

Publications List

Thesis Title: Nonlinear systems modeling using machine learning techniques with applications in anomaly detection.

PhD Candidate: Roland BOLBOACĂ

Scientific Supervisor: Prof. Eng. Béla GENGE, PhD

1. **Bolboacă Roland**, Haller Piroska, & Genge Béla (2024). *Feature Analysis and Ensemble-based Fault Detection Techniques for Nonlinear Systems*. Neural Computing and Applications.

[Sent revised manuscript, pending decision.]

2. **Bolboacă Roland**, Haller Piroska, & Genge Béla (2024). *Evaluation Techniques for Long Short-Term Memory Models: Overfitting Analysis and Handling Missing Values*. In the 37th International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems.

[Accepted]

3. **Bolboacă Roland**, & Genge Béla (2023, October). *Unsupervised Outlier Detection in Continuous Nonlinear Systems: Hybrid Approaches with Autoencoders and One-Class SVMs*. The 17th International Conference Interdisciplinarity in Engineering. Cham: Springer Nature Switzerland, 2024, pp. 376–398.

https://link.springer.com/chapter/10.1007/978-3-031-54674-7_29

4. **Bolboacă, Roland**, and Piroska Haller. *Performance Analysis of Long Short-Term Memory Predictive Neural Networks on Time Series Data*. Mathematics 11.6 (2023): 1432.

<https://www.mdpi.com/2227-7390/11/6/1432/pdf>

5. **Bolboacă, Roland**. *Adaptive ensemble methods for tampering detection in automotive aftertreatment systems*. IEEE Access 10 (2022): 105497-105517.

<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=9907013>

6. **Bolboacă, R.**, Haller, P., Kontses, D., Papageorgiou-Koutoulas, A., Doulgeris, S., Zingopis, N., & Samaras, Z. (2022, June). *Tampering detection for automotive exhaust aftertreatment systems using long short-term memory predictive networks*. In 2022 IEEE European Symposium on Security and Privacy Workshops (EuroS&PW) (pp. 358-367). IEEE.

<https://ieeexplore.ieee.org/abstract/document/9799428>

7. Lenard, Teri, and **Roland Bolboaca**. *A statefull firewall and intrusion detection system enforced with secure logging for controller area network*. European Interdisciplinary Cybersecurity Conference. 2021.

<https://dl.acm.org/doi/abs/10.1145/3487405.3487650>

https://nislalab.umfst.ro/files/EICC_Firewall.pdf

8. Lenard, Teri, **Bolboacă, Roland**, Genge, Béla, & Haller, Piroska (2020, June). *MixCAN: Mixed and backward-compatible data authentication scheme for controller area networks*. In 2020 IFIP Networking Conference (Networking) (pp. 395-403). IEEE.

<https://ieeexplore.ieee.org/abstract/document/9142797>

https://nislalab.umfst.ro/files/IFIP_Networking2020.pdf

9. Lenard, Teri, **Bolboacă, Roland**, & Genge, Béla, (2020, September). *LOKI: A lightweight cryptographic key distribution protocol for controller area networks*. In 2020 IEEE 16th International Conference on Intelligent Computer Communication and Processing (ICCP) (pp. 513-519). IEEE.

<https://ieeexplore.ieee.org/abstract/document/9266192>

https://dias-project.com/sites/default/files/2022-12/LOKI_A_Lightweight_Cryptographic_Key_Distribution_Protocol_for_Controller_Area_Networks.pdf

10. **Bolboacă, Roland**, Lenard, Teri, Genge, Béla, & Haller, Piroska (2020, August). *Locality sensitive hashing for tampering detection in automotive systems*. In Proceedings of the 15th International Conference on Availability, Reliability and Security (pp. 1-7).

<https://dl.acm.org/doi/abs/10.1145/3407023.3409206>

https://nislalab.umfst.ro/files/IWCC_LSH2020.pdf

11. **Bolboacă, Roland**, Béla Genge, and Piroska Haller. *Using Side-Channels to Detect Abnormal Behavior in Industrial Control Systems*. 2019 IEEE 15th International Conference on Intelligent Computer Communication and Processing (ICCP). IEEE, 2019.

<https://ieeexplore.ieee.org/abstract/document/8959745>

