JOSEPH MARTINEZ

+1 (757) 987-4351 | josephms957@gmail.com | Norfolk, VA, USA | linkedin.com/in/josephmars/

PROFESSIONAL SUMMARY

Research Assistant with 4 years of experience in Machine Learning, and Natural Language Processing. Proficient in training LLMs, Machine Learning algorithms, and building Simulation models. Proven ability in programming and large-scale data analytics to derive valuable insights. Collaborative team member with a track record of successful collaboration on international research projects.

PROFESSIONAL EXPERIENCE

Aaru, Inc   **New York, NY, USA**
AI Software Developer   *July 2024 - Present*
- Improved the performance of multi-agent LLM systems by designing and implementing state-of-the-art algorithms in complex Agent-Based Simulation environments.
- Designed simulation environments integrating survey and historical data to model political and business scenarios, enabling the generation of actionable insights and predictive analytics.
- Conducted innovative research in machine learning and Natural Language Processing while collaborating with interdisciplinary teams to develop innovative AI-driven solutions for real-world challenges.

Virginia Modeling Analysis and Simulation Center   **Suffolk, VA, USA**
Graduate Research Assistant   *September 2022 - December 2024*
- Trained the Large Language Model (LLM) GPT-3.5's to create ABM Simulation models, by improving its ability to generate NetLogo interface and procedural code elements through few-shot prompting.
- Developed a conversational Chatbot expert in a custom domain enhancing answer fidelity by 90% by fine-tuning the LLM Llama2 7B on a dataset of 330 news articles.
- Trained and fine-tuned Machine Learning classification models (RFC, ANN, and BERT) to identify types of frustration in textual data, achieving an average accuracy of 70%.
- Designed and maintained detailed documentation of models, algorithms, and reports on GitHub repositories.
- Presented poster at a research conference in Pittsburgh, and attended others in Arlington, VA, and Oxford, OH.

Old Dominion University   **Norfolk, VA, USA**
Social Media Data Analyst (Consultant)   *July 2021 - January 2022*
- Geolocated, filtered, and estimated the tone of 7.3 million Tweets through fine-tuning fifteen NLP models (spaCy, BERT, RoBERTa) and Statistical Analysis. Models were highly reliable, with a mean accuracy of 72%.
- Extracted, cleaned, and pre-processed 15.5 million Tweets in multiple languages with Twitter's API and Python.
- Created dashboards with Tableau and Google Data Studio to represent migration data.
- Collaborated with teams from Norway, Colombia, Greece, and USA on a $1.4M USD Minerva research initiative.

Universidad del Norte   **Barranquilla, Atlantico, Colombia**
Social Media Data Analyst (Research Assistant)   *November 2020 - June 2021*
- Trained a Natural Language Understanding (NLU) model with IBM Watson to semi-automate the identification of actors, factors, and relationships from news articles, achieving a final accuracy of 70%.
- Gathered, filtered, and cleaned geo-tagged 4,680 Tweets on migration using Twitter's API and Python.
- Conducted a lexicon-based Sentiment Analysis of Tweets to spot xenophobic trends.

EDUCATION

Old Dominion University   **August 2022 - December 2024**
Master's, Modeling and Simulation Engineering   *GPA: 3.7*

Universidad del Norte   **January 2017 - March 2022**
Bachelor's, Industrial Engineering   *GPA: 3.6*

SKILLS

Skills: Python, R, SQL, Pandas, Pytorch, ANN, PCA, NumPy, scikit-learn, Transformers, Hugging Face, OpenAI, FastAPI, Tableau, Power BI, Shiny, Git, GitHub, Docker
Languages: German, Spanish, English, English