

# Catalina Vajiac

PH.D. STUDENT · CARNEGIE MELLON UNIVERSITY

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*My work focuses on explainable algorithms and interfaces for fighting human trafficking online and is funded by the NSF GRFP.*

## Education

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### 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

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### CS-JEDI: Required DEI Education by CS PhD Students, for CS PhD Students

2023

S. McALLISTER\*, B. FLANIGAN\*, A. JOSHI\*, AND C. VAJIAC\*

Toronto, CA

*ACM Special Interest Group on Computer Science Education*

### 🏆 TrafficVis: Visualizing Organized Activity and Spatio-Temporal Patterns for Detecting and Labeling Human Trafficking

2022

C. VAJIAC\*, D. CHAU, A. OLLIGSCHLAEGER, R. MACKENZIE, P. NAIR, M. LEE, Y. LI, N. PARK, R. RABBANY, C. FALOUTSOS

OK, US

*IEEE VIS: Visualization and Visual Analytics. Won best paper honorable mention*

### InfoShield: Generalizable Information-Theoretic Human-Trafficking Detection

2021

M. LEE\*, C. VAJIAC\*, A. KULSHRESTHA, S. LEVY, N. PARK, C. JONES, C. FALOUTSOS, R. RABBANY

Chania, Greece

*IEEE International Conference of Data Engineering*

### Synchronous Hyperedge Replacement Graph Grammars

2018

C. PENNYCUFF, S. SIKDAR, C. VAJIAC, D. CHIANG, T. WENINGER

Toulouse, France

*International Conference on Graph Transformation*

## Posters & Preprints

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### 🏆 TrafficVis: Fighting Human Trafficking through Visualization

2021

C. VAJIAC\*, A. OLLIGSCHLAEGER, Y. LI, P. NAIR, M. LEE, N. PARK, R. RABBANY, D. CHAU, C. FALOUTSOS

*IEEE VIS: Visualization and Visual Analytics. Won Best Poster Honorable Mention*

### TrafficLight: Holistic Detection of Human Trafficking in Online Escort Advertisements

2020

A. KULSHRESTHA, C. VAJIAC, S. LEVY, J. WANG, N. PARK, C. JONES, C. FALOUTSOS, D. ESWARAN, M. LEE, R. RABBANY

### Exploration of Numerical Precision in Deep Neural Networks

2018

Z. LI\*, Y. MA\*, C. VAJIAC\*, Y. ZHANG\*

*arXiv preprint arXiv:1805.01078*

### 🏆 Exploration of Gradient Descent

2018

C. VAJIAC\*

*Undergraduate Thesis Project, Saint Mary's College. Received honors*

### 🏆 Developing Colorimetric Comparisons for Paper Analytical Devices

2018

C. VAJIAC\*, I. BENTLEY

Atlanta, GA

*MAA Undergraduate Poster Session. Won Outstanding Poster Award*

## Workshops & Panels

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### Building a Stronger, More Just Academic Community Through Mandatory Anti-bias Learning

2021

BAILEY FLANIGAN, SARA McALLISTER, CATALINA VAJIAC

*University of Pittsburgh Diversity Forum*

## Fellowships and Awards

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|          |   |                      |
|----------|---|----------------------|
| Mar 2021 | <b>Graduate Research Fellowship</b> , National Science Foundation                   |                      |
| Apr 2022 | <b>Graduate Student Service Award</b> , Carnegie Mellon University                  | Pittsburgh, PA       |
| May 2019 | <b>Outstanding Student Award</b> , Computer Science Department                      | Notre Dame           |
| May 2018 | <b>Donald E. Miller Award</b> , Mathematics and Computer Science Department         | Saint Mary's College |
| May 2018 | <b>Honors on Undergraduate Thesis</b> , Mathematics and Computer Science Department | Saint Mary's College |
| Jan 2017 | <b>Meritorious Winner</b> , Mathematical Contest in Modeling                        | COMAP                |
| Jan 2017 | <b>Indiana Epsilon Inductee</b> , Pi Mu Epsilon                                     | Saint Mary's College |
|          | <b>Dean's List</b> , All Semesters  | Saint Mary's College |

## In the News

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|----------|---|----------------|
| May 2021 | <b>CMU researchers develop algorithm to identify human trafficking patterns</b> , WXPI News     | Pittsburgh, PA |
| Apr 2021 | <b>Using online ads to spot human trafficking</b> , McGill University Newsroom                  | Montreal, CA   |
| Apr 2021 | <b>Algorithm Uses Online Ads To Identify Human Traffickers</b> , Carnegie Mellon University SCS | Pittsburgh, PA |

## Industry Experience

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### Business Support Solutions Team, IBM Cloud

IBM, Foster City, CA

SOFTWARE DEVELOPER

June 2018 - August 2018

- Implemented features for Account Management api
- Improved Account Management's workflow for staging and deployment

## Outreach & Teaching

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### Doctoral Review Committee Member

Pittsburgh, PA

CARNEGIE MELLON UNIVERSITY, COMPUTER SCIENCE DEPARTMENT (CSD)

Aug 2021 — present

### Course Development: Diversity, Equity, and Inclusion in CS and Society

Pittsburgh, PA

CARNEGIE MELLON UNIVERSITY, COMPUTER SCIENCE DEPARTMENT (CSD)

July 2020 — Aug 2021

- Developed anti-bias initiative for Computer Science Department
- Developed course materials (3 course & full semester version)
- Successfully pitched mandatory course for first year PhD students in CSD
- Moderated a student group in Spring 2021
- Consulted with many stakeholders at CMU, including DEI office, Eberly Center

### Teaching Assistant

Notre Dame, IN

SAINT MARY'S COLLEGE AND UNIVERSITY OF NOTRE DAME

Aug 2015 — May 2019

- MATH 225 FOUNDATIONS OF HIGHER MATHEMATICS: Weekly problem sessions, grading
- MATH 131 CALCULUS 1: Weekly problem sessions
- CSE 30872 PROGRAMMING CHALLENGES: Office hours, grading
- CSE 20289 SYSTEMS PROGRAMMING: Office hours, grading