Luis Selvera

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Profile

Graduate Research Assistant with 3 years of research and implementation experience in machine learning models, using predictive data modeling, and analyzing deep learning algorithms to deliver insights and implement data-driven solutions to solve complex and diverse problems. Adept at collecting, processing, analyzing, and interpreting large datasets. Consistently optimized and improved NLP models by evaluation strategies and testing changes in machine learning models. Possessing an extensive analytical skills, strong attention to detail, and a significant ability to work in team environments.

Education

Master of Science in Computer Science May 2021
Concentration in **Data Science** GPA 3.84
The University of Texas at San Antonio, San Antonio, Texas

Bachelor of Science in Computer Science May 2019
The University of Texas Rio Grande Valley, Brownsville, Texas GPA: 3.69

Relevant Coursework : Natural Language Processing (IS), Machine Learning, Data Science, Data Mining, Database Design & Implementation, Algorithms & Data Structures, Large Scale Data Management, Computer & Network Security, Software Engineering

Skills

- **Machine Learning**: NLP, Deep Learning (RNNs, CNNs, Transformers, AEs), Machine Learning, Data Science, Data Mining, Anomaly Detection, Fraud Detection, Data Visualization, NIDS, IDS
- **Tools**: Pytorch, Keras, Tensorflow, Fastai, SciKit-Learn, NLTK, Spacy, Pandas, NumPy, Matplotlib, Seaborn, Jupyter Notebook, Django, Flask
- **Databases**: MySQL, Oracle DB, PostgreSQL, OrientDB, MongoDB
- **Programming Languages**: Python, C, C++, Java, MATLAB, CLISP

Work Experience

Cyber Security Intern Idaho Falls, ID
Cyber Threat Intelligence Internship, Idaho National Laboratory June 2020 – Present
- Tested machine learning techniques for analysis of malware and extracted firmware
- Performed data collection and transformations from various cyber threat intelligence sources: MISP, Alienvault, Mitre
- Built Structured Threat Intelligence Graphs for analyzing threat intelligence with relational graphs and OrientDB

Graduate Research Assistant San Antonio, TX
Secure Artificial Intelligence and Autonomy Lab, The University of Texas at San Antonio August 2019 – Present
- Constructed NLP Transformer sequential models for classification, anomaly detection, and time series forecasting
- Developed machine learning models to detect abnormal behavior and threats in systems with 90% detection rate
- Analyzed and processed semi-structured real world data using advanced querying, visualization and analytics tools

Teaching Assistant Brownsville, TX
Computer Science Department, The University of Texas Rio Grande Valley August 2018 – May 2019
- Assisted on average 5 students per week by reviewing materials and providing assistance in assignments
- Assisted students in accomplishing established learning objectives, with a 100% passing rate
- Evaluated and supervise student's assignment

Robotics Intern Aiken, SC

Savannah River Environmental Science Field Station Engineering, May 2018 – July 2018
Savannah River National Laboratory

- Gained understanding of hardware and software systems for robotics
- Hands on experience and familiarity with robotic systems
- Presented project results at poster session at Savannah River Site National Lab

Projects

Tracking Covid-19 through Social Media using Sentiment Analysis January 2021 – Present

- Worked in team of 7 implementing data pipeline to process unstructured text data from Twitter and Google
- Developed data preprocessing and analytics modules to cleanse and gain insight from collected dataset
- Developing text classification sentiment analysis deployed on website using Django web framework

Fraud Detection using Encoder-Decoder Temporal Convolutional Network (ED-TCN) March 2021

- Implemented deep learning solution to detecting credit card frauds using sequential ED-TCN model
- Developed model using Keras achieving a 96% accuracy
- Presented project in RowdyHacks Hackathon workshop session with 40 attendees

Trolls Detector using Bidirectional Encoder Representations from Transformers (BERT) March 2020

- Implemented deep learning solution to detecting trolls online using sequential BERT model for classification
- Built website that uses model to detect trolls on forums websites allowing users to input the posts
- Developed model using Pytorch and deployed on website using Flask web framework

Text-based Classification of Questions on Q&A Forums using Bi-LSTM January 2019 – May 2019

- Developed Bidirectional-LSTM model to detect improper questions using datasets from Q&A forums
- Deployed model on website using Flask web framework for users to input their questions for classifications
- Developed model using Pytorch achieving a 97% classification accuracy

Tutor Tools Software January 2018 - May 2018

- Built a software application for tutoring services using Java and MySQL
- Applied software engineering principles, Agile Method, and software design patter model-view-controller (MVC)
- Allows tutors and students to manage tutoring sessions and give a visual organization of the collected information

Submitted for Publication

- Das A., Ebadi N., **Selvera L.**, Mock J., Golob E. J., Najafirad P.(2020). *Quantized Spectral Clustering with Seq2Seq Attention Model to Predict Cognitive State from Behavior Variables*. Manuscript Submitted for Publication
- De La Torre Parra, G., **Selvera, L.**, Khoury J., Irizarry, H., Bou-Harb, E., Rad, P. (2020). *Interpretable Federated Transformer Log Learning for Threat Forensics*. Manuscript Submitted for Publication

Manuscripts In Preparation

- De La Torre Parra, G., **Selvera, L.**, Frank, T., Joshi, R., Rajamurugan, J., Rad, P. (2020). *A Multivariate Time Series Representation Learning on Zeek Logs for Network Anomaly Detection*. Manuscript in preparation

Awards/Recognition/Leadership

- Intelligence Community Center for Academic Excellence Scholar, UTSA, Recipient 2019 – 2021
- Deep Learning and Cybersecurity, RowdyHacks (Hackathon), Presenter March 2021
- UTRGV Student Employee of the Year, Nominee, 2nd runner-up 2018
- David – Davila Trevino Memorial Scholarship, Great Minds in STEM, Recipient Fall 2017
- Excellence Scholarship, UTRGV, Recipient Fall 2015