Gabriel Kenji Godoy Shimanuki

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EDUCATION	**University of São Paulo (São Paulo, SP, Brazil)**

The University of São Paulo is the top university in Latin America (#92 QS World University Rankings)

Master Student in Electrical & Computer Engineering, Polytechnic School of USP　　　**Jan./24 - Aug./25**
– Thesis: Automatic generation of corner cases for evaluating intelligent control of autonomous vehicles in a simulated environment.
– *Advisor*: Prof. Paulo Sérgio Cugnasca / *Co-Advisor*: Dr. Alexandre Moreira Nascimento
– GPA: 4.0/4.0 - Based on Scholaro

B.Sc. in Computer Engineering, Polytechnic School of USP, Ranked 5th of 48　　　**Jan./24 - Aug./25**
– GPA: 3.4/4.0 - (8.5/10)

RESEARCH EXPERIENCE

Currently Working: Developing machine learning strategies for synthetic data generation in corner cases for autonomous vehicles.

Machine Learning Applications:
i. Education: Improving Artificial Neural Network models and evaluating machine learning metrics.
ii. Business: Predicting software defects, particularly in imbalanced datasets.

Artificial Neural Network Training Enhancement:
i. Activation Function Optimization: Refining activation functions to boost model performance and efficiency.
ii. Hyperparameter Tuning: Using genetic algorithms and tournaments strategies within a pipelined framework to optimize hyperparameters.

Safety of Autonomous Vehicles Systems - Fault Injection in Simulation: Implementing an automated framework for fault injection in sensors to test autonomous control behavior.

RECENT PUBLICATIONS

Enhancing Academic Performance Prediction: A Comprehensive Comparison of Machine Learning Techniques and Metrics
Gabriel Shimanuki, Alexandre Nascimento, Anna Queiroz
Presented in the *ISLA 2024 Proceedings*

Making More with Less: Improving Software Testing Outcomes Using a Cross-Project and Cross-Language ML Classifier Based on Cost-Sensitive Training
Alexandre Nascimento, Gabriel Shimanuki, Luiz Dias.
Applied Sciences 14, no. 11: 4880 https://doi.org/10.3390/app14114880

An Enhanced Artificial Neural Network Approach To Predict Student Dropout From Imbalanced Datasets
Alexandre Nascimento, Anna Queiroz, Gabriel Shimanuki
ISLA 2023 Proceedings. 15. https://aisel.aisnet.org/isla2023/15/

PROJECTS

Final Paper, Undergraduate Course - Poli USP - Computer Engineer　　　**Dec. 2023**
The project aimed to improve the safety of autonomous vehicles by enhancing the identification of critical scenarios and developing automated simulations to increase training exposure to accidents, thereby boosting system reliability.

Best Undergraduate Project - Digital Systems Laboratory II　　　**Dec. 2021**
The project involved implementing and testing an adaptive filtering system on an FPGA board using VHDL, applying a Bayesian filter to enhance the reliability of low-cost ultrasonic sensors in distance measurement.
Grade: 9.8/10.0

Business Group of Polytechnic School of USP　　　**June/19 - June/21**
This is an undergraduate student initiative fosters the study and development of business management topics, such as strategy, corporate finance, and marketing. The group's primary goal is to prepare members for careers in finance, consulting, or entrepreneurship, while offering valuable networking opportunities with leading Brazilian companies and mentorship from industry professionals.

AWARDS

– Master's Data Science Center Fellowship (partnership between Itaú-Unibanco and Poli).	**Jan./24 - Present**
– Nomination for the list of top Senior projects in Computer Engineering.	**Dec./23**
– Pre-Master's Data Science Center Fellowship (partnership between Itaú-Unibanco and Poli).	**Jan./23 - Dec./23**
– 2 A.M. Consulting Research Grant.	**Jan./22 - Dec./22**
– Scientific Scholarship Program - National Council for Scientific and Technological Development (CNPq).	**Aug./21 - Aug./22**
– Best Undergraduate Project - Digital Systems Laboratory II.	**Dec./21**
– Foundation for the Technological Development of Engineering (FDTE) Research Grant.	**June/20 - Jul./21**