

JESUS CANTU JR.

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Profile Summary

Machine Learning (ML) Engineer and Data Scientist with 10+ years of multidisciplinary research experience, solving complex business and research challenges through algorithm design and evaluation. Skilled in applying deep learning, supervised learning, and statistical modeling to transform raw data into actionable insights and deliver comprehensive end-to-end solutions.

Professional Experience

ML ENGINEER, TMW Center for Early Learning + Public Health | October 2023 – Present | Chicago, IL

- Collaborated with cross-functional teams to align startup business objectives with machine learning strategies and Generative AI tools, translating research findings into scalable solutions, PoC, and deploying three models in production.
- Fine-tuned, benchmarked, and deployed speech classification models (300M and 1B parameters) to analyze conversational dynamics between child-caregiver pairs, achieving 95% accuracy on 30-second audio files locally and on AWS.
- Enhanced model performance by over 30% through model architecture search, systematic hyperparameter tuning, and leveraging MLflow for metrics logging, performance tracking, and reproducibility.

DATA SCIENTIST, Loyola University | May 2022 – May 2023 | Chicago, IL

- Mined data via web APIs, preprocessed datasets, engineered features, and applied natural language processing (NLP) techniques using BERT-based models on 15M+ social media posts in Python.
- Conducted sentiment analysis and burst detection to identify spatiotemporal patterns in anti-Asian prejudice during COVID-19, uncovering trends in negative/positive content tied to political events and key social movements.

DATA SCIENTIST, Inversa Leathers | Jul 2021 – Feb 2022 | Chicago, IL

- Developed a logistic regression model to predict lionfish population sizes, enabling the identification of the total addressable market across various aquatic regions; these findings helped our team secure \$2M in startup funding.

RESEARCH DATA SCIENTIST, University of Chicago | Oct 2019 – Jun 2021 | Chicago, IL

- Collected and analyzed large, complex datasets to develop, train, and evaluate predictive models, using time-series analysis to measure socio-environmental impacts on malaria and guide control strategies across 101 regions in Burkina Faso.

LAB MANAGER & RESEARCH ASSOCIATE, Columbia University | Feb 2018 – Sep 2019 | New York, NY

- Supervised research program operations, mentoring a team of 5 researchers in project management and quantitative analysis.
- Developed comprehensive data management workflows to collect and analyze healthcare data, leveraging statistical models to evaluate varicella vaccine efficacy and presenting actionable insights at an international conference.

RESEARCH ASSISTANT, Princeton University | Sep 2016 – May 2017 | Princeton, NJ

- Conducted exploratory data analysis (EDA), inferential statistics, and predictive modeling to identify factors driving high teenage birth rates in Texas, informing data-driven social and health policy recommendations.

Education

- **Loyola University, Chicago IL** | MS, Software Engineering | May 2023 | GPA: 4.0
 - Relevant Coursework: Data Structures & Algorithms, Database Prog. (SQL/NoSQL), and Computer Vision
- **Princeton University, Princeton NJ** | BA, Sociology | Jun 2017 | GPA: 3.0

Awards

- **KaggleX Fellowship Program (2024):** Selected from 3,000+ applicants for a 15-week AI/ML fellowship, gaining hands-on experience fine-tuning, evaluating, and deploying LLMs on GCP using Keras and LoRA with Vertex AI.
- **Margaret H. Hamilton High Achievement Award (2023):** Awarded for being the top academic performer in the MS program across all computer science degrees at Loyola University Chicago.

Technical Skills

- **Programming Languages:** Python, SQL, R, Java, Bash, HTML
- **Data Science & ML Tools:** TensorFlow, PyTorch, Hugging Face, Scikit-Learn, Pandas, NumPy, Matplotlib, Seaborn
- **MLOps Tools and Cloud Technologies:** GitHub, MLflow, AWS, GCP