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Hamza Alshamy

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Education

New York University Sep 2024 – *May 2026*
M.S. in Data Science
• Research area: Computational Social Science

B.A. in Economics May 2024
• Minors: Data Science and Mathematics

Research Experience

Center for Conflict and Cooperation Aug 2025 – *Present*
Research Assistant
PI: Dr. Jay Van Bavel; Supervisor: Dr. Laura Globig
• Developing NLP classifiers and experimental methods to evaluate how social incentives and AI interventions reduce the spread of information and harmful content online.

Centre for Human-Inspired AI, University of Cambridge Jul 2024 – *Present*
Visiting Research Assistant
PI: Dr. Umang Bhatt
• Designing a longitudinal experiment to evaluate how AI assistance affects skill development, incentives, and promotion dynamics among knowledge-workers.

Venn Research Group *(Independent)* Nov 2023 – *Present*
Research Lead
Scientific Advisor: Dr. Pascal Wallisch
• Leading interdisciplinary research by utilizing Data Science to study complex social systems and emergent behaviors across various fields.

New York University Dec 2023 – May 2024
Lead Quantitative Researcher (Co-PI)
Faculty Advisor: Dr. Gerald McIntyre
• Built and cleaned a 100-country World Bank panel dataset integrating income, demographic, and unemployment indicators.
• Estimated fixed and random-effects models that isolated demographic drivers of GDP growth and unemployment.

Publications

[1] **What NLP says about politics: Longitudinal sentiment analysis of U.S. presidential debates (1960–2024)**
Work in progress (Draft PDF)
Hamza Alshamy, Alexander Pegot-Ogier

[2] **TimeGraph: A computer vision pipeline for quantifying territorial dynamics from animated historical maps**
Work in progress
Hamza Alshamy, Advay Mirsha, Isaiah Woram, Charlie Xia, Pascal Wallisch

[3] **Saudi demographic economics: Population aging and drivers of declining fertility rates**
King Faisal Center for Research and Islamic Studies, Masarat, June 2025
Hamza Alshamy

[4] **Demographic economics: The implications and consequences of Japan's aging population on labor productivity, immigration, and pension funds**
Annual Undergraduate Research Conference, NYU, Oral Presentation, May 2024 (Best Social Science Research Award)
Hamza Alshamy, Anviti Swaraj, Nikko Elyassi

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
The Mercatus Center at George Mason University
Best Social Science Research Award 2024
50th Annual Undergraduate Research Conference, NYU
NYU Dean's Undergraduate Research Fund 2024
Joseph Schumpeter Fellow 2021 – 2022
The Mercatus Center at George Mason University
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)