

Hamza Alshamy

 GitHub |  LinkedIn |  Scholar |  Website |  ha2486@nyu.edu

EDUCATION	New York University	Sep 2024 – May 2026
	M.S. in Data Science <ul style="list-style-type: none"> • Research Interest: Computational Social Science; Human-AI Interaction; Machine Learning; Natural Language Processing; Social Media 	
	B.A. in Economics	May 2024
	<ul style="list-style-type: none"> • Minors: Data Science and Mathematics 	
RESEARCH EXPERIENCE	Kensho (NYU Capstone)	Sep 2025 – December 2025
	NLP RESEARCHER – TOKENIZATION <i>Supervisor: Dr. Chris Tanner</i> <ul style="list-style-type: none"> • Developing tokenization methods that improve model efficiency and compression beyond standard BPE by integrating entropy- and compression-driven objectives. • Conducting large-scale experiments on open-text corpora to evaluate token efficiency, vocabulary compactness, and downstream model performance. 	
	Center for Conflict and Cooperation	Aug 2025 – Present
	GRADUATE RESEARCH ASSISTANT – HUMAN-AI INTERACTION <i>PI: Dr. Jay Van Bavel Post-doc: Dr. Laura Globig</i> <ul style="list-style-type: none"> • Apply machine learning and behavioral experiments to understand AI's impact on collective decision-making and online discourse. • Develop large-scale online experiments and simulations to model how social incentives (rewards and punishments) influence the spread of misinformation and harmful content. • Build NLP classifiers and algorithmic interventions to detect and mitigate identity-driven biases in political discourse and information sharing. 	
	Centre for Human-Inspired AI, University of Cambridge	Jul 2025 – Present
	VISITING RESEARCH ASSISTANT – HUMAN-AI INTERACTION AND ECONOMICS <i>PI: Dr. Umang Bhatt</i> <ul style="list-style-type: none"> • Conduct applied research on how AI shapes human learning, behavior, and decision-making. • Design and implement a longitudinal field experiment examining how AI assistance affects within-organization dynamics: skill formation, effort allocation, and promotion dynamics among knowledge workers. 	
	King Faisal Center for Research and Islamic Studies	Sep 2024 – Present
	CONTRACTED RESEARCHER – COMPUTATIONAL SOCIAL SCIENCE <ul style="list-style-type: none"> • Developed a BERT-based sentiment analysis pipeline to study media discourse and narrative dynamics. • Conducted demographic economics research analyzing population aging and fertility rate dynamics in Saudi Arabia 	
	New York University	Dec 2023 – May 2024
	LEAD QUANTITATIVE RESEARCHER (CO-PI) <i>Faculty Advisor: Dr. Gerald McIntyre</i> <ul style="list-style-type: none"> • Built and cleaned a 100-country World Bank panel dataset integrating income, demographic, and unemployment indicators, and applied fixed and random-effects models to isolate demographic drivers of GDP growth and unemployment. 	

SELECT WORKING PAPERS

- [1] **Artificial Intelligence Circumvents Identity-Driven Biases in Source Selection**
Under Review at Nature Communications (Preprint on OSF [🔗](#))
Laura K. Globig, Rachel Xu, **Hamza Alshamy**, and Jay Van Bavel
- [2] **Longitudinal Hostility Analysis of U.S. Presidential Debates (1960–2024)**
Draft in preparation for Journal of Computational Social Science (Draft PDF [🔗](#))
Hamza Alshamy, Alexander Pegot-Ogier
- [3] **Animated Territorial Data Extractor (ATDE): A Computer-Vision Method for Extracting Territorial Data from Animated Historical Maps [🔗](#)**
ArXiv Preprint [🔗](#)
Hamza Alshamy, Isaiah Woram, Advay Mishra, Zihan Xia, Pascal Wallisch
- [4] **Using Reward-Learning to Reduce the Spread and Impact of Harmful Online Content**
In Progress
Laura K. Globig, **Hamza Alshamy**, Jay Van Bavel

PUBLICATIONS

- [1] **Saudi Demographic Economics: Population Aging and Drivers of Declining Fertility Rates**
King Faisal Center for Research and Islamic Studies, Masarat, December 2025 [🔗](#)
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TEACHING EXPERIENCE

New York University, Graduate Teaching Assistant
Fall 2025
 DS-UA 201: Causal Inference (Instructor: [Dr. Sidharth Sah](#))
 DS-GA 1001: Introduction to Data Science (Instructor: [Dr. Pascal Wallisch](#)) – Master’s
Spring 2025
 CSCI-UA 473: Fundamentals of Machine Learning (Instructor: [Dr. Pascal Wallisch](#))
 DS-UA 112: Principles of Data Science II (Instructor: [Dr. Pascal Wallisch](#))

FELLOWSHIPS, FUNDING,& AWARDS

King Abdullah Full Merit Scholarship – Graduate Studies	2024 – 2026
Frédéric Bastiat Fellow 🔗	2024 – 2025
<i>The Mercatus Center at George Mason University</i>	
Best Social Science Research Award 🔗	2024
<i>50th Annual Undergraduate Research Conference, NYU</i>	
NYU Dean’s Undergraduate Research Fund 🔗	2024
Joseph Schumpeter Fellow 🔗	2021 – 2022
<i>The Mercatus Center at George Mason University</i>	
King Abdullah Full Merit Scholarship – Undergraduate Studies	2020 – 2024

SELECT PROJECTS

A more exhaustive list of my projects can be found on [GitHub](#).

Fine-tuning Transformer-based (BERT) Language Model with Parameter-Efficient Methods [🔗](#)

Implemented BitFit for efficient deployment of BERT models on sentiment tasks using Hugging Face and Optuna. Reduced trainable parameters by 99.93% (4.4M → 3K) while preserving functional classification performance.

A Course in Principles of Data Science: Foundations of Statistics and Machine Learning



Designed and publicly released a *14-lecture slide series* to support data science education. Covered probability, inference, regression, hypothesis testing, and machine learning to aid students across disciplines.

TECHNICAL SKILLS

- **Programming Languages:** Python, R, SQL
- **Tools & Frameworks:** Git, Hadoop, Spark
- **ML/DL Libraries:** TensorFlow, PyTorch, SciKit-learn, Hugging Face
- **Applied Skills:** NLP, Social Media Analysis, Clustering, Probabilistic Modeling, Visualization

SELECT COURSEWORK

Machine Learning ([Kyunghyun Cho](#)); Natural Language Understanding ([Tal Linzen](#)); Probability and Statistics for Data Science ([Carlos Fernández-Granda](#)); Development Economics ([William Easterly](#)); History of Economic Thought ([Mario Rizzo](#))