Pedro Sandoval Segura

Contact Information

3116 Brendan Iribe Center
8125 Paint Branch Drive
College Park, MD 20742

(415) 324 9232
psando@cs.umd.edu
http://cs.umd.edu/~psando

Research Interests

I am broadly interested in computer vision and deep learning. My research has explored vulnerabilities of neural networks including adversarial examples and dataset poisoning. I am interested in how characteristics of image datasets impact learning.

Education

University of Maryland, College Park, MD
Ph.D., Computer Science — Expected 2025
National Defense Science and Engineering Graduate Fellow

M.S., Computer Science — May 2021

Harvey Mudd College, Claremont, CA
B.S., Computer Science and Mathematics — May 2019
Graduated with High Distinction

Research Experience

Apple, Cupertino, CA — Summer 2023
Deep Learning Research Intern (Apple Maps)

- Investigated application of Encoder-Decoder Transformers for use in vectorization of geospatial data
- Presented to Maps leadership, where results were described as a "breakthrough"
- Working with Dr. Yonghong Wang

Amazon Lab126, Sunnyvale, CA — Summer 2022
Applied Scientist Intern

- Analyzed approaches for training NeRF models and proposed a method for consistent depth estimation
- Working with Dr. Chi Liu and Dr. Albert Chen

U.S. Naval Research Laboratory, Washington, D.C. — Summer 2021

- Investigating adversarial examples, robustness, and interpretability in meta-learning approaches for few-shot learning
- Submitted findings to 5th Workshop on Meta-Learning at NeurIPS 2021
- Working with Dr. Ed Lawson

Industry Experience

Facebook, Inc., Seattle, WA — Summer 2018
Software Engineering Intern

- Implemented and monitored new share flow functionality for encrypted Messenger threads, allowing users to forward text, sticker, photo, audio, and video securely
- Received a full-time offer at the conclusion of internship

Facebook, Inc., Menlo Park, CA — Summer 2017
Software Engineering Intern

- Designed and built a new Messenger Groups Tab approvals surface, enabling users to accept join requests across multiple group threads

- Oversaw, implemented, and ran an A/B test interleaving active groups in the Active Tab which drove topline metrics such as group sends and group creates

Facebook, Inc., Menlo Park, CA — Summer 2016
Facebook University for Engineering Intern

- Organized engineering tasks, drafted feature ideas, and collaborated with a team of 3 to build InSync, an iOS app which synchronizes music on multiple devices

Publications

7. **Sandoval-Segura**, Singla, Geiping, Goldblum, Goldstein. "What Can We Learn from Unlearnable Datasets?". *Advances in Neural Information Processing Systems* 37 (NeurIPS), 2023. (26.1% acceptance rate)

6. **Sandoval-Segura**, Singla, Geiping, Goldblum, Goldstein, Jacobs. "Autoregressive Perturbations for Data Poisoning". *Advances in Neural Information Processing Systems* 36 (NeurIPS), 2022. (25.6% acceptance rate)

5. **Sandoval-Segura**, Singla, Fowl, Geiping, Goldblum, Jacobs, Goldstein. "Poisons that are learned faster are more effective". In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2022.

4. Bashir, Montañez, Sehra, **Sandoval-Segura**, Lauw. "An Information-Theoretic Perspective on Overfitting and Underfitting". In *Australasian Joint Conference on Artificial Intelligence* (AJCAI), 2020.

3. **Sandoval-Segura**, Lauw, Bashir, Shah, Sehra, Macias, Montañez. "The Labeling Distribution Matrix (LDM): A Tool for Estimating Machine Learning Algorithm Capacity". *12th International Conference on Agents and Artificial Intelligence* (ICAART), 2020.

2. Drissi, **Sandoval**, Ojha, Medero. "Harvey Mudd College at SemEval-2019 Task 4: The Clint-Buchanan Hyperpartisan News Detector". In *Proceedings of The 13th International Workshop on Semantic Evaluation* (SemEval), 2019.

1. Drissi, Watkins, Khant, Ojha, **Sandoval**, Segev, Weiner, Keller. "Programming Language Translation using a Grammar-Driven Tree-to-Tree Model". ICML Workshop on Neural Abstract Machines and Program Induction v2 (NAMPI), 2018.

Honors and Awards

National Defense Science and Engineering Graduate Fellowship	2023
Amazon Lab126 Diversity in Robotics and AI Fellowship	2021 - 2022
NeurIPS Scholar Award ($1,625)	2022
Google CS Research Mentorship Program (CSRMP)	2021
Richard Tapia Conference Scholarship	2020
CRA-WP Grad Cohort for URMD	2020
UMD International Conference Student Support Award ($500)	2020
UMD Dean's Fellowship Program ($5,000)	2019 - 2020
ARCS Scholarship, Los Angeles Chapter	2016 - 2019
Students Rising Above Scholarship	2015 - 2019

Teaching Experience

CMSC421: Introduction to Artificial Intelligence — Spring 2021
Graduate Teaching Assistant, University of Maryland

CMSC421: Introduction to Artificial Intelligence — Fall 2020
Graduate Teaching Assistant, University of Maryland

CMSC436: Programming Handheld Systems — Fall 2019
Graduate Teaching Assistant, University of Maryland

	CS81: Computability and Logic Teaching Assistant, Harvey Mudd College	Spring 2019
	MATH187: Operations Research Grader, Harvey Mudd College	Spring 2019
Leadership and Outreach	Workshop Speaker at 17th Annual Winter Student Leadership Retreat (WSLR)	Spring 2023
	Reviewer for 1st International Conference on Automated ML	Spring 2022
	Reviewer for 5th Workshop on Meta-Learning at NeurIPS	Fall 2021
	CS Department M.S. and Ph.D. Admissions Committee	Spring 2020
	UMD Graduate Student Government Representative	Fall 2019
	JumpStart Computing Workshop, Iribe Initiative for Inclusion & Diversity in Computing	Fall 2019
Technical Background	Languages: Python, Java, C, C++, Objective-C, Swift, Go, Haskell, AMPL, Arduino Software: PyTorch, Git, GitHub, Mercurial, Jira, Mathematica, MATLAB, Xcode	
Personal Information	Citizenship: United States Language: English, Spanish	