Andrew Drozdov

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SUMMARY

My research interests are in large language models and information retrieval. In particular, I develop algorithms for effective training and inference of deep learning models with joint probabilities. Applications of my work include passage ranking, text generation, semantic parsing, among others. ⭐ I am actively seeking full-time industry positions starting early 2024.

EDUCATION

Ph.D. in Computer Science, *University of Massachusetts Amherst*   Sep 2018 - Dec 2023 (exp.)
Focus: Machine Learning; Natural Language Processing (NLP); Information Retrieval
Advisors: Mohit Iyyer, Andrew McCallum

M.S. in Computer Science, *New York University*   Sep 2015 - Dec 2016
Mentors: Sam Bowman, Kyunghyun Cho

M.Eng. in Computer Science, *Cornell University*   Sep 2013 - Dec 2013
Member of the inaugural cohort at Cornell Tech in NYC. Transitioned to full-time at Okta before completing the program.

B.S.E. in Computer Science, *University of Michigan*   Sep 2009 - May 2013

WORK EXPERIENCE

Student Researcher, *Google - Google Research, w/ Kai Hui & Don Metzler*   Apr 2023 - Sep 2023

Research Intern & Student Researcher, *Google - Google Brain, w/ Xinying Song & Denny Zhou*   Summer 2022

Research Intern, *IBM - IBM Research, w/ Ramon Astudillo, Tahira Naseem & Yoon Kim*   Summer 2021

Research Intern & Student Researcher, *Google - Google AI Language*   Summer 2019

Research Engineer, *eBay - Deep Learning Recommendation Systems*   Aug 2017 - Aug 2018

Data Engineer, *Datadog*   Summer 2015

Software Engineer, *Okta*   Jun 2013 - Feb 2015

SELECTED PUBLICATIONS

Adaptive Prompting for Long-form Question Answering (Working Title)
First-author paper from Ph.D. work. In progress.

PaRaDe: Passage Ranking using Demonstrations with Large Language Models
A. Drozdov, H. Zhuang, Z. Dai, Z. Qin, R. Rahimi, X. Wang, D. Alon, M. Iyyer, A. McCallum, D. Metzler, K. Hui
EMNLP 2023 (Findings).

You can't pick your neighbors, or can you? When and how to rely on retrieval in the kNN-LM
A. Drozdov, S. Wang, N. Rahimi, A. McCallum, H. Zamani, M. Iyyer
EMNLP 2022 (Findings).

Compositional Semantic Parsing with Large Language Models
A. Drozdov, N. Schärli, E. Akyürek, N. Scales, X. Song, X. Chen, O. Bousquet, D. Zhou
ICLR 2022.

ADDITIONAL RESEARCH

kNN-LM Does Not Improve Open-ended Text Generation
S. Wang, Y. Song, **A. Drozdov**, A. Garimella, V. Manjunatha, M. Iyyer
EMNLP 2023.

Inducing and Using Alignments for Transition-based AMR Parsing
A. Drozdov, J. Zhou, R. Florian, A. McCallum, T. Naseem, Y. Kim, R. Astudillo
NAACL 2022.

Improved Latent Tree Induction with Distant Supervision
A. Drozdov, Z. Xu, J. Lee, T. O'Gorman, S. Rongali, M. Iyyer, A. McCallum
EMNLP 2021.

[Unsupervised Parsing with S-DIORA: Single Tree Encoding for DIORA](#)
A. Drozdov, S. Rongali, Y. Chen, T. O'Gorman, M. Iyyer, A. McCallum
EMNLP 2020.

[Unsupervised Labeled Parsing with DIORA](#)
A. Drozdov, P. Verga, Y. Chen, M. Iyyer, A. McCallum
EMNLP 2019 (Short Paper).

[Unsupervised Latent Tree Induction with Deep Inside-Outside Recursive Auto-Encoders (DIORA)](#)
A. Drozdov, P. Verga, M. Yadav, M. Iyyer, A. McCallum
NAACL 2019 (Oral).

[Emergent Communication in a Multi-Modal, Multi-Step Referential Game](#)
K. Evtimova, **A. Drozdov**, D. Kiela, K. Cho
ICLR 2018.

[Do latent tree learning models identify meaningful structure in sentences?](#)
A. Williams, **A. Drozdov**, S. Bowman
TACL 2018.

Professional Service

I've reviewed over 80 research papers at a variety of AI and NLP conferences: AAAI '19, '23–24; ACL '21; CoNLL '20–23; EMNLP '22–23; ICLR '22–24; ICML '20–23; Neurips '19–22; SIGIR '22–23; WSDM '24.

Teaching

UMass Amherst, *Teaching Assistant*
Industry Mentorship Course (CS-696DS) with Andrew McCallum. Spring '22, Spring '23
Advanced Natural Language Processing (CS-685) with Mohit Iyyer. Spring '22

Cornell University, *Teaching Assistant*
Data Science in the Wild (CS-5304) with Giri Iyengar at Cornell Tech. Spring '18

Mentorship: I have mentored 18 MS students and 1 BS student on research projects at UMass, primarily through independent studies with IESL and the industry mentorship course. Among others, topics have included knowledge distillation, cross-lingual training, and data mining. On these projects I've partnered with Amazon (Saleh Sulton), Bloomberg (Amanda Stent), and Chan Zuckerberg Initiative (Boris Veytsman).

Invited Talks

NYU, Tal Linzen's lab. Unsupervised parsing, success and failures. Spring '22
UMass Amherst, Neural Networks (CS-682) taught by Erik Learned-Miller. Using transformers for NLP. Fall '21
MIT, NLP lab meeting invited by Yoon Kim. Neural alignments for AMR. Fall '21
CMU, Algorithms for NLP (CS-11711) taught by Emma Strubell. Unsupervised parsing with S-DIORA. Fall '20
IBM, NLP reading group, organized by Ramon Astudillo. Unsupervised parsing with DIORA. Spring '20

Awards

Top Reviewer, Neurips '22

Expert Reviewer, ICML '21

Top-33% Reviewer, ICML '20

Best Deep Learning Project (Jointly with K. Evtimova) Fall '16
NYU's Center of Data Science Award Ceremony. Award selected by Yann Lecun.
Project Title: Understanding Mutual Information and its Use in InfoGAN

Activities

Data Science Tea, *Co-Organizer* Fall '18, Fall '19
Weekly speaker series covering a range of domains (attendance between 30-100 people depending on the topic).

Personal Interests

A long time ago (in HS), I was a competitive runner, setting team mid-distance records and participating in the pentathlon.