

# Daniel Gonzalez Cedre

MATHEMATICIAN · COMPUTER SCIENTIST

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## Education

### University of Notre Dame

PHD COMPUTER SCIENCE · *in progress*

MS 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 MATHEMATICS

- Recipient of the Dean's Graduate Scholarship

*Aug. 2017 – May 2019*

*Tallahassee, FL, USA*

### Florida International University

BS MATHEMATICS · *cum laude*

BS 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 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

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

2023

Explaining Anomalies in Graphs with Grammars

· Internship talk · Deloitte

2023

A Transformational Approach to Graph Learning

· PhD candidacy · University of Notre Dame

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

# Awards & Honors

2024

Outstanding Instructor Honorable Mention

· Graduate Student Government · University of Notre Dame

2024

Outstanding Graduate Student Teaching Award

· Kaneb Center for Teaching & the Graduate School · University of Notre Dame

2024

Kaneb Outstanding Instructor of Record

· Computer Science & Engineering · University of Notre Dame

2024

CSE Outstanding TA Award

· Computer Science & Engineering · University of Notre Dame

2016

GEM University Fellow

· National GEM Consortium · University of Chicago

2016

Outstanding Achievement in Mathematics

· College of Arts, Sciences & Education · Florida International University

2015

2<sup>nd</sup> Place Poster Presentation

· McNair Scholars Research Conference · Florida International University

2014

3<sup>rd</sup> Place Award for "Pancake Simulator"

· HackFSU Hack-a-thon · Florida State University

2014

3<sup>rd</sup> Place Award

· Spring Programming Competition · Florida International University

# Teaching Experience

## Instructor of Record

PRINCIPLES OF COMPUTING · CSE 1000I

- Planned and delivered two 75-minute lectures per week
- Coordinated with Shreya Kumar

University of Notre Dame  
Fall 2024

## Instructor of Record

DISCRETE MATHEMATICS · CSE 2011O

- Designed every aspect of the course
- Planned and delivered three 50-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 8 hours per week
- Managed 4 undergraduate TAs and 1 graduate TA who assisted with grading and office hours

University of Notre Dame  
Spring 2024

## Instructor of Record

DISCRETE MATHEMATICS · CSE 20110

University of Notre Dame  
Fall 2023

- 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

CSE SUMMER ENRICHMENT PROGRAM

University of Notre Dame  
Summer 2023

- 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

DISCRETE MATHEMATICS · CSE 20110

University of Notre Dame  
Spring 2023

- 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

GRAPH THEORY · DIRECTED READING

University of Notre Dame  
Fall 2022

- 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 · CSE 20110

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 · MAD 2104

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 · MAC 1104

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

- Proctored quizzes and exams

*Florida State University*

*Fall 2017 – Fall 2018*

## Undergraduate Learning Assistant

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

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

*Florida International University*

*Spring 2013 – Summer 2017*

## 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