Catalina Vajiac

SAINT MARY'S COLLEGE · 2018
UNIVERSITY OF NOTRE DAME · 2019
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Education: 4-1 Dual Degree

University of Notre Dame   *Notre Dame, IN*
B.S. IN COMPUTER SCIENCE   *Aug. 2015 - May. 2019*
GPA: 3.87/4.0

Saint Mary's College   *Notre Dame, IN*
B.S. IN COMPUTING AND APPLIED MATHEMATICS   *Aug. 2014 - May. 2018*
GPA: 3.91/4.0

Research Experience

Synchronous Hyperedge Replacement Graph Grammars   *Notre Dame, IN*
RESEARCH ASSISTANT   TWENINGER/PSHRG ☐   *January 2018 — May 2018*

- Extracted features from temporal graphs by learning a CFG from their fragments
- Conducted experiments to evaluate model's performance
- **Publication:** Pennycuff, C., Sikdar, S., Vajiac, C., Chiang, D., Weninger, T.
  "Synchronous Hyperedge Replacement Graph Grammars" in
  Proc. of International Conference on Graph Transformation, Toulouse, France. 2018.

Exploration of Numerical Precision in Deep Neural Networks *UCLA, California*
RESEARCH IN INDUSTRIAL PROJECTS FOR STUDENTS PARTICIPANT   JIHANGJIE/AMD-RIPS2017 ☐   *June 2017 — August 2017*

- Studied resiliency of neural networks when exposed to lower numerical precision
- Sponsored by Instutute of Pure and Applied Mathematics and by AMD
- **Publication:** Li, Z. Ma, Y. Vajiac, C., Zhang, Y.
  "Exploration of Numerical Precision in Deep Neural Networks" in
  arXiv preprint arXiv:1805.01078, 2018.

Exploration of Gradient Descent   *Saint Mary's College*
UNDERGRADUATE THESIS PROJECT   CATVAJIAC/GRADIENT_DESCENT ☐   *August 2017 — December 2017*

- Derived equations for gradient descent, forward and back propogation algorithms
- Implemented a multi-layer, fully connected neural network from scratch in Python
- Defended thesis in November 2017, passed with Honors

Computer-Assisted Image Analysis for Paper Analytical Devices (PADs)   *Saint Mary's College*
RESEARCH ASSISTANT   *May 2016 — December 2016*

- Created image analysis software to classify chemical reactions in PADs
- Won Outstanding Poster Award at the 2017 Joint Math Meetings
- **Outstanding Poster Award:** Vajiac, C, Bentley, I.
  "Developing Automated Analysis Codes for Paper Analytical Devices" in
  Proc. of Joint Mathematics Meetings, Atlanta, Georgia. 2017.

Industry Experience

Business Support Solutions Team, IBM Cloud   *IBM, Foster City, CA*
SOFTWARE DEVELOPER   *June 2018 - August 2018*

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

Honors and Awards

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*

Outreach

Teaching Assistant   *Notre Dame, IN*

SAINT MARY'S COLLEGE AND UNIVERSITY OF NOTRE DAME   *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   *Notre Dame, IN*

MATHEMATICS AND COMPUTER SCIENCE CLUB, SAINT MARY'S COLLEGE   *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   *Notre Dame, IN*

LINUX USER'S GROUP OF NOTRE DAME   *August 2018 — May 2019*

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

Treasurer   *Notre Dame, IN*

PI MU EPSILON, SAINT MARY'S COLLEGE   *August 2018 — May 2019*

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