

Alex Amaguaya Pacalla

Education

- 2014 - 2019 **B.Sc. in Economics**, GPA 8.02/10. Escuela Superior Politécnica del Litoral (ESPOL), Ecuador.
Capstone Project: Efficiency of Advertising Spending analyzed through Twitter Data from Commercial Companies in 2018
Relevant Coursework: Calculus, Linear Algebra, Mathematical Economics, Microeconomics, Game Theory, Macroeconomics, Econometrics, Time Series, Python Programming and **Big Data Track**.

Fields of Interest

- Primary** Machine Learning, Applied Econometrics, Data Science and Networks.
Secondary Causal Inference, Applied Microeconomics and Social Media.

Research & Teaching Experience

- Dec.2021-Jan. 2022 **Research Assistant**, *ESPOL & North Carolina State University*, Ecuador.
○ Supervised by professors José Castillo and Miguel Castillo (NC State University). Predicted the chemical compounds of cocoa through machine learning algorithms, using data from leaves and almonds.
○ The XGBoost, Random Forest, OLS Regression and SVRegression algorithms were used in this research. The results were compared with the Principal Component Regression models to evaluate the performance of the approaches.
- Apr.- May 2021 **Consulting Researcher**, *Economic Research Center - ESPOL & Cervecería Nacional*, Ecuador.
○ Computed the company's influence on the financial performance of its providers. The consulting research was supervised by professor José Castillo.
- Dec. 2020-Feb.2021 **Research Assistant**, *Economic Research Center & Chamber of Industries and Production of Ecuador*, Ecuador.
○ Supported the estimation of the economic contribution of navigable cruise tourism in the Galapagos Archipelago and Ecuador.
- Dec. 2019-Oct.2020 **Research Assistant**, *Inter-American Development Bank & ESPOL*, Ecuador.
○ Supported the estimation of the economic contribution of the ESPOL University to diverse areas such as employment, tax collection, the business sector, and research.
○ Estimated the ESPOL's influence on the financial performance of its providers through the use of econometric models and matching methods.
○ Used R and Python to estimate econometric models, process, and visualize the data. This research project was supervised by professors José Castillo and Juan Campuzano.
- May - Sep. 2019 **Research Assistant**, *ESPOL*, Ecuador.
○ Supervised by professor Juan Campuzano. Extracted and processed Twitter data of top Ecuadorian commercial firms using R and Python. Developed a multi-label classification model, Support Vector Classifier, to identify the sentiment of a post, and then a Sentiment Metric was estimated.
○ Analyzed the Network of Managers from Ecuadorian firms and proposed an econometric model that associated company revenue with the number of shared managers, centrality metrics, and some control variables.
○ Used Gephi and Python to visualize the network and calculate the centrality metrics. This research paper was supervised by professor Carmen Vaca.
- May - Sep. 2017 **Teaching Assistant**, *ESPOL*.
Microeconomics II. Intermediate Microeconomics: General Competitive Balance (consumption and production), Market Power (monopoly and price discrimination).

Professional Experience

- Apr. - May 2018 **Data Analyst** (Internship), *Induglobal S.A*, Ecuador.
○ Analyzed data from a Social Media advertising campaign.
○ Proposed new business strategies based on Social Media Data Analysis.
- Apr. 2021-Present **Data Scientist**, *Nodel LLC-Maven Road*, Ecuador.
○ Social Network Analysis.
- Detected clusters in networks of Vaping & Gaming users.
- Proposed and estimated a Spreading Metric using a Diffusion Model.
- Selected the most influential accounts in the Vaping and Gaming user networks based on some centrality metrics.
○ Applied Econometrics.
- Detected relevant trends and insights between financial KPIs and Social Media/Search Data.
- Developed Time Series anomaly detection with Social Media Data.
- Predicted impacts of Social Media variables on the Financial KPIs.
○ Machine Learning.
- Performed Time Series clustering with viral posts.
- Developed and calibrated Machine Learning models for classification or regression tasks.
- Supported in the development of Machine Learning Pipelines.

Publications & Technical Reports

- 2020 **Efficiency of Advertising Spending analyzed through Twitter Data from Commercial Companies in 2018**, (with J. Campuzano & J. Cajape), *X-Pedientes Económicos*, 2020, [Available here](#).

- 2019 **Network of Shared Managers and its relation with the Financial Performance from Ecuadorian Companies: What is the influence of Sharing Human Capital?**, (with C. Vaca & F. Lúa), X-Pedientes Económicos, 2019, [Available here](#).
- 2021 **Evaluation of the Economic contribution of the Escuela Superior Politécnica del Litoral - ESPOL: A short and long-term analysis**, (with J. Castillo, J. Campuzano & N. Gómez), [Available here](#).
- 2021 **Economic Contribution of Navigable Cruise Tourism to the Galapagos Archipelago and the country**, (with J. Castillo, C. Veintimilla & N. Gómez), [Available here](#).

Work in Progress

Network of Ecuadorian Managers: An Approach of Panel Data, (with J. Cajape & A. Paladines).

Earthquake in Ecuador: Determining the main factors of the Level of Villages Impact through Socioeconomic Indicators and Mobile Phones Data, (with C. Vaca & J. Cajape).

Conferences

- 2022 Speaker at the Data Science Ecuador event: Economists and data scientists from ESPOL in the technology industry.

Awards

- Nov. 2019 **Research Paper Competition**, Superintendency of Companies from Ecuador.
Obtained 1st place. Proposed an econometric model that associated the Dorfman-Steiner condition with Social Media KPIs and some control variables. The previous condition was used as a indicator to evaluate the efficiency of advertising spending. In addition, I received recognition for co-authoring two award-winning research papers.
- Dec. 2018 **Hackathon DataJam 2018**, ESPOL-i3lab.
Obtained 1st place. Developed models to predict transactional behavior and detect anomalies through ARCH and Logistic models.
- Dec. 2012 **Best Students Award**, Ati II Pillahuaso High School.
Bronze medal of the class of 2012.
- 2011 & 2012 **Jóvenes Ejemplares**, Municipality of Guayaquil-Ecuador.
Recognition for Academic Excellence (only awarded to the best students of Guayaquil high schools).

Computer & Technical Skills

Programming Languages: Python and R.

Query Languages: SQL, cypher

Cloud computing & other tools: Azure Databricks, AWS, Neo4j Aura, Git, Stata & Gephi.

Technical Skills: Statistical Data Analysis; Social Network Analysis; Machine Learning Algorithms; Econometric modeling, and Social Media Mining.

Extracurricular Activities

- 2018 - Present **Member, Kokoa Club**, ESPOL.
Kokoa is the Free Software Community of ESPOL, which promotes the use and distribution of free software at the university and in Guayaquil. I represented the club in several hackathons and research competitions.
- 2018 - Present **Member, CADIEC Club**, ESPOL.
CADIEC is a club dedicated to encourage and develop economic research of the Ecuadorian market.
- Feb. - Apr. 2019 **Volunteer Experience, Future Scientists and Engineers**, AJA! Science Park - ESPOL.
This project is a vacation course dedicated to bringing children closer to Science, Technology, and Engineering through interactive games and experiments.
- Oct. - Dec. 2018 **Volunteer Experience, Women Entrepreneurs Project**, ESPOL.
This project supported the entrepreneurial initiatives of women who live in marginal urban areas of Guayaquil. I participated in the second stage of this project.

References

PhD. Carmen Vaca, Dean & Co-director Big Data Research Group, College of Electrical and Computer Engineering, ESPOL. Tel: +593 93 979 1622. Mail: cvaca@espol.edu.ec

M.Sc. Juan Carlos Campuzano, Coordinator of Fiscal Policy at the Ministry of Economy, Government of Ecuador, ESPOL. Tel: +593 99 588 6810. Mail: jcampuza@espol.edu.ec

PhD. José Gabriel Castillo, Vice Minister of Economy, Government of Ecuador. Tel: +593 99 509 4754. Mail: jcastil@espol.edu.ec

PhD. Angel Fiallos, Data Science Team Lead, Nodel LLC. Tel: +593 99 451 6233. Mail: angel.fiallos@nodel.co