ARBO, Ma Adelle Gia

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PROFESSIONAL EXPERIENCE

Senior Data Scientist / Technical Lead (full-time)
August 2025 — Present
Compass Lexecon EMEA
Berlin, Germany

- Develop and execute a comprehensive data science strategy and project roadmaps to align initiatives with business goals.
- Lead a team of 3–4 data scientists in cross-functional projects, providing technical guidance, code reviews, technology stack recommendations, and managing end-to-end delivery.
- Advise senior leadership on AI-driven solutions to enhance economic and data analysis for casework.
- Champion company-wide skill development programs on AI tools, advanced data science techniques and best practices.

Data Scientist (full-time)
August 2023 — July 2025
Compass Lexecon EMEA
Berlin, Germany

- Informed merger reviews and competition cases for multinational firms in Europe and the US using data science techniques such as NLP, big data ingestion, OCR, web scraping, and network analysis.
- Applied prompt engineering with Large Language Models to analyze social media sentiment and estimate reputational damage.
- Created ETL data pipelines to ingest, clean, and manage large datasets using SQL server.
- Developed an internal R package and a Shiny app for local overlap analysis and geospatial mapping.
- Developed an interactive search tool with a database backend to retrieve case information from competition authorities.
- Built an AI chatbot using Retrieval Augmented Generation to answer queries with citations from competition case documents.
- Fine-tuned LLMs in a domain-specific programming language using supervised learning and reinforcement learning, managing experiments with MLFlow and evaluating performance with DeepEval.
- Delivered training in data wrangling, data visualization, text-as-data methods, and programming using R, SQL, and Python.

Data Science Intern (part-time)
August 2022 — June 2023
Compass Lexecon EMEA
Berlin, Germany

- Supported competition analysis through web scraping, text mining, NLP, and geospatial methods with Python and R.
- Developed an internal R tool for geospatial analysis and a Python-based search tool for competition case data.
- Created an R cookiecutter template and delivered R and RStudio training.

Research Assistant (part-time)
October 2021 — July 2022
WZB Berlin Social Science Center, Institutions and Political Inequality Unit
Berlin, Germany

- Tested the R package, CausalQueries used to build, update, and query causal models.
- Tested R code for a study analyzing COVID mortality models and created visualizations for migration flow data.

Economic Research and Statistics Consultant (full-time)
April 2019 — August 2021
Asian Development Bank (ADB), Economic Research and Regional Cooperation Department
Manila Headquarters, Philippines

- Provided policy insights to governments of Asia-Pacific countries through economic research and data analysis.
- Co-authored and published the paper "How (Un)affordable is housing in developing Asia?", analyzing price-to-income ratios.
- Conducted data analysis and visualization, estimated housing affordability and agglomeration effects, and reviewed literature on transport infrastructure and land-use for the theme chapter of the Asian Development Outlook 2019 Update.
- Analyzed infrastructure impacts on rural road accessibility in Sri Lanka, urban travel in India, and job accessibility in the Philippines using regression and spatial mapping
- Analyzed the impacts of COVID-19 lockdowns on urban mobility and transmission rates in the Philippines using origin-destination data and panel regressions

Competition Policy Consultant (part-time)
February 2021 — April 2021
Competition Analyst (full-time)
November 2016 — April 2019
Philippine Competition Commission (PCC), Government of the Philippines
Quezon City, Philippines

- Provided data-driven policy insights to promote Philippine market competition by conducting in-depth economic and data analysis for merger reviews and investigations across key sectors – digital transport (Grab-Uber, 2017-18), retail (SM-Goldilocks, 2016-17), logistics (Udenna-2Go, 2017-18), real estate, manufacturing, and knowledge process outsourcing.
- Conducted market inquiries into abuse of dominance and anti-competitive agreements in the energy, retail, and rice sectors.
- Pioneered R tools for geographic market analysis, including consumer-supplier location mapping, isochrones, and origin-destination distance and travel time calculations.
- Conducted critical loss, diversion ratio, and regression analysis. Performed web scraping, text mining, and geospatial analysis.
- Designed and analyzed perception and preference surveys targeting households, firms, and consumers to define relevant markets and monitor pricing dynamics.
- Analyzed e-commerce trends and policies to develop a framework for evaluating competition in digital markets.
- Delivered training and seminars to lawyers and economists, including to raise awareness on competition law and build capacity on R and STATA.

EDUCATION

Master of Data Science for Public Policy, *Hertie School of Governance, Berlin, Germany*   **September 2021 — June 2023**
sehr gut (very good), GWA: 1.5, Merit Scholar
Thesis: *Predicting merger decision outcomes of the European Commission: A Natural Language Processing and Machine Learning approach.*
Master of Science in Statistics, *University of the Philippines – Diliman, School of Statistics*   **September 2020 — June 2021**
(Incomplete) 9 units completed, GWA: 1.25
Courses: Special Topics in Mathematics for Statistics, Probability Theory, and Parametric Inference
Bachelor of Science in Statistics, *University of the Philippines – Diliman, School of Statistics*   **June 2012 — June 2016**
Cum Laude, GWA: 1.717, Full Scholar of the Department of Science and Technology (Philippines)

SKILLS

Programming Languages	R, Python, SQL
Development Tools	Anaconda, Jupyter Notebook, VS Code, R Studio
Machine Learning Platforms	Databricks, MLflow, DeepEval
Cloud Storage	AWS S3, Microsoft Azure storage
Databases	MS SQL Server, MongoDB
Application Frameworks	Gradio, Shiny
Deployment	Docker
GIS	ArcGIS, TravelTime
Version Control	Git
Statistical Tools	STATA, CSPro, SAS, Eviews, SPSS
Data Visualization	Power BI, R (ggplot2, plotly), Python (matplotlib, seaborn)
Languages	Fluent in English and Tagalog, A1 (Beginner) in German

DATA SCIENCE / ACADEMIC PROJECTS

Predicting Merger Decision Outcomes of the European Commission   **October 2022 — May 2023**
Master Thesis (Grade: 1.70/86%)   *Hertie School*
- A novel application of Natural Language Processing and Machine Learning to predict merger decision outcomes of the European Commission by analyzing extracted text from official merger decisions. Identified a Support Vector Machine linear classifier as the best-performing model in predicting mergers that were either approved unconditionally or subject to conditions with an 84% recall and 63% precision.

Analyzing the German Public Procurement Network: Implications for Corruption Risk   **April 2023 — May 2023**
A Research Project for Applied Network Analysis (Grade: 1.30/95%)   *Hertie School*
- Analyzed corruption risk using single-bidding rates in centralized German public contracts 2008-2016 by conducting network-based approaches such as R-A clustering, degree distributions, k-core decomposition, modularity maximization, and measurement of nodal centrality.

Classification of Unstructured Documents: Transfer Learning with BERT   **November 2022 — December 2022**
A Tutorial Project for Deep Learning (Grade: 1.70/86%)   *Hertie School*
- A Python tutorial for building a text classification pipeline using unstructured documents with Bidirectional Encoder Representations from Transformers (BERT). The tutorial focuses on predicting stakeholder agreement with the EU's Digital Markets Act proposal using public consultation documents.

Emotionality and Rationality in Speeches of EU Commissioners   **November 2022**
A Research Project for Text as Data (Grade: 1.30/92%)   *Hertie School*
- Investigated the variation in the use of reason and emotion in communicating politics of the European Commission across time and events using word2vec word embeddings and structural topic modeling.

High Resolution Traffic Accident Prediction in Berlin   **February 2022 — May 2022**
A Research Project for Machine Learning (Grade: 1.30/94%)   *Hertie School*
- Predicted the occurrence of accidents on a given road segment at a given date and hour in Berlin by training machine learning models such as Logistic Regression, Random Forest, Balanced Random Forest, Balanced Bagging, Support Vector Classifier, and XGBoost using data on road accident 2018-2020, road network, and historic weather.

Spotify-MatchedR   **November 2021 — December 2021**
A Project for Intro to Data Science (Grade: 1.30/92%)   *Hertie School*
- An *R shiny* app for measuring music taste compatibility of 5 users based on their 100 most listened songs 2018-2020 using Spotify's Web API. Musical metrics like danceability and popularity were visualized using *plotly*.

GetHelp   **September 2021 — December 2021**
A Project for Data Structures and Algorithms (Grade: 1.00/96%)   *Hertie School*
- A Python-based app built using object-oriented programming to match requests (e.g., ride, tutor) of students of Hertie School.

PUBLICATION

Helble, M., Lee, O.K., & **Arbo, M.A.G**. (2020). How (Un)affordable is housing in developing Asia? *International Journal of Urban Sciences*. doi: 10.1080/12265934.2020.1810104

RESEARCH OUTPUTS AND CONTRIBUTIONS

- Gibson, J., Jiang, Y., & Susantono, B. (2022). Revisiting the role of secondary towns: Effects of different types of urban growth on poverty in Indonesia. (No. 22/05).
- Chen, L., Go, E., & Jiang, Y. (2021). Accessibility Analysis of the South Commuter Railway Project of the Philippines. ADB Brief, (185).
- Chen, L., Lu, Y., & Nanayakkara, A. (2021). Rural Road Connectivity and Local Economic Activity: Evidence from Sri Lanka's Integrated Road Investment Program. ADB South Asia Working Paper Series, (87).
- Chen, L., Hasan, R., & Jiang, Y. (2020). Urban Agglomeration and Firm Innovation: Evidence from Asia. ADB Economics Working Paper Series, (616).
- Chen, L., Raitzer, D., Hasan, R., Lavado, R., & Velarde, O. (2020). What Works to Control COVID-19? Econometric Analysis of a Cross-Country Panel. Econometric Analysis of a Cross-Country Panel. ADB Economics Working Paper Series, (625).
- Asian Development Bank. (2019). Asian Development Outlook 2019 Update: Fostering Growth and Inclusion in Asia's Cities.

TRAINING AND SEMINARS

Data Science, Statistics, and Econometrics

Data Science Summer School by Hertie School Data Science Lab	2022. Online course. 30 hrs
Data Science Summer School by Hertie School Data Science Lab	2021. Online course. 30 hrs
Python Conference in Asia-Pacific	2019. Makati City, PH. 16 hrs
Philippine Statistical Research and Training Institute Capacity Building on Applied Statistics	2018. Quezon City, PH. 50 hrs
Coursera: The Data Scientist's Toolbox	2017. Online course. 14 hrs
Advanced STATA Training	2017. Pasig City, PH. 10 hrs
Faculty-Student Conference on Statistical Sciences	2015. Los Baños, PH. 15 hrs

Competition Law and Economics

Global Antitrust Institute Economics Program for Competition Enforcers	2018. Santa Monica, California, USA. 40 hrs
Asian Competition Forum 13th Annual Conference	2017. Hong Kong. 16 hrs
Japan- Association of Southeast Asian Nations (ASEAN) Integration Fund Program Sub-Regional Workshop on Competition Analysis in E-commerce	2017. Jakarta, Indonesia. 16 hrs
Singapore Academy of Law Competition Law Conference: New Approaches for a New Economy	2017. Singapore. 8 hrs
Competition Assessment Tools to address Market Distortions	2017. Pasig City, PH. 16 hrs
Technical Consultation on Competitive Neutrality	2017. Pasig City, PH. 8 hrs
World Bank Lecture on Welfare Economics	2017. Pasig City, PH. 8 hrs
Competition Economics Training: New Trends and Development	2017. Pasig, PH. 8 hrs

Merger and Enforcement Analysis

ASEAN Australian New Zealand Free Trade Agreement Competition Law Program Module 4: Investigating Abuse of Dominance Workshop	2018. Hanoi, Vietnam. 24 hrs
Econometric Analysis of Cartel Enforcement	2018. Pasig City, PH. 24 hrs
World Bank Workshop on Public Procurement	2018. Taguig, PH. 8 hrs
World Bank Workshop on Merger Review: Economic Analysis and Procedural Steps	2018. Taguig City, PH. 8 hrs
Workshop on Merger Review and Analysis and Interviewing Skills	2017. Pasig City, PH. 40 hrs
Workshop on Control of Entities and Joint Venture	2017. Pasig City, PH. 8 hrs

Urban Economics

Webinar on Restarting Economies and COVID-19 Control	2020. Quezon City, PH. 1.5 hrs
Economists' Forum	2020. Mandaluyong City, PH. 2 hrs
Seminar on Urban Agglomeration and Firm Innovation: Evidence from Asia	2019. Mandaluyong City, PH. 2 hrs
Asian Development Outlook 2019 Update Launch	2019. Mandaluyong City, PH. 2 hrs
Internal Workshop on ADOU 2019 Theme Chapter:	2019. Mandaluyong City, PH. 16 hrs