Hamza Alshamy

 GitHub | LinkedIn | Website | ha2486@nyu.edu

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
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[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)