

Daniel Gonzalez Cedre

dgonza26@nd.edu · cedre.dev

Education

Doctor of Philosophy · Computer Science · *in progress*

University of Notre Dame

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

JUN. 2019 – APR. 2025

- "A Transformational Approach to Graph Learning," advised by Tim Weninger
- Graduate Student Recruitment Representative

Master of Science · Financial Mathematics

Florida State University

DEPARTMENT OF MATHEMATICS

AUG. 2017 – MAY 2019

- Advised by Arash Fahim and mentored by Alec Kercheval

Bachelors of Science · Mathematics · Computer Science · *cum laude*

Florida Int'l University

DEPARTMENT OF MATHEMATICS AND STATISTICS · SCHOOL OF COMPUTING AND INFORMATION SCIENCES

AUG. 2012 – MAY 2016

- Mentored by Mirroslav Yotov and George Kafkoulis
- Member of the competitive programming team

Associate of Arts · Mathematics · *magna cum laude*

Miami-Dade College

SCHOOL FOR ADVANCED STUDIES, WOLFSON CAMPUS

JUN. 2010 – APR. 2012

- Dual enrollment through the School for Advanced Studies' Wolfson campus

Publications & Preprints

2024 **This Probably Looks *Exactly* Like That: An Invertible Prototypical Neural Network** · ECCV

Daniel Gonzalez Cedre* · Zachariah Carmichael* · Timothy Redgrave* · 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

2024 **This Probably Looks *Exactly* Like That**

Poster presentation

European Conference on Computer Vision

2024 **Undergraduate Engineering Discernment Lecture**

Invited guest lecture

University of Notre Dame

2023 **Explaining Anomalies in Graphs with Grammars**

Internship talk

Deloitte Touche Tohmatsu

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	Department of Computer Science and Engineering	University of Notre Dame
2024	CSE Outstanding TA Award	Department of Computer Science and Engineering	University of Notre Dame
2019	Deans' Graduate Fellowship	The Graduate School	University of Notre Dame
2017	Dean's Scholarship	The Graduate School	Florida State University
2016	GEM University Fellow	National GEM Consortium	University of Chicago
2016	Outstanding Achievement in Mathematics	College of Arts, Sciences, and Education	Florida Int'l University
2015	Second place "Monotone Catenary Degree [...]"	McNair Scholars Research Conference	Florida Int'l University
2014	Third place award for "Pancake Simulator"	HackFSU Hack-a-thon	Florida State University
2015	McNair Scholar, 12 th cohort	McNair Scholars Program	Florida Int'l University
2012	Florida Bright Futures Scholarship	Office of Student Scholarship and Grants	State of Florida
2012	National Hispanic Scholarship	Office of Admissions	Florida Int'l University

Internships & Collaborations

Data Scientist & AI Graph Expert

AI CENTER FOR EXCELLENCE

Deloitte Touche Tohmatsu

MAY 2023 – AUG. 2023

- Worked to develop a intrinsically-explainable graph neural network based on graph grammars
- Advised by Sanmitra Bhattacharya and Salvador Aguiñaga

Research Scientist

APPLIED STATISTICS GROUP

Lawrence Livermore Nat'l Laboratory

MAY 2022 – AUG. 2022

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

Research Scientist

APPLIED STATISTICS GROUP

Lawrence Livermore Nat'l Laboratory

JUN. 2021 – AUG. 2021

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

Research Scientist

APPLIED STATISTICS GROUP

Lawrence Livermore Nat'l Laboratory

NOV. 2020 – FEB. 2021

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

Contactless Fingerprint Collection

COMPUTER VISION RESEARCH LAB

University of Notre Dame

JUN. 2019 – JAN. 2020

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

PURE Math Research Program

DEPARTMENT OF MATHEMATICS

University of Hawaii at Hilo

JUN. 2015 – JUL. 2015

- Investigated monotone catenary degree for numerical monoids with Cameron J. Wright and Jenna Zomback
- Advised by Roberto Pelayo and Brian Wissman

Service

- Reviewer **Springer DMKD** · *Data Mining and Knowledge Discovery*
- Reviewer **IEEE TKDE** · *Transactions on Knowledge Data and Engineering*
- Reviewer **Springer JoCO** · *Journal of Combinatorial Optimization*
- Reviewer **ACM WSDM** · *Web Search and Data Mining*
- Reviewer **IEEE ICAS** · *International Conference on Autonomous Systems*

Teaching Experience

Principles of Computing

INSTRUCTOR OF RECORD · CSE 10001 · 36 STUDENTS

terminal interfaces · shell commands · Python types · functions · iteration · sorting · file parsing · classes · recursion

- Designed an approach to the fundamentals of applied computing for non-majors with zero background
- Planned and delivered two 75-minute lectures per week
- Wrote and graded two midterm exams
- Created problem sets with solutions and extra credit assignments
- Held four weekly office hours in addition to one-on-one and small-group sessions
- Managed one undergraduate and two graduate teaching assistants who helped with grading and office hours

University of Notre Dame

FALL SEMESTER 2024

Discrete Mathematics

INSTRUCTOR OF RECORD · CSE 20110 · 31 STUDENTS

ZOL · FOL · ZF set theory · algebra · induction · number theory · combinatorics · infinity · abstract algebra · RSA

- Updated and improved previous design for a proof-based course on logic & mathematical foundations
- Continually improved and expanded previous lecture notes
- 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
- Held four hours of optional problem-solving recitations per week
- Held one-on-one and small-group office hours averaging eight hours per week
- Managed four undergraduate and one graduate teaching assistant who helped with grading and office hours

University of Notre Dame

SPRING SEMESTER 2024

Discrete Mathematics

INSTRUCTOR OF RECORD · CSE 20110 · 180 STUDENTS

ZOL · FOL · ZF set theory · Peano arithmetic · induction · number theory · functions · infinity · abstract algebra

- Overhauled and improved design for a proof-based course on logic & mathematical foundations
- Began drafting serious lecture notes over the summer and throughout the semester
- 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
- Held four hours of optional problem-solving recitations per week
- Held one-on-one and small-group office hours averaging 20 hours per week
- Managed ten undergraduate and one graduate teaching assistant who helped with grading and office hours

University of Notre Dame

FALL SEMESTER 2023

CSE Summer Enrichment Program

INSTRUCTOR AND COACH · SUMMER LECTURE SERIES · 20 STUDENTS

fundamentals of computer science and discrete math for students lacking background

- Planned and delivered one 75-minute lecture per week
- Met with students to help them with their summer research and provide guidance
- Collaborated with William Theisen

University of Notre Dame

SUMMER SEMESTER 2023

Discrete Mathematics

INSTRUCTOR OF RECORD · CSE 20110 · 21 STUDENTS

FOL · ZF set theory · recursion · induction · asymptotic analysis · cardinality · number theory · RSA · graph theory

- Improved previous design of a course on logic, foundations, and proof-writing for computer science majors
- Experimented with coding assignments that complemented course topics and themes
- Updated brief lecture notes throughout the semester
- Planned and delivered three 50-minute lectures per week
- Designed and graded weekly problem sets, two midterm exams, and a final exam
- Wrote solutions to all assignments
- Held four office hours per week
- Held four hours of optional problem-solving recitations per week

University of Notre Dame

SPRING SEMESTER 2023

Graph Theory

CO-ORGANIZER · DIRECTED READING · 1 STUDENT

graph coloring · weisfeiler-lehman · isomorphism · graph duality · flow algorithms · gale-shapley · infinite graphs

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

University of Notre Dame

FALL SEMESTER 2022

Discrete Mathematics

INSTRUCTOR OF RECORD · CSE 20110 · 25 STUDENTS

propositions · FOL · ZF set theory · functions · cardinality · induction · relations · number theory · RSA · graph theory

- Designed from-scratch a course on mathematical foundations and proof-writing for computer science majors
- Wrote brief lecture notes throughout the semester
- 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 four hours of optional problem-solving recitations per week
- Held three office hours per week

University of Notre Dame

SPRING SEMESTER 2022

Discrete Math I

RECITATION INSTRUCTOR · MAD 2104 · 60 STUDENTS

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

Florida State University

SPRING SEMESTER 2019

Precalculus Algebra

INSTRUCTOR OF RECORD · MAC 1104 · 35 STUDENTS

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

Florida State University

FALL SEMESTER 2018

Teaching Assistance

Graduate Teaching Assistant

DISCRETE MATH · DATA STRUCTURES

- Held three office hours per week
- Graded assignments

University of Notre Dame

FALL 2019 — SPRING 2020

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

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

Florida Int'l University

SPRING 2013 — SUMMER 2017