

# 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

2024	<b>This Probably Looks <i>Exactly</i> Like That: An Invertible Prototypical Neural Network</b> · ECCV Zachariah Carmichael* · Timothy Redgrave* · <i>Daniel Gonzalez Cedre</i> * · Walter Scheirer	*EQUAL CONTRIBUTION
2023	<b>Dynamic Vertex Replacement Grammars</b> · ARXIV <i>Daniel Gonzalez Cedre</i> · Justus Isaiah Hibshman · Timothy La Fond · Grant Boquet · Tim Weninger	
2023	<b>Motif Mining: Finding and Summarizing Remixed Image Content</b> · WACV William Theisen · <i>Daniel Gonzalez Cedre</i> · Zachariah Carmichael · Daniel Moreira · Tim Weninger · Walter Scheirer	
2022	<b>The Infinity Mirror Test for Graph Models</b> · TKDE Satyaki Sikdar · <i>Daniel Gonzalez Cedre</i> · Trenton W. Ford · Tim Weninger	
2021	<b>Temporal Egonet Subgraph Transitions</b> · ARXIV <i>Daniel Gonzalez Cedre</i> · Sophia Abraham · Lucas Parzianello · Eric Tsai	
2021	<b>Joint Subgraph-to-Subgraph Transitions</b> · WSDM Justus Isaiah Hibshman · <i>Daniel Gonzalez Cedre</i> * · Satyaki Sikdar* · Tim Weninger	*EQUAL CONTRIBUTION
2015	<b>Monotone Catenary Degree in Numerical Monoids</b> · ARXIV <i>Daniel Gonzalez Cedre</i> · Cameron Wright · Jenna Zomback	

## Talks & Lectures

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

## Awards & Honors

2024	<b>Outstanding Instructor Honorable Mention</b> · <i>Graduate Student Government</i> · <i>University of Notre Dame</i>	
2024	<b>Outstanding Graduate Student Teaching Award</b> · <i>Kaneb Center for Teaching &amp; the Graduate School</i> · <i>University of Notre Dame</i>	
2024	<b>Kaneb Outstanding Instructor of Record</b> · <i>Computer Science &amp; Engineering</i> · <i>University of Notre Dame</i>	
2024	<b>CSE Outstanding TA Award</b> · <i>Computer Science &amp; Engineering</i> · <i>University of Notre Dame</i>	
2016	<b>GEM University Fellow</b> · <i>National GEM Consortium</i> · <i>University of Chicago</i>	
2016	<b>Outstanding Achievement in Mathematics</b> · <i>College of Arts, Sciences &amp; Education</i> · <i>Florida International University</i>	
2015	<b>2<sup>nd</sup> Place Poster Presentation</b> · <i>McNair Scholars Research Conference</i> · <i>Florida International University</i>	
2014	<b>3<sup>rd</sup> Place Award for "Pancake Simulator"</b> · <i>HackFSU Hack-a-thon</i> · <i>Florida State University</i>	

## Teaching Experience

### Instructor of Record

PRINCIPLES OF COMPUTING · CSE 1000I

- TO BE DETERMINED

*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