

Daniel Gonzalez Cedre

MATHEMATICIAN · COMPUTER SCIENTIST

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Education

University of Notre Dame

PH.D. IN COMPUTER SCIENCE

Jun. 2019 – Present

Notre Dame, IN, USA

- Working on graph mining and rule-based graph transformations with interests in graph neural networks
- Recipient of the Deans' Graduate Fellowship
- Graduate Student Recruitment Representative
- Advised by Tim Weninger

Florida State University

M.SC. IN MATHEMATICS

Aug. 2017 – May 2019

Tallahassee, FL, USA

- Concentration in Financial Mathematics
- Recipient of the Dean's Graduate Scholarship

Florida International University

B.SC. IN MATHEMATICS · CUM LAUDE

Aug. 2012 – May 2016

Miami, FL, USA

B.SC. IN 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

A.A. IN MATHEMATICS · MAGNA CUM LAUDE

Jun. 2010 – Apr. 2012

Miami, FL, USA

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

Internships & Projects

Intern Research Scientist

LAWRENCE LIVERMORE NATIONAL LAB.

May 2022 – Aug. 2022

Livermore, CA, USA

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

Intern Research Scientist

LAWRENCE LIVERMORE NATIONAL LAB.

Jun. 2021 – Aug. 2021

Livermore, CA, USA

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

Intern Research Scientist

LAWRENCE LIVERMORE NATIONAL LAB.

Nov. 2020 – Feb. 2021

Livermore, CA, USA

- Modeled temporal graphs with hidden Markov models
- Modified a vertex-replacement graph grammar to incorporate hidden Markov states
- Evaluated the quality of generated temporal graphs using standard graph comparison metrics
- Advised by Grant Boquet and Timothy La Fond

Contactless Fingerprint Collection

COMPUTER VISION RESEARCH LAB. AT NOTRE DAME

Jun. 2019 – Jan. 2020

Notre Dame, IN, USA

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

PURE Math Research Program

UNIVERSITY OF HAWAII AT HILO

Jun. 2015 – Jul. 2015

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

- 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

- 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

Service

- Reviewer** · TKDE: Transactions on Knowledge Data and Engineering
- Reviewer** · JoCO: Journal of Combinatorial Optimization
- Reviewer** · WSDM: Web Search and Data Mining
- Reviewer** · ISAC: International Conference on Autonomous Systems

Teaching Experience

Instructor of Record

University of Notre Dame
Spring 2023

DISCRETE MATHEMATICS

- Designed and curated every aspect of the course
- Planned and delivered lectures three times per week and provided custom lecture notes
- Held 4 weekly office hours and a weekly (optional) 4-hour-long recitation section
- Created and graded weekly problem sets, two midterm exams, and a final exam
- Performed all duties without the help of a TA for a class of 24 students

Instructor of Record

University of Notre Dame
Spring 2022

DISCRETE MATHEMATICS

- Designed and curated every aspect of the course
- Delivered lectures three times per week
- Held 3 weekly office hours and a weekly (optional) 3.5-hour-long recitation section
- Created and graded weekly problem sets, two midterm exams, and a final exam
- Performed all duties without the help of a TA for a class of 26 students

Recitation Instructor

Florida State University
Spring 2019

DISCRETE MATH

- Delivered weekly recitation lectures to two sections of students
- Held office hours, proctored weekly quizzes, and graded assignments

Instructor of Record

Florida State University
Fall 2018

PRECALCULUS ALGEBRA

- Planned and delivered lectures three times per week
- Held office hours and proctored quizzes and exams

Teaching Assistance

Co-organizer

University of Notre Dame

GRAPH THEORY DIRECTED READING

Fall 2022

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

Graduate Teaching Assistant

University of Notre Dame

DISCRETE MATH · DATA STRUCTURES

Fall 2019 – Spring 2020

- Graded assignments and held office hours

Graduate Teaching Assistant

Florida State University

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

Fall 2017 – Fall 2018

- Proctored quizzes and exams

Undergraduate Learning Assistant

Florida International University

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

Spring 2013 – Summer 2017

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