

Vinicius M. Bobato

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EDUCATION

Texas A&M University

Ph. D Computer Engineering

Texas A&M University

M.S. Engineering Technology

Texas A&M University

B.S. Electronic Systems Engineering Technology with Cybersecurity Minor

College Station, Texas

Exp Grad December 2028 | GPA: 3.5

College Station, Texas

Grad December 2024 | GPA: 3.5

College Station, Texas

Grad May 2023 | GPA: 3.6

TECHNICAL SKILLS

Programming:

Python, C/C++, Bash, SQL (Beginner)

Frameworks:

NumPy, Pandas, Scikit-learn, Keras, TensorFlow, PyTorch, Flask

Networking & Security:

TCP/IP, OSPF, VLANs, DHCP, DNS, Firewall configuration, Packet Analysis

Tools & Platforms:

Linux (Ubuntu, Kali), Windows, Git, Nmap, Metasploit, Jupyter, Anaconda, Scapy

Languages:

Portuguese (Native), English (Fluent), and Spanish (Advanced)

EXPERIENCE

Department of Electrical and Computer Engineering – PRISE Project

Graduate Researcher, Aug. 2023 – Present

- Developed a 98% accurate deep learning model in PyTorch to detect malicious TCP traffic in an OT network.
- Led the development of Python scripts that improved communication efficiency between Linux containers by 30%.
- Analyzed and visualized 100K+ network packets using Python, identifying trends in malicious activity.

Texas A&M Engineering Experiment Station – Cyber Physical Resilient Energy Systems Project

Undergraduate/Graduate Research Assistant, May 2022 – Dec. 2023

- Engineered secure communication between DNP3 and ICCC protocols in virtualized Linux environments, enhancing system efficiency by 20%.
- Developed various programs in C/C++ and Python to integrate different technologies for research, improving system reliability and decreasing processing time by 50%.
- Performed data-analysis using NumPy and Pandas to find anomalies in network traffic data for three different attack vectors.

Department of Engineering Technology & Industrial Distribution

Graduate Teacher Assistant for Local-and-Metropolitan-Area Networks, Jan 2024 – Present

- Led networking lab sessions for 60+ students, focusing on terminal commands and troubleshooting techniques, resulting in 95% of students achieving hands-on proficiency by the end of the term.
- Designed and implemented network topologies, assisting students with practical skills in networking protocol implementations.

OUTSTANDING PROJECTS

- **ASIC (AI for Satellite Image Classification) – (<https://ymbobato.github.io/asic-blog/>):**
 - Fine-tuned a semantic segmentation model to classify urban, forest, agriculture, and water regions from satellite images.
 - Deployed the model on a WebApp via Flask REST API to enable user-driven image analysis.
 - The model achieved over 70%-pixel accuracy on real-world data.
- **CAPTCHA Image Classification:**
 - Fine-tuned the pre-trained VGG16 model using Keras to accurately classify CAPTCHA images into different categories.
 - Achieved 93% accuracy with data augmentation and evaluation using precision, recall, and F1-score.
- **ML-Based-Firewall:**
 - Built a real-time intrusion detection system using a Random Forest classifier for network anomaly detection.
 - Achieved a ROC AUC score of 0.9997 on balanced network traffic data.
 - Built a Flask RESTful API to deliver live predictions.

PUBLICATIONS

- Cyber Security of a Smart Power Distribution System – Cyber Subsystem Use Case - 2025 Grid Edge Technologies Conference & Exposition
- Cyber Security Use Case on a Smart Power Distribution System – Physical Subsystem - 2025 Grid Edge Technologies Conference & Exposition
- Analyzing a Multi-Stage Cyber Threat and Its Impact on the Power System - IET Cyber-Physical Systems: Theory & Applications

CERTIFICATIONS

Machine Learning with Python – May 2025

Deep Learning with Keras and TensorFlow – May 2025

Deep Learning with PyTorch – May 2025