

# Daniel Gonzalez Cedre

MATHEMATICIAN · COMPUTER SCIENTIST

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## Education

### University of Notre Dame

PHD IN COMPUTER SCIENCE · *in progress*

MS IN COMPUTER SCIENCE

- Recipient of the Deans' Graduate Fellowship
- Graduate Student Recruitment Representative
- Advised by Tim Weninger

*Jun. 2019 – Present*  
Notre Dame, IN, USA

### Florida State University

MS IN MATHEMATICS

- Recipient of the Dean's Graduate Scholarship

*Aug. 2017 – May 2019*  
Tallahassee, FL, USA

### Florida International University

BS IN MATHEMATICS · *cum laude*

BS IN COMPUTER SCIENCE · *cum laude*

- McNair Scholar, 12<sup>th</sup> cohort
- Recipient of the National Hispanic Scholarship
- Recipient of the Florida Bright Futures Academic Scholarship

*Aug. 2012 – May 2016*  
Miami, FL, USA

### Miami-Dade College

AA IN MATHEMATICS · *magna cum laude*

- Dual Enrollment through the School for Advanced Studies at Wolfson
- AP Scholar with Distinction
- National Hispanic Scholar

*Jun. 2010 – Apr. 2012*  
Miami, FL, USA

## Internships & Collaborations

### Data Scientist

DELOITTE · AI CENTER FOR EXCELLENCE

- Worked to develop a grammar-based explainer for graph neural networks
- Advised by Sanmitra Bhattacharya and Salvador Aguiñaga

*May 2023 – Aug. 2023*  
South Bend, IN, USA

### Research Scientist

LAWRENCE LIVERMORE NATIONAL LAB.

- Developed a dynamic vertex-replacement graph grammar
- Advised by Grant Boquet and Timothy La Fond

*May 2022 – Aug. 2022*  
Livermore, CA, USA

### Research Scientist

LAWRENCE LIVERMORE NATIONAL LAB.

- Worked to find optimal dendrogram decompositions for vertex-replacement graph grammars
- Advised by Grant Boquet and Timothy La Fond

*Jun. 2021 – Aug. 2021*  
Livermore, CA, USA

### Research Scientist

LAWRENCE LIVERMORE NATIONAL LAB.

- Modeled temporal graphs with hidden Markov models and vertex-replacement graph grammars
- Advised by Grant Boquet and Timothy La Fond

*Nov. 2020 – Feb. 2021*  
Livermore, CA, USA

### Contactless Fingerprint Collection

UNIVERSITY OF NOTRE DAME · COMPUTER VISION RESEARCH LAB.

- Sponsored by West Virginia University
- Advised by Adam Czajka in collaboration with Aidan Draper

*Jun. 2019 – Jan. 2020*  
Notre Dame, IN, USA

### PURE Math Research Program

UNIVERSITY OF HAWAII AT HILO

- Investigating the properties of monotone catenary degree in numerical monoids
- Advised by Roberto Pelayo and Brian Wissman in collaboration with Cameron J. Wright and Jenna Zomback

*Jun. 2015 – Jul. 2015*  
Hilo, HI, USA

## Publications & Preprints

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- 2023**     **Dynamic Vertex Replacement Grammars** · arXiv  
Daniel Gonzalez Cedre · Justus Isaiah Hibshman · Timothy La Fond · Grant Boquet · Tim Weninger
- 2023**     **Motif Mining: Finding and Summarizing Remixed Image Content** · WACV  
William Theisen · Daniel Gonzalez Cedre · Zachariah Carmichael · Daniel Moreira · Tim Weninger · Walter Scheirer
- 2022**     **The Infinity Mirror Test for Graph Models** · TKDE  
Satyaki Sikdar · Daniel Gonzalez Cedre · Trenton W. Ford · Tim Weninger
- 2021**     **Temporal Egonet Subgraph Transitions** · arXiv  
Daniel Gonzalez Cedre · Sophia Abraham · Lucas Parzianello · Eric Tsai
- 2021**     **Joint Subgraph-to-Subgraph Transitions** · WSDM  
Justus Isaiah Hibshman · Daniel Gonzalez Cedre · Satyaki Sikdar · Tim Weninger
- 2015**     **Monotone Catenary Degree in Numerical Monoids** · arXiv  
Daniel Gonzalez Cedre · Cameron Wright · Jenna Zomback

## Talks & Lectures

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- 2023**     **Explaining Anomalies in Graphs with Grammars** · *Internship talk* · Deloitte
- 2023**     **Undergraduate Engineering Discernment Lecture** · *Invited guest lecture* · University of Notre Dame
- 2022**     **Undergraduate Engineering Discernment Lecture** · *Invited guest lecture* · University of Notre Dame
- 2021**     **Mining Temporal Hypergraphs with Graph Grammars** · *Invited guest lecture* · Rose-Hulman Institute of Technology
- 2020**     **Undergraduate Engineering Discernment Lecture** · *Invited guest lecture* · University of Notre Dame
- 2020**     **The Infinity Mirror Test for Graph Generators** · *Full talk* · SIAM Network Science
- 2020**     **The Infinity Mirror Test for Graph Generators** · *Poster presentation* · ND CSE 14<sup>th</sup> Annual Poster Conference
- 2015**     **Monotone Catenary Degree in Numerical Monoids** · *Poster presentation* · FIU McNair Scholars Research Conference

## Teaching Experience

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### Instructor of Record

*University of Notre Dame*  
*Fall 2023*

#### DISCRETE MATHEMATICS

- Designed every aspect of the course
- Planned and delivered two 75-minute lectures per week
- Created two midterms, one final, and weekly problem sets based on lectures
- Wrote solutions to all assignments
- Curated custom lecture notes
- Held 4 hours of optional problem-solving recitations per week
- Held one-on-one and small-group office hours averaging 20 hours per week
- Managed 10 undergraduate TAs and 1 graduate TA who primarily assisted with grading

### Instructor and Coach

*University of Notre Dame*  
*Summer 2023*

#### CSE SUMMER ENRICHMENT PROGRAM

- Planned and delivered one 75-minute lecture per week
- Coordinated topics that included recursion, finite combinatorics, graph algorithms, and logic
- Met with students to help them with their summer research and provide guidance
- Collaborated with William Theisen

### Instructor of Record

*University of Notre Dame*  
*Spring 2023*

#### DISCRETE MATHEMATICS

- Designed every aspect of the course
- Planned and delivered three 50-minute lectures per week
- Created and graded weekly problem sets, two midterm exams, and a final exam
- Wrote solutions to all assignments
- Wrote custom lecture notes
- Held 4 hours of optional problem-solving recitations per week
- Held 4 office hours per week
- Performed all duties without the help of a TA for a class of 24 students

### Co-organizer

*University of Notre Dame*  
*Fall 2022*

#### DIRECTED READING IN GRAPH THEORY

- Created weekly assignments for an undergraduate student on various topics in Graph Theory
- Advised, planned, and lectured in collaboration with Justus Hibshman

## Instructor of Record

DISCRETE MATHEMATICS

*University of Notre Dame  
Spring 2022*

- Designed every aspect of the course
- Planned and delivered three 50-minute lectures per week
- Created and graded weekly problem sets, two midterm exams, and a final exam
- Wrote solutions to all assignments
- Held 4 hours of optional problem-solving recitations per week
- Held 3 office hours per week
- Performed all duties without the help of a TA for a class of 26 students

## Recitation Instructor

DISCRETE MATH

*Florida State University  
Spring 2019*

- Delivered weekly recitation lectures to two sections of students
- Delivered 50-minute recitation lectures to two sections once per week
- Proctored weekly quizzes and graded assignments
- Held 3 office hours per week

## Instructor of Record

PRECALCULUS ALGEBRA

*Florida State University  
Fall 2018*

- Planned and delivered three 50-minute lectures per week
- Proctored quizzes and exams
- Held 3 office hours per week

## Teaching Assistance

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### Graduate Teaching Assistant

DISCRETE MATH · DATA STRUCTURES

*University of Notre Dame  
Fall 2019 – Spring 2020*

- Held three office hours per week
- Graded assignments

### Graduate Teaching Assistant

BUSINESS CALCULUS · PRECALCULUS ALGEBRA · TRIGONOMETRY · FINITE MATH · LIBERAL ARTS MATH

*Florida State University  
Fall 2017 – Fall 2018*

- Proctored quizzes and exams

### Undergraduate Learning Assistant

GRAPH THEORY · INTRO TO ADV. MATH · CALCULUS I & 2 · DISCRETE MATH · FINITE MATH · COLLEGE ALG.

*Florida International University  
Spring 2013 – Summer 2017*

- Held weekly recitation sections and office hours
- Assisted professors with in-class duties
- Graded assignments

## Service

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**Reviewer** · TKDE: Transactions on Knowledge Data and Engineering

**Reviewer** · JoCO: Journal of Combinatorial Optimization

**Reviewer** · WSDM: Web Search and Data Mining

**Reviewer** · ICAS: International Conference on Autonomous Systems