Alejandro Acelas

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EDUCATION

B.S. Economics   **Aug 2020 – Nov 2023**
Universidad de Los Andes. Cum Laude   *Bogotá, Colombia*

- Relevant Coursework: Topics in Machine Learning, Data Analysis in R, Statistics (Honors).

SKILLS

- **Programming Language:** Python (Proficient), R (Intermediate), SQL (Intermediate), Stata (Intermediate).
- **Tools and Frameworks:** AWS Services (SageMaker, Glue, Lambda, CloudFormation), Numpy, Pandas, PySpark, Matplotlib, Plotly, Pytorch, Langchain, Power BI, Power Query, Excel.
- **Machine Learning and Data Science:** Supervised and Unsupervised Learning, Deep Learning (Transformers, CNNs, RNNs), NLP, Exploratory Data Analysis, Statistical Modeling.
- **Soft Skills:** Problem Solving, Effective Communication, Teamwork, Leadership.
- **Languages:** English (TOEFL 112/120), Spanish (Native).

EXPERIENCE

Machine Learning Engineer   **Aug 2023 – Oct 2023**
Independent Contractor   *Remote*

- Trained, evaluated, and interpreted ML models designed to perform algorithmic tasks.
- Developed a set of resources and technical reports offering comprehensive analyses of these models to enable easier evaluation of techniques used to interpret AI decision-making.
- Reduced the unexplained loss for interpretability explanations by 88% compared to the public state-of-the-art on a specific algorithmic task.

Research Fellow   **Jun 2023 – Aug 2023**
Swiss Existential Risk Initiative   *Geneva, Switzerland*

- Investigated techniques for detecting the most critical features influencing an AI model's performance, building upon Anthropic's 'Toy Models of Superposition' paper.
- Designed challenges for AI researchers to understand the inner workings of AI models, including repairing faulty components, examining unusual behaviors, and identifying manipulated inputs.

Research Assistant   **Sep 2021 – Jun 2022**
Under Tomás Rodríguez Barraquer at Universidad de Los Andes   *Bogotá, Colombia*

- Analyzed millions of tweets to understand the patterns of communication across the political spectrum during times of social unrest, shedding light on the dynamics of polarization in digital communities.
- Created computer simulations that mimic the spread of diseases, using principles from biology and game theory, to explore how societal norms can impact public health during pandemics.
- Optimized the main Python script used for modeling disease spread dynamics, reducing runtime by 50% and enabling faster iteration and experimentation on the research project.

HONORS

3rd Place National Academic Economics Contest	2023
Honorific Mention International Mathematical Olympiad	2017
5th Place Colombian Mathematical Olympiad (2017)	2017
1st Place Mathematical Olympiad at Universidad Industrial de Santander	2013, 2015, 2017

PROJECTS

Detailed descriptions of these and many other projects can be found in my personal portfolio at
alejoacelas.github.io

Mortality Prediction Using Patients' Medical History (In Progress)

Developed an end-to-end machine learning pipeline using AWS Glue and SageMaker to predict 1-year mortality risk scores for patients based on their medical history.

Training a Language Model on the Complete Works of Shakespeare

Built and trained a Transformer model from the ground up using PyTorch, guided solely by the "Attention is All You Need" paper, to generate text in the style of Shakespeare.

Long-Term Trends in the Public Perception of Artificial Intelligence

Investigated the evolution of public perception of AI over 35 years by scraping and processing New York Times articles, using LLMs for classification and Power BI for data exploration.

Comparing the Cost-Effectiveness of Health Interventions in Colombia and Nigeria

Compared the impact of health interventions in Colombia and Nigeria by analyzing disease burden, health expenditure, and intervention tractability.

ADDITIONAL EXPERIENCE

Alignment Research Engineering Accelerator   Apr 2023 – Jun 2023
Participant

Completed an intensive ML training program covering foundational concepts, advanced techniques like transformers and reinforcement learning, and practical skills for training large-scale models efficiently.

Effective Altruism Uniandes   Jun 2021 – Feb 2023
Leader and cofounder

Facilitated discussions on crucial global issues, organized events, and ensured progress towards objectives.