David Mueller

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Center for Language & Speech Processing, Johns Hopkins University,
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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 Manager: Vi Iyengar 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 –
Jul 2018

TAUR Lab - University of Texas (Undergraduate Researcher)

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   **The Importance of Temperature in Multi-Task Learning**

David Mueller, Mark Dredze, Nicholas Andrews, *Optimization for Machine Learning Workshop @ NeurIPS 2022 (OPT 2022).*

2022   **Do Multi-Task Learners Suffer from Task-Conflict?**

David Mueller, Nicholas Andrews, Mark Dredze, *Findings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP 2022).*

2020   **Ensemble Distillation for Structured Prediction**

Steven Reich, David Mueller, Nicholas Andrews, *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP 2020).*

2020   **Sources of Transfer in Multilingual Named Entity Recognition**

David Mueller, Nicholas Andrews, Mark Dredze, *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL 2020).*

2018   **Effective Use of Context in Noisy Entity Linking**

David Mueller, Greg Durrett, *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP 2018).*

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.

Community service

2020 – Present   **CLSP Graduate Admissions Committee (Johns Hopkins University)**

Responsible for the reviewing applications for admissions to the 2021, 2022, and 2023 CLSP Graduate Program.

Reviewer service

NeurIPS 2022, 2023

ICML 2020*, 2022

ICLR 2020*, 2021*, 2022, 2024

AISTATS 2022, 2023

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
LaTeX, 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