Sebastian N. Griego

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Research Interests

LLM-assisted theorem proving in Lean 4, Auto(in)formalization, Mathematical modeling of biological systems, numerical analysis for differential equations, ML for theorem proving, LLM reasoning evaluation.

Education

San Diego State University — Expected May 2026
M.S. in Applied Mathematics — HSF Scholar — *San Diego, CA*

Pepperdine University — May 2024
B.S. in Mathematics; Minors: Data Science & Classics — Regent's Scholar — *Malibu, CA*

Research Experience

Disease Modeling Lab, San Diego State University — Aug 2024 – Present
Research Assistant — *San Diego, CA*

- Built physics-informed neural networks (PINNs) for HIV viral dynamics; implemented coupled ODE solvers and ablation studies with biologically constrained training.
- Collaborated with mathematics/biology team on model selection, error analysis, and validation; documented methods for internal reports.
- Work summarized in a poster at the 14th Annual Southern California Systems Biology Symposium (UCR), May 10, 2025.

Applied / Industry

Handshake MOVE Fellowship — May 2025 – Present
Data Labeling — Mathematical Expert — *Remote*

- Designed and evaluated domain-specific prompts spanning research-level math and olympiad problems (IMO, Putnam, HMMT) to probe LLM reasoning depth and robustness.
- Reviewed model outputs for mathematical correctness and clarity; authored expert feedback across multiple projects.

Scale AI — Mar 2024 – Present
Data Labeling — Mathematica — *Remote*

- Performed data labeling for graduate-level math

Teaching

San Diego State University — Aug 2024 – Present
Teaching Assistant — *San Diego, CA*

- Led supplemental labs for Precalculus and Calculus I–III; created practice sets and held weekly office hours for 100+ students across sections.

Euler Circle — Jan 2025 – Present
Teaching Assistant (Online) — *Mountain View, CA*

- Supported Abstract Algebra, Real Analysis, and Mathematical Thinking courses; graded proof-based assignments and provided structured feedback.

Stanford University Mathematics Camp (SUMaC) — Summers 2024, 2025
Resident Counselor / Co-instructor — *Stanford, CA*

- Co-instructed Abstract Algebra and Number Theory modules; mentored students in advanced problem-solving.

Pepperdine University — Aug 2021 – Apr 2024
Teaching Assistant & Grader — *Malibu, CA*

- Graded upper-division mathematics courses

Presentations (Posters)

- **Griego, S.N.** *Mathematical modeling and machine learning to predict the dynamics of HIV latently infected cells under antiretroviral therapy.* Poster, *14th Annual Southern California Systems Biology Symposium (SoCal SysBio 2025)*, University of California, Riverside, Riverside, CA, May 10, 2025. Event page

Open-Source Software

- **BetterFFTW** — High-performance wrapper around `pyFFTW`; drop-in NumPy/SciPy FFT replacement. GitHub
- **PyContinuum** — Numerical homotopy continuation for polynomial systems. GitHub
- **Mazewright** — Maze generation/manipulation toolkit. GitHub

Honors & Awards

HSF Scholar 2024–2026
Regent's Scholar (Pepperdine) 2020–2024

Professional Memberships

Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS), Member
Society of Hispanic Professional Engineers (SHPE), Member
Hispanic Scholarship Fund, Scholar

Professional Development & Workshops

- **Practicum for Undergraduate Mathematicians in Combinatorics**, IPAM (UCLA) Apr 13–14, 2024
  Two-day intensive on combinatorics (tutorials and problem-solving). Event page
- **PUNDiT: Practicum for Undergraduates in Number Theory**, IPAM (UCLA) Oct 21–22, 2023
  Two-day introductory program with tutorials and guided problem sessions in number theory. Event page

Technical Skills

Programming: Python , R, Lean 4 (theorem prover)
ML: PINNs, Neural Networks, Deep Learning, RLHF, Evaluation
Tools: Git, LaTeX, Jupyter, Excel

Languages

English: Native/Fluent
Spanish: Intermediate
Mandarin Chinese: Beginner (Learning)