

# David Mueller

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## Education

<b>Johns Hopkins University</b> Ph.D. in Computer Science	Sept 2018 – Dec 2024 <i>Baltimore MD</i>
<b>Johns Hopkins University</b> M.Sc. in Computer Science	Sept 2018 – May 2020 <i>Baltimore MD</i>
<b>University of Texas</b> B.Sc. in Computer Science	Sept 2012 – May 2016 <i>Austin, TX</i>

## Industry Research Experience

<b>Applied Scientist</b> Amazon	Jan 2025 – Present <i>Seattle, WA</i>
◦ Focus: Improving and evaluating reasoning, and data for reasoning, in language model pre-training.	
<b>Machine Learning Research Intern</b> Netflix	June 2023 – Sept 2023 <i>Los Gatos, CA</i>
◦ Focus: Multi-modal and multi-task optimization for scene ranking and retrieval	

## Academic Research Experience

<b>Research Assistant (Ph.D.)</b> Johns Hopkins University - <i>Advisors: Mark Dredze &amp; Nicholas Andrews</i>	Sept 2018 – Dec 2024 <i>Baltimore, MD</i>
◦ Center for Language and Speech Processing (CLSP)	
◦ PhD Thesis: Understanding multi-task optimization and transfer in deep neural networks	
<b>Undergraduate Research Assistant</b> University of Texas - <i>Advisor: Greg Durrett</i>	June 2017 – June 2018 <i>Austin, TX</i>
◦ Focus: Efficient models for noisy entity linking	

## Peer-Reviewed Publications

- [1] [David Mueller](#), Mark Dredze, Nicholas Andrews, Can Optimization Trajectories Explain Multi-Task Transfer?, *Transactions on Machine Learning Research (TMLR 2024)*
- [2] Suzanna Sia, [David Mueller](#), Kevin Duh, Where does In-Context Learning Happen in Large Language Models?, *Proceedings of the 38th Conference on Neural Information Processing Systems (NeurIPS 2024)*
- [3] [David Mueller](#), Mark Dredze, Nicholas Andrews, Multi-Task Transfer Matters During Instruction-Tuning, *Findings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL 2024)*
- [4] [David Mueller](#), Mark Dredze, Nicholas Andrews, The Importance of Temperature in Multi-Task Learning, *Optimization for Machine Learning Workshop @ NeurIPS 2022 (OPT 2022)*
- [5] [David Mueller](#), Nicholas Andrews, Mark Dredze, Do Text-to-Text Multi-Task Learners Suffer from Task-Conflict?, *Findings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP 2022)*
- [6] 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)*
- [7] [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)*
- [8] [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 and Ongoing Work

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- [9] Sophia Hager, David Mueller, Kevin Duh, Nicholas Andrews, Uncertainty Distillation: Teach Language Models to Express Semantic Confidences, *Under submission at ACL (2025)*.
- [10] David Mueller, Mark Dredze, Nicholas Andrews, Auxiliary Task Selection for Addressing Underspecification in Deep Learning, *On-going work*.
- [11] David Mueller, Mark Dredze, Nicholas Andrews, Does Scale Erase Negative Transfer?, *On-going work*.

## Invited Talks

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<b>Can Optimization Trajectories Explain Multi-Task Transfer?</b> Amazon	Sept 2024 <i>Remote</i>
<b>Where Does Negative Transfer Come From? On the Implicit Bias of SGD in Multi-Task Learning</b> Johns Hopkins University <ul style="list-style-type: none"><li>◦ Video Recording <a href="#">🔗</a></li></ul>	Sept 2023 <i>Baltimore, MD</i>

## Teaching Experience

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<b>Teaching Assistant (TA) for Machine Learning (CS 601.475)</b> Johns Hopkins University ( <i>with Prof. Mark Dredze</i> ) <ul style="list-style-type: none"><li>◦ Responsible for lectures, office hours, homework &amp; exam writing, covering graduate-level machine learning topics and algorithms.</li></ul>	Fall 2019
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## Community Service

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<b>Graduate Admissions Committee</b> Center for Language and Speech Processing (CLSP)	2020 - 2024
<b>Graduate Admissions Mentor</b> CLSP Application Support Program	2024

## Reviewer Service

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Neural Information Processing Systems ( <i>NeurIPS</i> )	2022 - 2025
International Conference on Machine Learning ( <i>ICML</i> )	2020 - 2024
International Conference on Learning Representations ( <i>ICLR</i> )	2020 - 2025
Association for Computational Linguistics Rolling Review ( <i>ARR</i> )	2022 - 2024
International Conference on Artificial Intelligence and Statistics ( <i>AISTATS</i> )	2022 - 2025
Conference on Empirical Methods in Natural Language Processing ( <i>EMNLP</i> )	2019 - 2022
Annual Meeting of the Association for Computational Linguistics ( <i>ACL</i> )	2019 - 2022
Conference on Language Modeling ( <i>COLM</i> )	2024
Workshop on Optimization for Machine Learning ( <i>OPT @ NeurIPS</i> )	2023

## Prior Industry Experience

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<b>Full-Stack Software Developer</b> Cars.com	May 2016 – Sept 2018 <i>Austin, TX</i>
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- Responsible for back-end database design and multithread data-processing using graph databases and Go.