Alexander Miserlis Hoyle

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EDUCATION

PhD in Computer Science *Began Fall 2019*
University of Maryland, College Park
Advisor: Philip Resnik
GPA: 3.93

MSc in Computational Statistics and Machine Learning
University College London
Thesis Advisor: Sebastian Riedel
Graduated with Distinction (4.0 equivalent)

BA in Mathematics
Wesleyan University

REFEREED PUBLICATIONS

Hoyle, A., Marasović A., and Smith N. A.
Promoting Graph Awareness in Linearized Graph-to-Text Generation. Findings of ACL. 2021.

Rodriguez R., Barrow J., **Hoyle A.**, Lalor J. P., Jia, R., and Boyd-Graber J.
Evaluation Examples are not Equally Informative: How should that change NLP Leaderboards?. ACL. 2021.

Hoyle, A., Goel P., and Resnik R.
Improving Neural Topic Models using Knowledge Distillation. EMNLP. 2021.

Hoyle, A., Wolf-Sonkin L., Wallach, H., Augenstein, A, and Cotterell, R.
Unsupervised Discovery of Gendered Language through Latent-Variable Modeling. ACL. 2019.

Hoyle, A., Wolf-Sonkin L., Wallach, H., Cotterell, R., and Augenstein, A.
Combining Sentiment Lexica with a Multi-View Variational Autoencoder. NAACL. 2019.

Hoyle, A.
Citation Detected: Automated Claim Detection through Natural Language Processing. UCL Master's thesis. 2018. *Received Distinction.*

RESEARCH EXPERIENCE

PhD Intern, Allen Institute for Artificial Intelligence
- Worked on project to constrain generation of pretrained transformers using structured representations of data. Led to publication in *Findings of ACL* 2021.

Master's Student and Intern, UCL Machine Reading Group
- For thesis, developed model to determine when factual claims require an external citation for support using Wikipedia data. Constructed dataset and suite of neural architectures in TensorFlow, significantly outperforming baselines.
- Following thesis, collaborated with external researchers to develop generative latent variable model for quantifying gender bias in large text corpora. Devised novel Variational Autoencoder to combine disparate sentiment lexica into common score.

Quantitative Analysis Center Research Apprenticeship, Wesleyan University
- Collaborated on research in child language development with director of cognitive psychology lab.
- Assessed the validity of several competing theories regarding numerical development in children by modeling counting-system acquisition using empirical lab data.
- Delivered a poster presentation and composed a paper on research to incorporate in future lab work.

GRANTS

Active Grants

- NSF: Modeling Co-Decisions: A Computational Framework Using Language and Metadata.
  - Investigator: Philip Resnik
  - Award: $430,970
- NSF: Advanced Topic Modeling Methods to Analyze Text Responses in COVID-19 Survey Data.
  - Investigator: Philip Resnik
  - Award: $191,785

TEACHING AND SERVICE

Graduate Teaching Assistant, University of Maryland

- Data Science (advanced undergraduate). Approx. 200 students. Spring 2020.
- Machine Learning (advanced undergraduate). Approx. 200 students. Fall 2019.
  - Guest Lecture: Gaussian mixture models and expectation maximization.

Mentoring

- Graduate Student Mentorship Initiative, *Científico Latino*, Fall 2020. Advised Keren Fuentes, now a predoctoral intern at Facebook AI Research.

Service

- Graduate Student Government Representative for Computer Science. Fall 2020–Present.
- Graduate Assistant Advisory Committee. Spring 2020–Present.

PROFESSIONAL EXPERIENCE

Senior Research Analyst, The Brattle Group

- Delivered weekly presentations to U.S. department of justice to assess conditions of government housing and detect fraud using database of 30 million work orders; used data to build interactive websites for client use. Results of this work eventually led to restructuring of the housing authority's management & increased oversight.
- Initiated and later led development of large-scale document review tool in Python; created search backend, user interface, classification methods.
- Replicated and extended econometric methods from academic papers for client analyses.

Consulting Associate, Frank N. Magid Associates

- Led analysis and construction of qualitative and quantitative reports for clients in media and marketing; worked directly with clients to meet objectives related to product development and strategy.

AWARDS

Dean's Fellowship for Outstanding Academic Achievement, University of Maryland, 2019-2021
Dean's List, University College London, 2017-2018
Quantitative Analysis Center Research Apprenticeship, Wesleyan University, Summer 2011

SELECTED SKILLS

- Fluent in French
- *Machine Learning and Data Analysis:* TensorFlow, PyTorch, Pyro, R, Pandas, Scikit-Learn, Shiny, SQL, Apache Spark, Excel, SPSS, Stata
- *Development tools:* Python, JavaScript, Django, Apache Solr, Amazon Web Services, Google Cloud Platform

GRADUATE COURSEWORK

- Graphical Models
- Statistical Natural Language Processing
- Applied Machine Learning
- Supervised Learning
- Statistical Models and Data Analysis
- Selected Topics in Statistics
- Applied Bayesian Methods
- Advanced Deep Learning and Reinforcement Learning
- Computational Linguistics
- Unsupervised Learning