Joe Barrow

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Education

University of Maryland	**College Park, Maryland**
PhD in Computer Science	Expected 2021

- **GPA:** 4.0 / 4.0
- **Relevant Coursework:** Computational Linguistics I (Fall 2016) and II (Spring 2017), Data Visualization (Fall 2018), TA for Machine Learning (Fall 2016)

University of Virginia	**Charlottesville, Virginia**
Bachelor of Science, Computer Science + Statistics (Double Major)	May 2016

- **GPA:** 3.8 / 4.0

Work Experience

University of Maryland	**College Park, Maryland**
Research Assistant, NLP	October 2016 – Present

- Researching how to incorporate document structure as a useful signal in neural models.
- Participating in the IARPA MATERIAL project for cross-lingual information retrieval (CLIR); improving document retrieval and evaluating multilingual embeddings.
- Developed an active learning tool to identify and track strategic narratives in US media.

Adobe Research – Document Intelligence Lab	**College Park, Maryland**
Applied Scientist Intern	June 2019 – September 2019

- Worked on contract analysis. Developed models for document outlining, passage retrieval, and incorporating structure into pretraining.

Amazon	**New York, New York**
Applied Scientist Intern	May 2018 – August 2018

- Interned with AWS Comprehend building novel deep learning architectures (Directed Acyclic Graph-Structured LSTMs), and achieved high efficiency with custom batching.

Johns Hopkins University	**Baltimore, Maryland**
Research Assistant, Clinical NLP	May 2017 – August 2017

- Using graphical models to estimate confidence of information extracted from clinical notes in an unsupervised setting.

Microsoft	**Seattle, Washington**
Software Developer Intern	May 2015 – August 2015

- Interned with the Exchange High Availability team, and worked on reporting and data processing using Microsoft's Cosmos platform for big data.

Publications

- Peskov, D., **Barrow, J.**, Rodriguez, P., Neubig, G., & Boyd-Graber, J. (2019). Mitigating Noisy Inputs for Question Answering. *Interspeech 2019.*
- Shing, H.-C., **Barrow, J.**, Galuscakova, P., & Oard, D. W. (2019). Unsupervised System Combination for Set-Based Retrieval with Expectation Maximization. *CLEF 2019.*
- Oard, D. W., Carpuat, M., Galuscakova, P., **Barrow, J.**, Nair, S., Niu, X., ... Heafield, K. (2019). Surprise Languages: Rapid-Response Cross-Language IR. In N. Ferro, E. Ishita, N. Kando, M. P. Kato, I. Soboroff, & M. Zhang (Eds.), *Proceedings of the Ninth International Workshop on Evaluating Information Access (EVIA 2019): a Satellite Workshop of the NTCIR-14 Conference, June 10, 2019 Tokyo Japan* (pp. 23). ACM.

- **Barrow, J.**, & Peskov, D. (2017). UMDeep at SemEval-2017 Task 1: End-to-End Shared Weight LSTM Model for Semantic Textual Similarity. *Proceedings of the 11th International Workshop on Semantic Evaluation (SemEval-2017)*.

Related Projects

SemEval 2017 (Team UMDeep)   November 2016 – January 2017
- Participated in the 2017 Semantic Evaluation competition, using a Siamese-LSTM architecture to encode sentence pairs and measure semantic similarity.

LambdaNet   Fall 2014 – Spring 2016
- Developed an extensible deep learning library in Haskell, which has become the most popular Haskell neural network library (excluding TensorFlow's Haskell bindings).

Technical Skills

Languages: Python, C/C++, Haskell, Scala, Stan
Libraries: PyTorch, AllenNLP, Numpy, Scipy, SkLearn, PyMC3, SpaCy, NLTK