HILASSOUN A. ROLAND SANOU

Machine Learning & AI Engineer — Deep Learning | NLP | LLMs | Computer Vision | MLOps
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PROFESSIONAL SUMMARY

ML/AI engineer with 3+ years of hands-on experience designing, training and deploying machine learning models in production at C-Prot, a cybersecurity company serving more than 5 million users worldwide. Specialised in building high-accuracy classification models (99%), anomaly detection systems and ML pipelines for real-time inference on both server and edge (mobile). Currently pursuing an M.Sc. in Artificial Intelligence with a research focus on LLMs and adversarial ML. Solid expertise in deep learning, NLP, computer vision and end-to-end MLOps.

PROFESSIONAL EXPERIENCE

ML R&D Engineer — Threat Detection & Intelligence

C-Prot Siber Guvenlik Teknolojileri A.S. · Mersin, Türkiye · *January 2025 — Present*

- Designed and deployed ML-based detection models for the Windows EDR platform, combining supervised classifiers (gradient boosting, neural networks) with unsupervised anomaly detection to identify ransomware, zero-day exploits and advanced persistent threats.
- Reached 99% detection accuracy across diverse malware families while keeping a low false-positive rate for enterprise clients in the banking, energy and defence sectors.
- Built end-to-end ML pipelines: data collection from threat feeds, feature engineering from system events, model training, validation and production deployment to more than 5 million users.
- Researched and prototyped LLM-based approaches for automatic threat-report generation, log summarisation and intelligent alert triage.
- Deployed and operated self-hosted LLMs via Ollama for private on-premise AI inference — enabling secure threat analysis, internal code-review assistance and document summarisation with no dependency on external APIs.
- Architected and implemented n8n-based workflow automation pipelines to orchestrate ML retraining triggers, automated threat-feed ingestion, alert enrichment and report generation — cutting manual operational load by 60%.
- Collaborated within a 10-engineer R&D team, driving the ML strategy for next-generation detection capabilities.
- Put in place model monitoring, drift detection and A/B testing frameworks to guarantee continuous model performance in production.

ML R&D Engineer — Mobile Threat Intelligence

C-Prot Siber Guvenlik Teknolojileri A.S. · Mersin, Türkiye · *September 2024 — January 2025*

- Designed and trained NLP classification models for phishing-URL detection, analysing URL structure, domain characteristics and page content with transformer-based architectures.
- Developed ML models for malicious APK classification using static features (permissions, API calls, code patterns) and dynamic behavioural analysis.
- Implemented hybrid heuristic-ML detection systems, combining rule-based expert knowledge with data-driven models for better generalisation to new threats.
- Trained anomaly-detection models on Android system-call sequences to identify behavioural deviations indicating malicious activity.
- Optimised models for on-device deployment via TensorFlow Lite and ONNX Runtime, achieving real-time inference under mobile hardware constraints.

Software Engineering Intern — Android Development & ML Integration

C-Prot Siber Guvenlik Teknolojileri A.S. · Mersin, Türkiye · *February 2023 — August 2024*

- Developed features for C-Prot's Android mobile security application, including the real-time scanning engine and the threat notification system.
- Integrated on-device ML models (TensorFlow Lite) for local malware classification without cloud dependency, improving user privacy and response speed.
- Built data-collection pipelines gathering anonymised threat telemetry for model retraining and improvement cycles.
- Contributed to agile sprints, code reviews and CI/CD pipeline maintenance for the mobile development team.

TECHNICAL SKILLS

Area	Technologies
ML / Deep Learning	PyTorch, TensorFlow, Keras, scikit-learn, XGBoost, LightGBM, CNNs, RNNs/LSTMs, Transformers, GANs
NLP / LLMs	HuggingFace Transformers, LangChain, RAG, fine-tuning (LoRA, QLoRA), Ollama (self-hosted LLMs), spaCy, NLTK, OpenAI API, prompt engineering
Computer Vision	OpenCV, YOLO, image classification, object detection, face recognition, TensorFlow Lite (edge deployment)
Data Engineering	pandas, NumPy, Apache Spark, Airflow, SQL (PostgreSQL, MySQL, SQLite), ETL pipelines, data warehousing
MLOps / Cloud	AWS (SageMaker, S3, Lambda), GCP (Vertex AI), Azure ML, Docker, Kubernetes, MLflow, Weights and Biases
Programming languages	Python, C/C++, Java, Kotlin, SQL, Bash, JavaScript, C#, Go
Visualisation	Power BI, Tableau, Matplotlib, Seaborn, Plotly, Streamlit, Gradio
Automation	n8n (workflow automation), Apache Airflow, cron scheduling, webhook-based pipelines, event-driven orchestration
Development tools	Git, GitHub, Linux, REST APIs, Flask, FastAPI, Django, Docker, CI/CD (Jenkins, GitHub Actions)

EDUCATION

M.Sc. Computer Science — Artificial Intelligence

Mersin University, Mersin, Türkiye · *2025 — 2027 (in progress)*

Research: Large Language Models (LLMs), adversarial machine learning, AI-driven threat intelligence, Transformer architectures.

B.Eng. Computer Engineering

Mersin University, Mersin, Türkiye · *2020 — 2024*

Final-year project: recommendation system using collaborative filtering and content-based approaches.

CERTIFICATIONS

- Machine Learning Specialization — Coursera (Andrew Ng / Stanford)
- Penetration Testing Certification — Coursera

KEY PROJECTS

Real-Time Malware Classification Engine — C-Prot, production

Built an end-to-end ML pipeline for malware family classification reaching 99% accuracy. The models process system events, file metadata and behavioural features in real time for the EDR platform deployed to more than 5 million users.

Technologies: Python, PyTorch, scikit-learn, XGBoost, ONNX, Docker

NLP-Based Phishing Detection System — C-Prot, production

Developed a transformer-based NLP model for phishing URL/SMS classification on Android. Optimised for on-device inference via TensorFlow Lite with sub-100 ms latency on mid-range hardware.

Technologies: Python, TensorFlow, TF Lite, NLP, HuggingFace, Android

Recommendation System — final-year project

Designed a hybrid recommendation engine combining collaborative filtering (matrix factorisation) with content-based features. Evaluated with precision@K and NDCG metrics on a real dataset.

Technologies: Python, scikit-learn, pandas, NumPy, Flask

Facial Emotion Detection — Android application

Built a CNN-based emotion recognition model trained on the FER-2013 dataset, reaching high accuracy across 7 emotion classes. Deployed on Android via TensorFlow Lite for real-time camera inference.

Technologies: Python, TensorFlow, OpenCV, Android, TF Lite, Kotlin

IoT Robot Controller — solar panel cleaner

Developed an Android application for remote control and telemetry monitoring of a solar-panel cleaning robot. Real-time communication over Bluetooth/WiFi with automated cleaning-schedule management.

Technologies: Kotlin, Android Studio, Bluetooth/WiFi protocols, IoT, REST API

LANGUAGES

French: native · **Dioula**: native · **English**: C1 (advanced) · **Turkish**: fluent

INTERESTS

LLM research and fine-tuning, self-hosted AI infrastructure (Ollama, vLLM), workflow automation (n8n), Kaggle competitions, open-source ML contributions, AI for Africa (AgriTech, FinTech), embedded AI and on-device inference.