Alexander Miserlis Hoyle

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EDUCATION

PhD in Computer Science *Expected Graduation Summer 2024*
University of Maryland
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

A. Hoyle, R. Sarkar, P. Goel, and P. Resnik.
Natural Language Decompositions of Implicit Content Enable Better Text Representations. *EMNLP*. 2023.

D. Stammbach, V. Zouhar, **A. Hoyle**, M. Sachan, and E. Ash.
Re-visiting Automated Topic Model Evaluation with Large Language Models. *EMNLP*. 2023.

C. M. Pham, **A. Hoyle**, S. Sun, and M. Iyyer.
TopicGPT: A Prompt-based Topic Modeling Framework *Under review*. 2023.

A. Hoyle, P. Goel, R. Sarkar, and P. Resnik.
Are Automated Neural Topic Models Broken? *Findings of EMNLP*. 2022.

A. Hoyle, P. Goel, D. Peskov, A. Hian-Cheong, J. Boyd-Graber, and P. Resnik.
Is Automated Topic Model Evaluation Broken?: The Incoherence of Coherence. *NeurIPS* (Spotlight Presentation). 2021.

S. Wyckoff-Gaynor, P. Goel, **A. Hoyle**, P. Resnik., and K. Miler.
Do You Walk the Walk, Talk the Talk, or Tweet the Tweet?: Ideal Points and What They Reveal About Congressional Behavior. *Annual Meeting of the American Political Science Association.* 2021.

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

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

A. Hoyle, P. Goel, and P. Resnik.
Improving Neural Topic Models using Knowledge Distillation. *EMNLP*. 2020.

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

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

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

INVITED TALKS

Computational Social Science as a Problem Space for NLP
University of Massachusetts-Amherst, November 2023
Stanford University, November 2023
Bocconi University, November 2023

Testing Natural Language Generation Models for Undesirable Behavior in the Long Tail
Microsoft Experiences + Devices Team, October 2022

Structuring Posterior Inference
University of Maryland CLIP Colloquium, February 2020

RESEARCH EXPERIENCE

PhD Intern, Microsoft Research
Fairness, Accountability, Transparency, and Ethics group, mentored by Alexandra Olteanu, Marco Ribeiro, and Hanna Wallach (publication in preparation)

PhD Intern, Allen Institute for Artificial Intelligence
AllenNLP Group, mentored by Noah A. Smith and Ana Marasović

Master's Student and Intern, University College London
UCL Machine Reading Group, advised by Sebastian Riedel and Jeff Mitchell

Quantitative Analysis Center Research Apprenticeship, Wesleyan University
Developmental Psychology Lab, advised by Anna Shusterman

TEACHING AND SERVICE

Teaching Experience

- **Data Science**, *Graduate Teaching Assistant*, University of Maryland
  Advanced undergraduate, approx. 200 students. Spring 2020.
- **Machine Learning**, *Graduate Teaching Assistant*, University of Maryland
  Advanced undergraduate, approx. 200 students. Fall 2019.

Guest Lectures

- **Topics in the Computational Cognitive Neuroscience of Language**, University of Maryland
  Title: *Bayes, the Free Energy Principle, and Predictive Coding.* Spring 2022
- **Machine Learning**, University of Maryland
  Title: *Gaussian Mixture Models and Expectation Maximization* (two sections). Fall 2019

Mentoring

- Sander Schulhoff, UMD CS Undergraduate (2023)
- Pranav Dupelet, UMD CS Undergraduate (2023)
- Aditya Mandke, matched through *Científico Latino*'s Graduate Student Mentorship Initiative (Fall 2021). Accepted into a master's in Computer Science at USC.
- Keren Fuentes, matched through *Científico Latino*'s Graduate Student Mentorship Initiative (Fall 2020). Accepted as predoctoral intern at Facebook AI Research.

Reviewing

- TACL (2023)
- EMNLP / ARR (2022-2023)

Campus Service

- Graduate Assistant Advisory Committee, Director of Data & Research. Spring 2020–Present.
  Developed comparative analysis of graduate stipends and surveyed graduate assistants about working conditions. Delivered presentation of results to Provost and Dean of Grad. School; to University Faculty Senate; as testimony before state legislature.
- Graduate Student Government Representative for Computer Science. Fall 2020–Spring 2021.
- Panelist for Undergraduate Datafest Competition at Wesleyan Univeristy. Spring 2016.

GRANTS AND AWARDS

Co-authored Grants

- Effective Few-Shot Learning for Constructs in Psychological and Social Science. *UMD Social Data Science Center Seed Grant*
- Modeling Co-Decisions: A Computational Framework Using Language and Metadata. *NSF (Award No. 2008761)*

- Advanced Topic Modeling Methods to Analyze Text Responses in COVID-19 Survey Data. *NSF (Award No. 2031736)*

Awards

Best Reviewer Award in the Information Retrieval and Text Mining Track, EMNLP 2023
Accepted to German Academic Exchange Service (DAAD) as an AInet fellow in Human-centered AI
Goldhaber Travel Award, University of Maryland
International Conference Student Support Award, University of Maryland
Computer Science Department Travel Award, University of Maryland
Dean's Fellowship for Outstanding Academic Achievement, University of Maryland
Dean's List, University College London
Quantitative Analysis Center Research Apprenticeship, Wesleyan University

PROFESSIONAL EXPERIENCE

Research Analyst, The Brattle Group

- Performed analysis, created reports, and delivered weekly presentations to U.S. Department of Justice to assess conditions of NYC public housing. Results of this work eventually led to restructuring of the housing authority's management, increased oversight, and a $2.2 billion-dollar settlement.
- Initiated and later led development of large-scale automated document retrieval tool; created search backend, user interface, classification methods. Tool was used across several white-collar crime projects with government clients.
- Replicated and extended published econometric models for client analyses.

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