Daniel **Gonzalez Cedre**

MATHEMATICIAN · COMPUTER SCIENTIST

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Education

University of Notre Dame
Jun. 2019 – Present

PHD COMPUTER SCIENCE · *in progress*

Notre Dame, IN, USA

MS COMPUTER SCIENCE

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

Florida State University
Aug. 2017 – May 2019

MS MATHEMATICS

Tallahassee, FL, USA

- Recipient of the Dean's Graduate Scholarship

Florida International University
Aug. 2012 – May 2016

BS MATHEMATICS · *cum laude*

Miami, FL, USA

BS COMPUTER SCIENCE · *cum laude*

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

Miami-Dade College
Jun. 2010 – Apr. 2012

AA MATHEMATICS · *magna cum laude*

Miami, FL, USA

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

Internships & Collaborations

Data Scientist
May 2023 – Aug. 2023

DELOITTE · AI CENTER FOR EXCELLENCE

South Bend, IN, USA

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

Research Scientist
May 2022 – Aug. 2022

LAWRENCE LIVERMORE NATIONAL LAB.

Livermore, CA, USA

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

Research Scientist
Jun. 2021 – Aug. 2021

LAWRENCE LIVERMORE NATIONAL LAB.

Livermore, CA, USA

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

Research Scientist
Nov. 2020 – Feb. 2021

LAWRENCE LIVERMORE NATIONAL LAB.

Livermore, CA, USA

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

Contactless Fingerprint Collection
Jun. 2019 – Jan. 2020

UNIVERSITY OF NOTRE DAME · COMPUTER VISION RESEARCH LAB.

Notre Dame, IN, USA

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

PURE Math Research Program
Jun. 2015 – Jul. 2015

UNIVERSITY OF HAWAII AT HILO

Hilo, HI, USA

- 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

Publications & Preprints

2024 **This Probably Looks *Exactly* Like That: An Invertible Prototypical Neural Network** · ECCV
Zachariah Carmichael* · Timothy Redgrave* · Daniel Gonzalez Cedre* · Walter Scheirer *EQUAL CONTRIBUTION

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 *EQUAL CONTRIBUTION

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 14th 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 **2nd Place Poster Presentation** · *McNair Scholars Research Conference* · *Florida International University*
2014 **3rd Place Award for "Pancake Simulator"** · *HackFSU Hack-a-thon* · *Florida State University*

Teaching Experience

Instructor of Record

University of Notre Dame
Fall 2024

PRINCIPLES OF COMPUTING · CSE 10001

- TO BE DETERMINED

Instructor of Record

University of Notre Dame
Spring 2024

DISCRETE MATHEMATICS · CSE 20110

- 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

Instructor of Record

University of Notre Dame
Fall 2023

DISCRETE MATHEMATICS · CSE 20110

- 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 · CSE 20110

- 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

GRAPH THEORY · DIRECTED READING

- 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

University of Notre Dame
Spring 2022

DISCRETE MATHEMATICS · CSE 20110

- 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

Florida State University
Spring 2019

DISCRETE MATH · MAD 2104

- 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

Florida State University
Fall 2018

PRECALCULUS ALGEBRA · MAC 1104

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

Teaching Assistance

Graduate Teaching Assistant

University of Notre Dame
Fall 2019 – Spring 2020

DISCRETE MATH · DATA STRUCTURES

- Held three office hours per week
- Graded assignments

Graduate Teaching Assistant

Florida State University
Fall 2017 – Fall 2018

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

- Proctored quizzes and exams

Undergraduate Learning Assistant

Florida International University
Spring 2013 – Summer 2017

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

Service

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