

Catalina Vajiac

PH.D. STUDENT · CARNEGIE MELLON UNIVERSITY

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My work focuses on explainable algorithms and visualization for finding human sex trafficking online and is funded by the NSF GRFP.

Education

Carnegie Mellon University

PH.D. IN COMPUTER SCIENCE

Pittsburgh, PA

Aug. 2019 - present

University of Notre Dame

B.S. IN COMPUTER SCIENCE, **3.87/4.0**

Notre Dame, IN

Aug. 2015 - May. 2019

Saint Mary's College

B.S. IN COMPUTING AND APPLIED MATHEMATICS, **3.91/4.0**

Notre Dame, IN

Aug. 2014 - May. 2018

Publications: * denotes first author

- DeltaShield: Information Theory for Human-Trafficking Detection ACM TKDD
C. VAJIAC*, M. LEE, A. KULSHRESTHA, S. LEVY, N. PARK, A. OLLIGSCHLAEGER, C. JONES, R. RABBANY, AND C. FALOUTSOS 2023
- 🏆 [Best Paper] CS-JEDI: Required DEI Education by CS PhD Students, for CS PhD Students ACM SIGCSE
B. FLANIGAN*, AA. JOSHI, S. MCALLISTER AND **C. VAJIAC** 2023
- 🏆 [Best Paper Honorable Mention] TrafficVis: Visualizing Organized Activity and Spatio-Temporal Patterns for Detecting and Labeling Human Trafficking IEEE VIS
C. VAJIAC*, D. CHAU, A. OLLIGSCHLAEGER, R. MACKENZIE, P. NAIR, M. LEE, Y. LI, N. PARK, R. RABBANY, C. FALOUTSOS 2022
- InfoShield: Generalizable Information-Theoretic Human-Trafficking Detection IEEE ICDE
M. LEE*, **C. VAJIAC***, A. KULSHRESTHA, S. LEVY, N. PARK, C. JONES, C. FALOUTSOS, R. RABBANY 2021
- Synchronous Hyperedge Replacement Graph Grammars ICGT
C. PENNYCUFF, S. SIKDAR, **C. VAJIAC**, D. CHIANG, T. WENINGER 2018

Posters & Preprints

- VisPaD: Visualization and Pattern Discovery for Fighting Human Trafficking ACM WebConf
P. NAIR, Y. LI, **C. VAJIAC**, A. OLLIGSCHLAEGER, M.C. LEE, N. PARK, D.H. CHAU, C. FALOUTSOS, R. RABBANY 2022
- 🏆 [Best Poster Honorable Mention] TrafficVis: Fighting Human Trafficking through Visualization IEEE VIS
C. VAJIAC*, A. OLLIGSCHLAEGER, Y. LI, P. NAIR, M. LEE, N. PARK, R. RABBANY, D. CHAU, C. FALOUTSOS 2021
- Exploration of Numerical Precision in Deep Neural Networks arXiv
Z. LI*, Y. MA*, **C. VAJIAC***, Y. ZHANG* 2018
- 🏆 [Best Poster] Developing Colorimetric Comparisons for Paper Analytical Devices MAA JMM
C. VAJIAC*, I. BENTLEY 2017

Workshops & Invited Talks

- Notre Dame Edison Lecture Series** April 2023
BUILDING HOLISTIC ALGORITHMS AND DATA VISUALIZATIONS FOR DETECTING HUMAN TRAFFICKING ONLINE
- Software Guru's Data Day Mexico City** April 2023
MINIMIZING ENTRY INTO HOMELESSNESS FOLLOWING EVICTION THROUGH PREDICTIVE MODELING
- Notre Dame Future Faculty Workshop** May 2022
- CRA-WP Graduate Women Cohort** April 2022
- University of Pittsburgh Diversity Forum** June 2021
BUILDING A STRONGER, MORE JUST ACADEMIC COMMUNITY THROUGH MANDATORY ANTI-BIAS LEARNING
- CRA-WP Graduate Women Cohort** April 2021

Fellowships and Awards

Mar 2023	Best Paper , ACM SIGCSE
Oct 2022	Best Paper Honorable Mention , IEEE VIS
Aug 2022	PITA Grant funding , Spatio-Temporal Analysis & Visualization for Human Trafficking Detection
Mar 2021	Graduate Research Fellowship , National Science Foundation
Apr 2022	Graduate Student Service Award , Carnegie Mellon University
Oct 2021	Best Poster Honorable Mention , IEEE VIS
May 2019	Magna Cum Laude , University of Notre Dame
May 2019	Outstanding Student Award , Computer Science Department, University of Notre Dame
May 2018	Summa Cum Laude , Saint Mary's College
May 2018	Donald E. Miller Award , Math and Computer Science Department, Saint Mary's College
May 2018	Honors on Undergraduate Thesis , Math and Computer Science Department, Saint Mary's College
Dec 2017	Best Poster , MAA Joint Mathematics Meetings
Jan 2017	Meritorious Winner , COMAP Mathematical Contest in Modeling
Jan 2017	Indiana Epsilon Inductee , Pi Mu Epsilon, Saint Mary's College
All Semesters	Dean's List , Saint Mary's College

In the News

Oct 2022	Visualization Tool Helps Law Enforcement Identify Human Trafficking , CMU School of CS
May 2021	CMU researchers develop algorithm to identify human trafficking patterns , WXPI News
Apr 2021	Using online ads to spot human trafficking , McGill University Newsroom
Apr 2021	Algorithm Uses Online Ads To Identify Human Traffickers , CMU School of CS

Industry Experience

Business Support Solutions Team, IBM Cloud	<i>IBM, Foster City, CA</i>
SOFTWARE DEVELOPER	<i>June 2018 - August 2018</i>
<ul style="list-style-type: none">• Implemented features for Account Management api• Improved Account Management's workflow for staging and deployment	

Outreach & Teaching

Doctoral Review Committee Member	<i>Aug 2021 — present</i>
CARNEGIE MELLON UNIVERSITY COMPUTER SCIENCE DEPARTMENT	
Course Development: CS-JEDI: Intro to Justice, Equity, Diversity, and Inclusion in CS	<i>July 2020 – Aug 2021</i>
<ul style="list-style-type: none">• Developed materials for both 3-session and 6-session versions of the course• Successfully pitched course to be part of mandatory PhD curriculum• Moderated a student group for the pilot in Spring 2021	
Teaching Assistant: Carnegie Mellon University	<i>Spring 2022</i>
<ul style="list-style-type: none">• CS 15-661 INTERACTION AND EXPRESSION USING THE PAUSCH BRIDGE LIGHTING	
Teaching Assistant: University of Notre Dame	<i>Fall 2018 — Spring 2019</i>
<ul style="list-style-type: none">• CSE 30872 PROGRAMMING CHALLENGES• CSE 20289 SYSTEMS PROGRAMMING	
Teaching Assistant: Saint Mary's College	<i>Fall 2015 — Spring 2018</i>
<ul style="list-style-type: none">• MATH 225 FOUNDATIONS OF HIGHER MATHEMATICS• MATH 131 CALCULUS 1	