

# Vinicius Bobato

(817) 542-8538 • [ymbobato@tamu.edu](mailto:ymbobato@tamu.edu)

Website: <https://ymbobato.github.io> Linked-In: <https://www.linkedin.com/in/ymbobato/>

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## EDUCATION

**Texas A&M University**

*Ph. D Computer Engineering*

**Texas A&M University**

*M.S. Engineering Technology*

*Thesis: Cyber Security Use Cases on a Smart Distribution System*

**Texas A&M University**

*B.S. Electronic Systems Engineering Technology with Cybersecurity Minor*

**College Station, Texas**

*GPA: 3.5*

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*GPA: 3.5*

**College Station, Texas**

*GPA: 3.6*

## TECHNICAL SKILLS

**Programming:**

Python, C/C++, Bash, NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch, SQL (Beginner)

**Operating Systems:**

Linux (Ubuntu, Kali), Windows, macOS

**Networking & Security:**

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

**Tools:**

Git, Nmap, Metasploit, Jupyter, Anaconda, Scapy, Flask, RESTful APIs

**Languages:**

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

## EXPERIENCE

**Department of Electrical and Computer Engineering – PRISE Project**

*Graduate Researcher, Aug. 2023 – Present*

- Modeled the network side of a Smart Distribution System and AMI RF mesh network using Linux containers.
- 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*

- Used Linux in virtualized environments and scripting languages to implement connectivity between DNP3 and IEC61850 protocols improving 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.
- Applied and studied offensive and defensive techniques to safeguard digital assets, including penetration testing and defense strategies.

**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:** Fine-tuned a semantic segmentation model using satellite images to classify land types such as city areas, forests, agricultural fields, and water bodies. Built a WebApp with Flask to deploy the model and allow users to input an image and get the segmentation and area classification of the entire image. The model achieved over 70%-pixel accuracy.
- **CAPTCHA Image Classification:** Developed a deep learning model using the pre-trained VGG16 Machine Learning architecture and TensorFlow to accurately classify CAPTCHA images into different categories, achieving 93% accuracy. Applied data augmentation and evaluated the model's performance using metrics like precision, recall, and F1 scores.
- **ML-Based-Firewall:** Developed a machine learning-based firewall using a Random Forest Classifier and Scikit-learn to detect anomalous IoT network traffic from the IoT-23 dataset. Achieved a ROC AUC score of 0.9997 on a balanced dataset. Built a Flask RESTful API for real-time prediction.

## 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

## COURSEWORK

Artificial Intelligence • Embedded Systems Intelligent Design • Data Analysis and Tools for Industry • Advanced Network & Security Systems

Machine Learning with Python – IBM Certification (in progress)