

# Benjamin Makoto Godkin

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## EDUCATION

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**Ph.D. Applied Mathematics** Anticipated December 2025  
University of California, Davis, CA

**M.S. Applied Mathematics** June 2021  
University of California, Davis, CA

**M.S. Mathematics** May 2019  
San José State University, San José, CA

**B.S. Applied Mathematics with a Specialization in Computing** June 2015  
University of California, Los Angeles, CA

## RESEARCH INTERESTS

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Numerical analysis, partial differential equations, solid mechanics, fracture mechanics, shock wave theory, continuum modeling, applied mathematics

## RESEARCH EXPERIENCE

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**PhD Dissertation**, University of California, Davis Fall 2022 - Present  
Advisor: Dr. Joseph Teran

- Researched and implemented the finite element method and virtual element method for 2D and 3D elasticity, linear elastic fracture mechanics simulations; incorporated fracture mechanics solver within a rigid body simulation environment

**Master's Thesis**, San José State University August 2018 - May 2019  
Advisor: Dr. Daniel Brinkman

- Researched and implemented the continuous and discontinuous Galerkin finite element method for Burgers' equation in 2 space variables.

## TEACHING EXPERIENCE

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**Teaching Assistant** Fall 2019 – Present  
University of California, Davis, Dept. Math.

- Lead discussion sections, hold office hours, and grade exams for calculus courses taken by future life and physical scientists
- Hold office hours and grade homework and exams for upper division and graduate Numerical Analysis courses

**Graduate Student Researcher** Fall 2024  
University of California, Davis, Dept. Math.

- Researched and implemented elasticity and fracture mechanics solver

**Associate Instructor** Summer 2020-Present  
University of California, Davis, Dept. Math.

- Instructor of record for courses in linear algebra, differential equations, and numerical analysis

**Teaching Associate** Spring 2018 – Spring 2019  
San José State University, Dept. Math. & Stat.

- Lead differential equations TA for two large lecture and held office hours, moderated Piazza forum, and graded exams

- Calculus I workshop facilitator for biweekly workshop to effectively communicate and break down course content
- TA for honors multivariable calculus and led two biweekly lab sections in which lecture content reviewed and challenge problems presented

**SASE White House STEM Initiative**

February 28, 2015

University of California, Los Angeles, Society of Asian Scientists and Engineers (SASE)

- Taught a workshop on the mathematics behind cryptography to local high school students

**INDUSTRY EXPERIENCE**

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**Legal Data Science Associate**, Ravel Law, San Francisco, CA

October 2015 - January 2018

- Annotated, audited, and curated data pertinent to the legal field for use in machine learning and natural language processing algorithms which increased the depth and breadth of the company’s training data
- Created a comprehensive list of federal, state, and local judges which streamlined data collection and validated data analysis of judges

**Data Annotator**, Drive.ai, Santa Clara, CA

September 2015

- Annotated data collected by vehicles for use in the larger machine learning framework and reviewed the work of peers to ensure quality of labeled data which resulted in an initial machine vision model

**SKILLS**

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- C++, MATLAB, python, LaTeX, Linux, SQL, Java, Git

**Talks**

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- 18<sup>th</sup> US National Congress on Computational Mechanics, Novel Computational Methods / Algorithms, July 2025

**AWARDS**

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- GGAM Spring Travel Award, UC Davis Graduate Group in Applied Mathematics Spring 2025
- TETRAPODS Summer GSRship, UC Davis TETRAPODS Institute of Data Science Summer 2023
- Teaching Development Grant, San José State Univ. Dept. of Math. & Stat. Spring 2019
- Outstanding Graduate Student Scholarship, San José State Univ. Dept. of Math. & Stat. Fall 2018

**SERVICE**

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**UCD Directed Reading Programming**

Fall 2020 – Fall 2024

- Mentor and advise undergraduate students in extracurricular readings with culminating posters and presentations