CHRISTOPHER CABALLERO

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EDUCATION

MS in Computer Science | Florida State University - 4.0 GPA
BS in Mathematics | Florida State University - Magna Cum Laude

EXPERIENCE

Machine Learning Research Assistant
Florida State University | *Sep 2022 - Nov 2022*

- Collaborated with an interdisciplinary team to enhance a COVID-19 research knowledge graph, actively contributing in standup meetings for project advancement.
- Worked extensively with a 900GB MongoDB sharded cluster of COVID-19 research papers.
- Led innovative machine learning architecture and embedding contributions, achieving 6% improvement in F1-score over prior methods of topic classification, and contributing to a 6-18% gain over state-of-the-art in binary metadata classification.
- Engineered an automated model for improved classification of semi-structured tables, employing efficient distributed training on PyTorch. This work led to two publications, available for review on my LinkedIn profile.

Graduate Research Assistant
Florida State University | *May 2022 - Aug 2022*

- Conducted literature reviews and analyzed linguistic and computational resources to understand word polysemy.
- Conceptualized an innovative approach to investigate polysemy by exploring the relationship between Graph Neural Network and simple language embeddings.
- Utilized statistical analysis and dictionary learning to process and interpret data for identifying patterns and separating valid semantics from words.

PROJECTS

Support Ticket Classification | April 2023 - August 2023

- Designed a user-friendly Flask application for seamless model serving, offering instant classification of user-generated support tickets with over 93% validation accuracy.
- Created an optimized Encoder Transformer model, yielding a 0.925% accuracy gain over fine-tuned BERT and a remarkable 15% improvement over CNN in 10-Fold Cross-Validation, supported by a research paper available on GitHub.

Fraudulent Transaction Detection | June 2023 - Present

- Conducted EDA and handled imbalanced data with under-sampling and outlier removal.
- Utilized Google AI Platform on GCP to deploy a fine-tuned XGBoost model, leveraging Google Cloud Functions for predictions. Improved test set AUC by +2.3% over the baseline.
- Performed a comparative analysis on three models, logistic regression, random forest and SVC, on the task of flagging fraudulent transactions.

SKILLS

Machine Learning: Topic Clustering, Text Classification, Classification, Regression, Clustering, Anomaly Detection
Tools and Frameworks: Docker, PyTorch, TensorFlow, scikit-learn, numpy, pandas
Programming Languages: Python, C, C++, SQL, MongoDB Query Language (MQL)
Database: MongoDB, SQLite