ANDRES AZQUETA-GAVALDON

andresazqueta.com ⋄ andres.azqueta@bde.es

WORK EXPERIENCE

Bank of Spain, Madrid   October 2023 - current
Senior data scientist

- Developed novel economic outlook indicators using Large Language Models (LLMs) to analyze text data and predict future trends.

- Automated banking information and financial risk processes through machine learning and data pipelines.

- Leveraged Big Data applications like Dataiku, Pyspark, and Hadoop to extract insights from large financial datasets.

Arcturis Data, Oxford   September 2020 - September 2023
ML Researcher

- Statistical Analysis using Electronic Health Record (EHR) data.

- Causal inference: Propensity score matching, causal trees, generative adversarial net for inference of individual treatment effects, A-B testing, Difference in Difference regression.

- LLM for entity recognition, relation extraction, and concept disambiguation applied to GP referral letters.

- Azure cloud computing services.

European Central Bank, Frankfurt   November 2020 - February 2021
Consultant in the European and International relationships division

- Project to create an index of Chinese financial risk using NLP techniques and measure its effect on financial and macroeconomic variables.

European Central Bank, Frankfurt   September 2019 - December 2019
Research Analyst in the Prices and Costs division

- Monitoring inflation components and expectations through means of data mining and ML.

European Central Bank, Frankfurt   October 2018 - 14 September 2019
PhD Trainee in the Business Cycles Analysis division

- Time series analysis to forecast economic indicators: investment, consumption and net exports.

- ML to forecast financial developments through means of stock market networks. Paper can be found here.

- NLP to construct economic and financial uncertainty indicators and assess its impact on the economy. Paper can be found here.

University of Glasgow, Glasgow   October 2016 - September 2017
Economics Teacher

- Teacher of first year economic students.

- Macroeconomics and Microeconomics.

EDUCATION

University of Glasgow, Glasgow *August 2020*
PhD in Economics
Thesis: Text-mining in Macroeconomics: the wealth of words
Examiner: Michael McMahon

- NLP to build economic and financial indicators. Published work can be found here, here, here, here and here.

- Causal inference in time series to evaluate the effects of narratives in cryptocurrency prices. Published paper can be found here.

- Presentations in multiple international conferences in ML and Econometrics.

- Several awards received for papers (see Awards sections).

Ludwig Maximilian Universität, Munich *May 2014*
Masters in Research Economics.
Thesis: An analysis of Credit Cycles in Modern Macroeconomic Models
Grade: 2.65 (German system)

University of Glasgow, Glasgow *May 2011*
Bachelors in Economics and Business Economics
Grade: Second-class honours, upper division (2.1)

PUBLICATIONS

Azqueta-Gavaldon A. 2023. Political Referenda and Investment: Evidence From Scotland. **European Journal of Political Economy**, Volume 80: https://doi.org/10.1016/j.ejpoleco.2023.102474

Azqueta-Gavaldon A., Hirschbhl D., Onorante L., and Saiz L. 2023. Sources of economic policy uncertainty in the euro area: an unsupervised machine learning approach . **European Economic Review**, Volume 152: ttps://doi.org/10.1016/j.euroecorev.2023.104373

Wallis J., Azqueta-Gavaldon A., Ananthakumar T., Drichen R., and Albergante L. 2022. Similarity-based prediction of ejection fraction in heart failure patients. **Informatics in Medicine Unlocked**, Volume 32: https://doi.org/10.1016/j.imu.2022.101035

Azqueta-Gavaldon A. 2019. Causal inference between cryptocurrency narratives and prices: Evidence from a complex dynamic ecosystem. **Physica A: Statistical Mechanics and its Applications**, Volume 537

Azqueta-Gavaldon A. 2018. Financial investment and economic policy uncertainty in the UK. **IML '17 Proceedings of the 1st International Conference on Internet of Things and Machine Learning** Article No. 40

Azqueta-Gavaldon A. 2017 Developing news-based Economic Policy Uncertainty index with unsupervised machine learning. **Economics Letters**, 158, 47-50

WORK IN PROGRESS

Nowcasting US Business Cycles with Networks and Machine Learning (join with Dominik Hirschbhl, Luca Onorante and Lorena Saiz)

Measuring financial risk in China: An unsupervised machine learning approach (join with Alexander Al-Haschimi, Apostolos Apostolou and Martino Ricci) (R&R Journal of Banking and Finance)

TEACHING

MsC Supervision Thesis (Queen's University Belfast, June 2022 - current)

Natural Language Processing (Eduonix, March 2022 - current)

Practical Machine Learning (Management Center Innsbruck, 3-4 Sept 2021)

Advance methods of text-mining for Economics and Finance (Glasgow University Workshop, 6-7 July 2017)

Introduction to Economics (Glasgow University, October 2016 - September 2017)

TECHNICAL STRENGTHS

Modeling and Analysis	Causal Inference, Machine-learning, Text-mining, Forecasting
Software and Tools	Python, R, Keras, TensorFlow, Hadoop
Languages	Spanish (mother tongue); English (fluent); German (fluent)

AWARDS

- Best PhD Finance Paper, 3rd Essex Center Conference in Banking and Finance (July 2018, Essex, UK): 100 pound

- Special mention from the Young Researchers ALdE Prize 2018, XXI Applied Economics Meeting (June 2018, Alcala de Henares, Spain): 500 euros

- College of Social Sciences Economics doctoral student Scholarship, Aug. 2015 - current

- Luis Toharia Award for Young Researchers in Labour Economics: 250 euros

REFEREE SERVICES:

Economics Letters (3), The North American Journal of Economics and Finance (1), Research in International Business and Finance (2), Economic Modelling (1), Journal of Multinational Financial Management (1), Empirical Economics (1)

REFERENCES

Michael McMahon - Professor in Economics, University of Oxford

Luca Onorante - Head of the Nowcasting, Joint Research Centre (European Commission)

Charles Nolan - Professor in Economics, Glasgow University