

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

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

Fellowships and Awards

Mar 2021	Graduate Research Fellowship , National Science Foundation	
May 2019	Outstanding Student Award , Computer Science Department	Notre Dame
Sep 2018	Anita Borg Scholar , Grace Hopper Conference	Houston, Texas
May 2018	Donald E. Miller Award , Mathematics and Computer Science Department	Saint Mary's College
May 2018	Honors on Undergraduate Thesis , Mathematics and Computer Science Department	Saint Mary's College
Jan 2017	Meritorious Winner , Mathematical Contest in Modeling	COMAP
Jan 2017	Outstanding Poster Award , MAA Undergraduate Poster Session	Joint Math Meetings
Jan 2017	Indiana Epsilon Inductee , Pi Mu Epsilon	Saint Mary's College
	Dean's List , All Semesters	Saint Mary's College

Publications

PEER-REVIEWED: * DENOTES FIRST AUTHOR

InfoShield: Generalizable Information-Theoretic Human-Trafficking Detection	2021
LEE, M.* , VAJIAC, C.* , KULSHRESTHA, A., LEVY, S., PARK, N., JONES, C., FALOUTSOS, C., RABBANY, R. <i>IEEE International Conference of Data Engineering</i>	Chania, Greece
Synchronous Hyperedge Replacement Graph Grammars	2018
PENNYCUFF, C., SIKDAR, S., VAJIAC, C. , CHIANG, D., WENINGER, T. <i>Proc. of International Conference on Graph Transformation.</i>	Toulouse, France
Developing Colorimetric Comparisons for Paper Analytical Devices	2018
VAJIAC, C.* , BENTLEY, I. <i>MAA Undergraduate Poster Session. Won Outstanding Poster Award</i>	Atlanta, GA

UNDER REVIEW/NOT PEER-REVIEWED

TrafficLight: Holistic Detection of Human Trafficking in Online Escort Advertisements	2020
KULSHRESTHA, A., VAJIAC, C. , LEVY, S., WANG, J., PARK, N., JONES, C., FALOUTSOS, C., ESWARAN, D., LEE, M., RABBANY, R.	
Exploration of Numerical Precision in Deep Neural Networks	2018
LI, Z*. MA, Y*. VAJIAC, C.* , ZHANG, Y.* <i>arXiv preprint arXiv:1805.01078</i>	
Exploration of Gradient Descent	2018
VAJIAC, C.* <i>Undergraduate Thesis Project, Saint Mary's College</i>	

In the News

Apr 2021	Algorithm Uses Online Ads To Identify Human Traffickers , Carnegie Mellon University SCS	Pittsburgh, PA
May 2021	CMU researchers develop algorithm to identify human trafficking patterns , WXPI News	Pittsburgh, PA

Industry Experience

Business Support Solutions Team, IBM Cloud

SOFTWARE DEVELOPER

IBM, Foster City, CA

June 2018 - August 2018

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

Outreach

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

CARNEGIE MELLON UNIVERSITY, COMPUTER SCIENCE DEPARTMENT (CSD)

Pittsburgh, PA

July 2020 – present

- 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

SAINT MARY'S COLLEGE AND UNIVERSITY OF NOTRE DAME

Notre Dame, IN

August 2015 – May 2019

- Ran weekly problem sessions for Foundations of Higher Mathematics and Calculus I
- Held office hours and graded for Programming Challenges and Systems Programming

President

MATHEMATICS AND COMPUTER SCIENCE CLUB, SAINT MARY'S COLLEGE

Notre Dame, IN

August 2017 – May 2018

- Organized events and talks to facilitate school-wide interest in mathematics
- Ran cryptography sessions for Hypatia Day (event for middle school girls' exposure to STEM)

Vice-President

LINUX USER'S GROUP OF NOTRE DAME

Notre Dame, IN

August 2018 – May 2019

- Organized and gave weekly talks on topics related to the open-source community

Treasurer

PI MU EPSILON, SAINT MARY'S COLLEGE

Notre Dame, IN

August 2018 – May 2019

- Organized travel for 15 women to go to the Joint Mathematics Meetings 2017 and 2018