

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

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)*.

Research experience

- Sept 2018 – Present **Research Assistant (Johns Hopkins University)**
Mentors: Professor Mark Dredze & 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.
- May 2019 – Sept 2019 **Student Researcher (SCALE Workshop)**
Mentors: Dr. Nicholas Andrews.
Led a group of undergraduate researchers whose focus was training multi-lingual language models which operate at the character or byte level, rather than subword.
- July 2017 – July 2018 **Undergraduate Researcher (University of Texas)**
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](#).

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

ICML 2020*, 2022

ICLR 2020*, 2021*, 2022

AISTATS 2022, 2023

EMNLP 2020*, 2021, 2022

ACL-IJCNLP 2020*, 2021, 2022, 2023

ARR 2022

*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, Video Games