

David Mueller

dam@jhu.edu • damueller.com • github.com/davidandym

Center for Language & Speech Processing, Johns Hopkins University,
3400 N. Charles St., Hackerman 319 Baltimore, MD 21218-2608 (U.S.A.)

Research interests

Multi-Task Optimization for Deep Neural Networks, Learning Dynamics & Generalization in Deep Learning, Multilingual Natural Language Processing, Large Language Model Training Efficiency, Robustness & Shortcut Learning.

Education

- 2018 – Present **Johns Hopkins University** – Baltimore, MD
PhD in Computer Science
Advisors: Professor Mark Dredze & Dr. Nicholas Andrews
- 2018 – 2020 **Johns Hopkins University** – Baltimore, MD
MS in Computer Science
Advisors: Professor Mark Dredze & Dr. Nicholas Andrews
- 2012 – 2016 **University of Texas at Austin** – Austin, TX
BS in Computer Science
Mentors: Professor Greg Durrett

Research experience

- Sept 2018 – Present **Johns Hopkins University (PhD Student)**
Mentors: Professor Mark Dredze & Dr. Nicholas Andrews.
My PhD thesis is on “The Role of Conflict in Multi-Task Learning”; my work is broadly focused on improving optimization & generalization in deep learning when considering multiple objectives, including multi-task and multi-lingual learning scenarios.
- June 2023 – Sept 2023 **Netflix (Machine Learning Research Intern)**
Mentor: Dr. Shervin Ardeshir
Machine learning research intern on the Promotional Media team at Netflix, working on multi-modal and multi-task optimization for scene ranking and retrieval.

Jul 2017 – **TAUR Lab - University of Texas (Undergraduate Researcher)**
Jul 2018 Mentors: Professor Greg Durrett.
Worked on efficient methods for Entity Linking in Noisy Natural Language Processing settings. The project began as a class project and continued to a conference publication at [EMNLP 2018](#).

Publications

- 2022 [David Mueller](#), Mark Dredze, Nicholas Andrews, **The Importance of Temperature in Multi-Task Learning**, *Optimization for Machine Learning Workshop @ NeurIPS 2022 (OPT 2022)*
- 2022 [David Mueller](#), Nicholas Andrews, Mark Dredze, **Do Multi-Task Learners Suffer from Task-Conflict?**, *Findings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP 2022)*
- 2020 Steven Reich, [David Mueller](#), Nicholas Andrews, **Ensemble Distillation for Structured Prediction**, *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP 2020)*
- 2020 [David Mueller](#), Nicholas Andrews, Mark Dredze, **Sources of Transfer in Multilingual Named Entity Recognition**, *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL 2020)*
- 2018 [David Mueller](#), Greg Durrett, **Effective Use of Context in Noisy Entity Linking**, *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP 2018)*

Pre-Prints & In Submission

- 2024 [David Mueller](#), Mark Dredze, Nicholas Andrews, **Instruction Tuning Harms Generalization via Catastrophic Forgetting: On the Relationship Between Seen and Unseen Task Generalization**, *In Submission to NAACL 2024*

Teaching experience

- Fall 2019 **Teaching Assistant for Machine Learning at Johns Hopkins University (CS 601.475)**
Responsible for lectures, office hours, homework & exam writing, covering fundamental machine learning topics and algorithms. Topics ranged from classical machine learning algorithms to modern deep neural networks and FATE in AI.

Talks

Fall 2023 **Where Does Negative Transfer Come From? On the Implicit Bias of SGD in Multi-Task Learning**
Center for Language and Speech Processing, Johns Hopkins University
[Video Recording](#)

Community service

2020 – Present **CLSP Graduate Admissions Committee (Johns Hopkins University)**
Responsible for the reviewing applications for admissions to the 2021, 2022, 2023, and 2024 CLSP Graduate Program.

Reviewer service

NeurIPS 2022, 2023

ICML 2020*, 2022, 2023

ICLR 2020*, 2021*, 2022, 2024

AISTATS 2022, 2023, 2024

EMNLP 2020*, 2021, 2022

ACL-IJCNLP 2020*, 2021, 2022, 2023

ARR 2022, 2023

OPT 2023

*Secondary Reviewer

Professional memberships

2018 – Present Association for Computational Linguistics (ACL)

Technical skills

Programming languages

Proficient in: Python, Go, Java

Familiar with: Ruby, Javascript

Software

L^AT_EX, Git, PyTorch, Tensorflow

Languages

English (fluent), Spanish (conversational)

Other interests

Reading (Fantasy, Historical & Science Fiction), Music (Guitar & Piano), Cocktails, Vegetarian Food, Brazilian Jiu-Jitsu, Running