematics:** solid background in applied and computational mathematics, including numerical analysis, numerical linear algebra, ordinary and partial differential equations
- **Programming:** C++, Python, MATLAB, Mathematica, Maple, L^AT_EX, Houdini, Git, CMake, vim, Eigen, TBB, GDB, Valgrind

SELECTED AWARDS AND HONORS

- Eugene V. Cota-Robles Fellowship, UCLA, 2020–2021
- Graduate Student Research Fellowship, UCLA, 2020
- Eugene V. Cota-Robles Fellowship, UCLA, 2017–2018
- Excellence in Teaching Award, UCSB, 2016
- Outstanding Teaching Assistant Award Nominee, UCSB, 2014
- Tutor of the Year, UVU, 2012
- Astrophysics Research Scholarship, UVU, 2012
- Exemplary Merit Scholarship, UVU, 2009–2014

PROGRAM PARTICIPATION

University of Nebraska, Lincoln
Nebraska IMMERSE

Lincoln, NE
Jun 2014 – July 2014

IMMERSE (Intensive Mathematics: a Mentoring, Education and Research Summer Experience) is a preparation program for students who are about to enter their first year of graduate study in mathematics.

Institute of Advanced Study
IAS Women and Mathematics Program
Topic: Random Matrix Theory

Princeton, NJ
May 2014

The Women and Mathematics program is an annual program with a mission to recruit and retain more women in mathematics.

SERVICE AND LEADERSHIP

University of California, Los Angeles
Women in Mathematics

Los Angeles, CA
Sep 2017 – present

University of California, Santa Barbara
Graduate Student Association Excellence in Teaching Award Committee

Santa Barbara, CA
Apr 2017

Utah Valley University
Math Girls Rock!

Orem, UT
Aug 2011 – May 2012

SELECTED PRESENTATIONS

- École Polytechnique, “Simulation and Optimization of Multilayer Mirrors,” Palaiseau, France, July 2013
- Joint Mathematics Meeting, “A Survival Analysis of the Duration of Olympic Records,” San Diego, CA, January 2013