

Tristan Bilot

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Education

Ph.D. in Computer Science , Université Paris-Saclay , Paris, France • Thesis: Detecting Advanced Cyberattacks with Self-Supervised Graph Learning • Supervisors: Pr Khaldoun Al Agha, Dr Nour El Madhoun	2022 – 2025
Master's (Diplôme d'Ingénieur) in Computer Science , EPITA , Paris, France • GPA: 4.0/4.0 • Focus on Computer Security, Systems, Network	2019 – 2022
DUT in Computer Science , Université Paris-Cité , Paris, France • Focus on Algorithms, Data Structures, Data Mining, Reflective Programming	2017 – 2019

Experience

Postdoctoral Fellow – University of British Columbia , Vancouver, BC, Canada • Research on foundation models for security	Feb. 2026 –
Applied Scientist Intern – Amazon , New York, NY, USA • Security Analytics and Artificial Intelligence Research team (SAAR) at AWS • Research on multi-agent system security	Oct. 2025 – Jan. 2026
Ph.D. Researcher – Iriguard , LISN , LISITE , Paris, France • Ph.D. funded by Iriguard and in collaboration with LISN and LISITE labs • Developed scalable intrusion detection systems with deep learning on client data	Oct. 2022 – Oct. 2025
Visiting Research Student – University of British Columbia , Vancouver, BC, Canada • Research in provenance-based intrusion detection systems with GNNs and self-supervised learning, supervised by Thomas Pasquier • Worked on large-scale temporal graphs and robustness to adversarial attacks	Apr. – Jun. 2024
Student Researcher – EPITA Systems Laboratory (LSE) , Paris, France • Research on GNNs for phishing web page detection, supervised by Dr. Badis Hammi	Sep. 2021 – Aug. 2022
Data Engineer Apprentice – Carrefour-Google AI Lab , Paris, France • Deployed ML models in production and optimized training time (4x and 3x improvements) • Built a scalable BigQuery fetching tool, presented in internal engineering reviews • Deployed a multi-project data pipeline with Airflow, dbt, GCP, Kubernetes	May 2021 – Aug. 2022
Software Engineer Apprentice – Carrefour , Paris/Massy, France • Developed new features for the Carrefour iOS app (1.5M+ monthly users) • Integrated Apple Wallet into the app	Sep. 2019 – Apr. 2021
Software Engineer Intern – Micropole , Levallois-Perret, France • Developed backend features for websites and web services • Improved website loading speed by ~30%	May 2019 – Aug. 2019

Publications

Full list: [Google Scholar](#)

KRATOS: Temporal Graph Transformer for Large-Margin Provenance-based Intrusion Detection Tristan Bilot , Baoxiang Jiang, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui, Thomas Pasquier	<i>Under review</i> , S&P 2026
FAUCON: Targeted Lateral Movement Detection in Evolving Networks Through Source Host Identification	<i>Under review</i> , USENIX Security 2026

Tristan Bilot, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui

Sometimes Simpler is Better: A Comprehensive Analysis of State-of-the-Art
Provenance-Based Intrusion Detection Systems [[paper](#), [code](#), [poster](#), [slides](#), [video](#)]
Tristan Bilot, Baoxiang Jiang, Zefeng Li, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui, Thomas
Pasquier

USENIX Security 2025

ORTHRUS: Achieving High Quality of Attribution in Provenance-based Intrusion
Detection Systems [[paper](#), [code](#), [slides](#), [video](#)]
Baoxiang Jiang, Tristan Bilot, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui, Shahrear Iqbal,
Xueyuan Han, Thomas Pasquier

USENIX Security 2025

Few Edges Are Enough: Few-Shot Network Attack Detection with Graph Neural
Networks [[paper](#), [code](#), [slides](#)]
Tristan Bilot, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui

IWSEC 2024 (**best paper
award**)

A Survey on Malware Detection with Graph Representation Learning [[paper](#)]

ACM Computing Surveys,
2024

Tristan Bilot, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui

A Benchmark of Graph Augmentations for Contrastive Learning-Based Network
Attack Detection with Graph Neural Networks [[paper](#), [poster](#)]
Tristan Bilot, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui

CSNet 2023

Graph Neural Networks for Intrusion Detection: A Survey [[paper](#)]
Tristan Bilot, Nour El Madhoun, Khaldoun Al Agha, Anis Zouaoui

IEEE Access, 2023

PhishGNN: A Phishing Website Detection Framework using Graph Neural Networks
[[paper](#), [code](#), [slides](#)]
Tristan Bilot, Grégoire Geis, Badis Hammi

SECRYPT 2022

Technical Articles

USENIX ;login: [[article](#)]

2025

Article based on our two USENIX Security 2025 papers

Medium [[11 articles](#) + [code](#)]

2020–now

Various articles on MLX/CUDA benchmarks, data eng., software eng., ...

Personal Blog [[5 articles](#), [code](#)]

2022

"Deep learning from scratch" series, on autodiff & backpropagation

Invited Talks

Télécom Paris [[slides](#)]

France – 2026

Course on AI techniques for advanced attack detection

The University of Texas at El Paso [[slides](#)]

USA – 2025

Achieving High Quality of Attribution in Intrusion Detection

GenAI Meetup Morocco [[slides](#)]

Morocco – 2025

How AI protects us from cyberattacks?

EPITA Seminar [[slides](#)]

France – 2025

Introduction to ORTHRUS and PIDSMaker

University of British Columbia [[slides](#)]

Canada – 2024

Inductive Detection of Hosts in Large Temporal Graphs

Institut Mines-Télécom [[slides](#)]

France – 2024

System-level Intrusion Detection with Graph Neural Networks

DATAIA Day Saclay [[poster](#)]

France – 2022

Detecting Complex Attacks with Graph Deep Learning

Carrefour [[slides](#)]

France – 2022

Data Engineering Applied to Retail

Skills

Programming: Python, Swift, C, C++ , Bash, JS, Java, CUDA, Assembly x86, Rust

ML Frameworks: PyTorch, MLX, Jax/Haiku, pandas, scikit-learn

Agentic AI: Autogen/AG2, AWS Bedrock, LangChain, LangGraph

ML Skills: Self-supervised learning, GNNs, Transformers, LLM fine-tuning (LLaMA+QLoRA), GPU parallelization & vectorization, framework coding, large-scale training under limited resources

Infrastructure: GCP, AWS, Docker, Kubernetes, Airflow, dbt, W&B

Languages: French (native), English (fluent), Spanish (notions)

Projects

PIDSMaker , github.com/ubc-provenance/PIDSMaker	2025–
Deep learning framework for building provenance-based intrusion detection systems	
Apple MLX , github.com/ml-explore/mlx	2024–
Apple's ML framework – Implemented backpropagation of scattering operations in C++	
MLX-graphs , github.com/mlx-graphs/mlx-graphs	2024–
GNN library on top of MLX with optimized GPU kernels	
MLX-benchmark , github.com/TristanBilot/mlx-benchmark	2024–
Benchmark framework for MLX, Apple chips and CUDA GPUs	
Deepiler , github.com/TristanBilot/deepiler	2022
Transformer-based decompiler to convert binaries into C code	
K – x86 Kernel , github.com/TristanBilot/kernel_x86	2021
Simple kernel written in C and Assembly x86	

Activities & Interests

Volunteering: Protection civile (2018–2022), first aid

Academic: Student bureau, Junior Enterprise, class representative, hackathons (Google HashCode, Design4Green, Carrefour)

Hobbies: Music (DJ mix), cosmology, traveling, surfing