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Objective

I'm a Machine Learning Research Scientist at ScaleAI leading ML research and ML driven NLP. I work on latent variable modeling for text, natural language generation, and optical character recognition. Previously I've worked on representation learning for NLP, fake speech detection, and causality leading to publications at NeurIPS, AAAI, and ICML.

Work Experience

- **Machine Learning Research Scientist** — Scale AI
  Deep Learning, NLP, and Statistics — April 2020 – Present
  - ML Lead on ScaleAI's Models as a Service & NLP products.
  - Built in-house multi-task optical character recognition models, which landed a $500k corporate MaaS contract.
  - Developed algorithms to condition transformer language models to generate unseen sentences, paper under review.
  - Initiated a data-labeling offering for academic research labs called Scale for Research as an alternative to MTurk.
- **Research Scientist** — AI Foundation
  Deep Learning, NLP, and Speech — July 2019 – January 2020
  - Built a sample- and memory-efficient multi-task fake speech detection system and published at AAAI20.
  - Created a large, diverse fake speech dataset to improve internal fake speech detection systems.
  - Developed an audio-driven facial animation model, which made AI rendered puppets more realistic.
  - Evaluated the efficacy of different sentence representation methods for question-answer retrieval in dialog.

Education

- **Courant Institute of Mathematical Sciences - New York University** — New York, NY
  M.S. Computer Science (Deep Learning & NLP) — Sept 2017 – May 2019
  - **Research Advisors:** Kyunghyun Cho and Sam Bowman
  - **Graduate Courses**: Deep Learning, Deep Generative Models, Deep Learning for NLP
- **Northwestern University** — Evanston, IL
  B.A./M.S. Statistics/Computer Science; **Stat GPA:** 3.963/4.000; **MS GPA:** 4.000/4.000 — Sept 2013 – June 2017
  - **Graduate Courses**: Deep Learning, Machine Learning Foundations, Probabilistic Graphical Models, Data Mining, Adv Topics in ML, Statistical Pattern Recognition, Computational Learning Theory, Adv Topics in Bayesian Stats

Publications

1. **Subramani, Nishant** and Nivedita Suresh. "Discovering Useful Sentence Representations from Large Pretrained Language Models" **Under Review**
2. **Subramani, Nishant** and Delip Rao. "Learning Efficient Representations for Fake Speech Detection" **AAAI 2020**
3. **Subramani, Nishant**, Samuel R. Bowman, and Kyunghyun Cho. "Can Unconditional Language Models Recover Arbitrary Sentences?" **NeurIPS 2019**
4. **Subramani, Nishant**. "Pag2admg: An Algorithm for the Complete Causal Enumeration of a Markov Equivalence Class" **ICML 2018 CausalML Workshop**.
5. **Subramani, Nishant**, and Doug Downey. "PAG2ADMG: A Novel Methodology to Enumerate Causal Graph Structures" **AAAI 2017 Student Abstract**

Research Experience

- **Research Assistant in Deep Learning/NLP** — New York University
  PIs: Kyunghyun Cho and Sam Bowman — September 2017 – May 2019
  - Developed a framework to analyze the sentence space of a recurrent neural language model.
  - Built a pipeline to investigate using a language model as a universal decoder for multitask natural language generation.
- **Deep Learning Research Intern** — Salesforce Research
  Advisor: Richard Socher — March 2017 – August 2017
  - Built a multitask NLP system trained end-to-end for a vareity of NLP tasks.
  - Investigated impact of CoVe pretraining on state of the art abstractive summarization and question answering models.
- **Research Assistant in Deep Learning & NLP** — Northwestern University
  PI: Doug Downey — July 2014 – March 2015; March 2016 – June 2017
  - Developed and evaluated extrapolator-based hyperparameter optimization methods, adaboost-based ensembling methods, hashing-based dropout, and importance sampling for recurrent language modeling.
  - Incorporated prior knowledge into word2vec training to improve performance on analogy tasks.
- **Research Assistant in Biomedical Informatics** — Stanford University
  PI: Olivier Gevaert — Jun 2015 – Jan 2016
  - Developed a Bayesian Network structure learning methodology to identify a genetic basis for Glioblastoma.

Professional Service

- **Deep Learning Consultant** — Talkspace
  Hiring Manager: Bonnie Ray — November 2017 – August 2018
  - Taught Talkspace's Data Science team about deep learning fundamentals and helped them build domain-specific models.
- **Conference Reviewer** — May 2017 – Present
  NeurIPS 2017, 2020; ICLR 2019, 2020; ICML 2020; AAAI 2020; EMNLP 2019; ICCV 2017