

Nathan El-Khoury

✉ elkhourynathan@gmail.com  github.com/elkhourynathan  linkedin.com/in/nathanelkhoury

EDUCATION

Carleton University, Honours BCS. of Computer Science; AI & ML Stream

April 2026

GPA: 3.97/4.0

- **Relevant Courses:** Artificial Intelligence, Machine Learning, Neural Networks, Database Management, Data Structures and Algorithms, Algorithm Analysis and Design, Operating Systems, Statistics, Linear Algebra

EXPERIENCE

Machine Learning Engineer Intern

May 2025 - Present

Trend Micro - Reports Team

Python, FastAPI, Flask, LangGraph

- Led development of a multi-agent LLM compliance system converting natural language queries into on-demand visual reports for 10,000+ customers, cutting delivery time from weeks to under 30s
- Orchestrated a LangGraph workflow that uses OpenAI APIs for NLP, MCP data retrieval, and LLM-based visualization, auto-generating PDF reports and autonomously resolving 90% of user queries
- Built MCP servers and a multi-server router mapping intents to 4 MCP servers and 60 APIs with 95% accuracy

Machine Learning Engineer Intern

Sept 2024 - May 2025

J-Squared Technologies - FALC AI Team

Python, PyTorch

- Built a Python synthetic data framework, boosting data variety, raising model accuracy 25% and cutting false positives 30%
- Engineered a multi-object tracking evaluation pipeline with dynamic ReID in Python, computing MOTA/HOTA and IDF1 metrics for granular model performance insight
- Developed a CNN-LSTM rock fall classifier in Pytorch, achieving 92% accuracy under varying environmental conditions

Software Engineer Intern

May 2024 - Sept 2024

J-Squared Technologies - FALC AI Team

Python, Typescript, NextJS, NestJS

- Optimized computer vision pipelines for edge devices by introducing parallel computing, increasing FPS by 30%
- Developed a real-time video analytics interface in NestJS/Next.js with AWS S3 integration, decreasing latency by 3s and scaling concurrency 5x for ML-powered security systems
- Led development of a rockfall classification system and ETL pipeline; live conference demos secured \$500k+ in contracts

Software Engineer Intern

Sept 2023 - Dec 2023

Apption Software - Datahunter AI Team

C#, Python

- Implemented NLP-driven keyword extraction using TF-IDF and word co-occurrence, boosting enterprise processing 5x
- Architected the Datahunter Query Language using a customized command-pattern backend and integrated it into the Blazor frontend, enabling complex user queries while accelerating resolution time by 200%
- Overhauled the data catalog pipeline in Databricks, resulting in secure and automated data exports to Azure storage

Software Engineer Intern

May 2023 - Aug 2023

Starvoy Technologies - Hardware Team

Python, C++, Typescript

- Developed an SVM-based anomaly detection system using k-fold cross-validation, achieving 98% accuracy and reducing manual testing time by 30% in optical transceiver quality assurance
- Automated optical transceiver report generation using LLM pipelines, cutting manual effort by 15 hours/week
- Built a ReactJS/Flask dashboard for hardware control, real-time diagnostics, and automated reports to unify workflows

PROJECTS

Machine Learning UFC Predictor | *Pandas, Scikit-learn, SQL, Flask, ReactJS*

- Engineered features and built an ensemble ML model (XGBoost + Logistic Regression) on historical fight data, deployed via ReactJS + Flask, delivering real time predictions with 86% accuracy

Computer Vision Poker Game Theory Optimizer | *Python, Ultralytics, Supervision, OpenCV*

- Built YOLOv8+ByteTrack card tracking pipeline that streams detections into Monte Carlo simulations to compute win odds and optimal next move (fold / call / raise)

SKILLS

Languages: Python, TypeScript, C++, C#, Java, JavaScript, SQL, Bash, HTML, CSS

Technologies: PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, ReactJS, NestJS, Next.js, Flask, .NET, Blazor, Node.js

Databases/Tools: MySQL, MongoDB, FAISS, Chroma, PostgreSQL, Git, AWS, Azure, Docker, Kubernetes, Linux, Unix