Daniel Flores

PhD Student · Purdue University

Department of Mathematics, Purdue University, 150 N. University Street, West Lafayette, IN 47907-2067, USA

✉ flore205@purdue.edu | ⌂ https://danielfloresmath.github.io/

Education

Purdue University   *West Lafayette, Indiana*

PhD, Mathematics: Analytic Number Theory.   *2019 - present*

- **Advisor**: Dr. Trevor Wooley
- Expected completion date: Spring 2025

University of Houston   *Houston, Texas*

BS, Mathematics   *2016 - 2019*

- **Undergraduate Advisor**: Dr. Alan Haynes
- Graduated Summa Cum Laude

Lone Star College   *Houston, Texas*

AS   *2013 - 2016*

Papers

D. Flores, *A quantitative Hasse principle for weighted quartic forms*, Mathematika. 70 (2024), no. 1, Paper No. e12236, 24pp. https://doi.org/10.1112/mtk.12236

D. Flores, *A circle method approach to K-multimagic squares*, 2024, https://arxiv.org/abs/2406.08161

D. Flores, *Bounds for the binary quartic Weyl sum*, in progress (2024+).

Presentations

Invited Talks

Fall 2024. *A circle method approach to K-multimagic squares*, Number Theory Seminar, Rice University.

Fall 2024. *A circle method approach to K-multimagic squares*, Number Theory Seminar, University of Göttingen.

Spring 2024. *A quantitative Hasse principle for Weighted Quartic forms*, AMS Central Sectional meeting, University of Wisconsin-Milwaukee.

Fall 2023. *A Gentle Introduction to the Circle Method*, Purdue Graduate Student Analysis Seminar, Purdue University.

Fall 2018. *Classification of noisy images with a coupled inversion-classification neural network*. LA-TX Undergraduate Mathematics Conference, LSU.

Submitted Talks

Summer 2024. *A circle method approach to K-multimagic squares*. Canadian Number Theory Association XVI, University of Toronto.

Spring 2024. *A circle method approach to K-multimagic squares*. Combinatorial and Additive Number Theory 2024, CUNY.

Spring 2024. *A quantitative Hasse principle for Weighted Quartic forms*. Southern Regional Number Theory Conference, LSU.

Spring 2024. *A quantitative Hasse principle for Weighted Quartic forms*. Pittsburgh Links among Analysis and Number Theory, University of Pittsburgh and Carnegie Mellon University.

Conferences Attended

2024   **Number Theory in the Americas 2**, workshop on number theory, Casa Matemática Oaxaca.

2024   **CNTA XVI**, Canadian Number Theory Association XVI, University of Toronto.

2024   **CANT 2024**, Combinatorial and Additive Number Theory, CUNY.

2024   **Southern Regional Number Theory Conference**, Conference on number theory, LSU.

2024   **PLANTS**, Pittsburgh Links among Analysis and Number Theory, University of Pittsburgh and Carnegie Mellon University.

2023   **MAGNTS**, Midwest Arithmetic Geometry and Number Theory Series, University of Michigan.

2023   **RHB70**, Conference on analytic number theory and its interfaces to honour the 70th birthday of Roger Heath-Brown, University of Oxford.

2022   **Journées Arithmétiques**, Conference on number theory, University of Lorraine.

2022   **MAGNTS**, Midwest Arithmetic Geometry and Number Theory Series, University of Illinois Chicago.

2022   **ELAZ 2022**, Conference on elementary and analytic number theory, Adam Mickiewicz University.

2018   **UH Summer School on Dynamical Systems**, a workshop designed to introduce graduate students to the basics of dynamical systems and ergodic theory.

Seminars attended

2019-present   **Purdue Analytic Number theory and Harmonic Analysis**, weekly talks about recent research topics in analytic number theory and harmonic analysis.

2017   **Deep learning using Tensorflow**, weekly talks covering the basics of deep learning to convolutional neural networks, and an introduction to the deep learning package, Tensorflow.

2016-2019   **University of Houston Undergraduate Mathematics Colloquium**, weekly talks about topics in research mathematics aimed towards an undergraduate audience .

2016-2019   **University of Houston Analysis Seminar**, weekly talks about recent research topics in analysis.

Teaching Experience

2022-Present
Grader, Mathematics., Purdue University
- MA 55300 - Introduction To Abstract Algebra Grader assignment, Fall 2022.
- MA 55700 - Abstract Algebra I Grader assignment, Fall 2022.
- MA 34100 - Foundations of Analysis Grader dual assignment, Fall 2023.

2019-Present
Recitation Instructor, Mathematics., Purdue University
- MA 16600 - Analytic Geometry And Calculus II TA assignment, Fall 2019.
- MA 26100 - Multivariate Calculus TA assignment, Fall 2020.

2018-2019
Undergraduate Grader, University of Houston
- MATH 3331 - Ordinary Differential Equations, Fall 2018.
- MATH 4366 - Numerical Linear Algebra, Spring 2019.

2013-2019   **Mathematics Tutor,** Lone Star College

Undergraduate Research Experience

2019	**Provost Undergraduate Researcher,** University of Houston • Supervised by Alan Haynes
2018	**Undergraduate Researcher,** Emory University • Supervised by Lars Ruthotto • Funded by NSF, DMS-1751636

Awards, Fellowships, & Grants

2024-2025	**Ross-Lynn Research Scholar Grant,** Purdue University
2019-2023	**Ross Fellowship,** Purdue University
2019	**Charles P. Benner Scholarship,** University of Houston
2018-2019	**Provost's Undergraduate Research Scholarship,** University of Houston
2017	**Charles P. Benner Scholarship,** University of Houston

Outreach & Mentorship

Fall 2022	**Purdue Mathematics Graduate Representative**, Host various social gatherings thought the year, and serve as a representative of the mathematics graduate students to voice suggestions and complaints directly to math department.	*Purdue University*
Fall 2022	**Purdue Mathematics Mentoring Program**, Graduate Mentor to undergraduate mathematics students	*Purdue University*
Summer 2022	**Summer Research Opportunities Program**, Graduate Mentor to incoming graduate students	*Purdue University*
2017-2019	**Pi Mu Epsilon**, Meeting Organizer	*University of Houston*
2014-2016	**Mathematics Club**, Pi Day Organizer	*Lone Star College*

Languages

Spoken: English (native), Spanish (native). **Code**: C#, C++, Matlab, Python 3, LaTeX.