

# Daniel Flores

PHD STUDENT · PURDUE UNIVERSITY

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

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## Education

### Purdue University

West Lafayette, Indiana

PHD, MATHEMATICS

2019 - present

- **Advisor:** Dr. Trevor Wooley

### 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

[1] D. Flores, "Quantitative Hasse Principle for a Certain Family of Weighted Quartic Forms," submitted

## Past Research Projects

### University of Houston

Houston, Texas

DR. ALAN HAYNES

2018-2019

Combinatorial Optimization with Reinforcement Learning

Description: We phrased the problem of computing Ramsey numbers as an adversarial game, which allowed the use of reinforcement learning to potentially improve bounds on Ramsey numbers.

### Emory University

Atlanta, Georgia

DR. LARS RUTHOTTO

2018

Coupled Inversion-Classification Neural Network

Description: Designed and implemented a neural network architecture to classify noisy observation data which couples the tasks of reconstruction and classification.

## Service

**Recitation Instructor**, Mathematics., Purdue University

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|---------|--|
| 2019-   | • MA 16600 - Analytic Geometry And Calculus II, Fall 2019. |
| Present | • MA 26100 - Multivariate Calculus, Fall 2020.             |

**Undergraduate Grader**, University of Houston

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|-----------|---|
| 2018-2019 | • MATH 3331 - Ordinary Differential Equations, Fall 2018. |
|           | • MATH 4366 - Numerical Linear Algebra, Spring 2019.      |

**Undergraduate Researcher**, Emory University

- |      |                               |
|------|-------------------------------|
| 2018 | • Supervised by Lars Ruthotto |
|      | • Funded by NSF, DMS-1751636  |

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

## Awards, Fellowships, & Grants

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- 2019 **Ross Fellowship**, Purdue University
- 2019 **Charles P. Benner Scholarship**, University of Houston
- 2018 **Provost's Undergraduate Research Scholarship**, University of Houston
- 2017 **Charles P. Benner Scholarship**, University of Houston

## Presentations

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### INVITED TALKS

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

## Outreach, Professional Development, & Languages

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### SERVICE AND OUTREACH

2017-2019 **Pi Mu Epsilon**, Meeting Organizer

*University of  
Houston  
Lone Star  
College*

2014-2016 **Mathematics Club**, Pi Day Organizer

### DEVELOPMENT

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

2022 **Journées Arithmétiques**, Conference on number theory in Nancy, France.

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

2022 **ELAZ 2022**, Conference on elementary and analytic number theory in Poznań, Poland.

2019-2020 **Purdue Analytic Number theory and Harmonic Analysis**, weekly talks about recent research topics in analytic number theory and harmonic analysis.

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

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.

### LANGUAGES

**Spoken:** English, Spanish.

**Code:** C#, C++, Python 3,  $\text{\LaTeX}$ .