# Amir Shetaia

Software Engineer at HUAWEI | MASc. in Computer and Electrical Engineering
*ashetaia01@gmail.com* | 416-731-3859 | Ontario, Canada | *LinkedIn* | *Github*

## Experience

**R&D Software Engineer** | **HUAWEI, Vancouver, BC** — **Dec. 2024 – Present**
- Developed a deterministic version of the OptVerse Cholesky solver in C++, ensuring reproducibility across runs.
- Optimized sparse linear solvers in C++ for large-scale optimization problems, achieving up to 40% performance improvement.
- Applied OpenMP and HPC techniques to accelerate solver modules, enabling efficient parallel execution on multi-core CPUs.
- Conducted profiling and debugging using GDB, Valgrind, and performance counters to eliminate bottlenecks.

**Graduate Teaching Assistant** | **Queen's University, Kingston, ON** — **Jan. 2025 – Present**
- Teaching Assistant for APSC 142 (Introduction to Computer Programming) and ELEC 471 (Safety-Critical Software Engineering).
- Supporting labs, grading, and student mentoring in C programming, problem-solving, and computational thinking.

**Technical Reviewer & Editor (Contract)** | **Packt, Remote** — **Jan. 2023 – Oct. 2024**
- Reviewed and edited multiple published books for technical accuracy and clarity.
- Created certification-style question banks and validated hands-on code exercises.

**PS Core Cloud Engineer** | **HUAWEI, Cairo, Egypt** — **Dec. 2023 – Aug. 2024**
- Worked on cloud infrastructure and networking solutions within the Packet Switching team.
- Contributed to deploying, optimizing, and managing scalable cloud systems, configuring VNFs and workloads on HUAWEI Cloud.

**Embedded Software Engineer** | **Valeo, Cairo, Egypt** — **Jul. 2023 – Nov. 2023**
- Worked with CAN/LIN protocols, I2C/SPI interfaces, and validated embedded communication standards (MCTP, PLDM, SPDM).
- Added support for Saleae and PicoScope analyzers in the global integration testing tool.
- Designed and implemented a UI tool for Baby-LIN-II to view, record, and analyze LIN signals.
- Designed CI automation tools (WPF, C#, Python) to expand test coverage and reduce regression time by 30%.

**Embedded Software Engineer, Internship** | **Siemens EDA, Cairo, Egypt** — **Jul. 2023 – Nov. 2023**
- Worked on MCU fundamentals, RTOS (AUTOSAR OS, Zephyr), and functional safety (ISO 26262).
- Practiced embedded Linux development with Buildroot (kernel, drivers, board bring-up).
- Implemented protocol integration and HW debugging (oscilloscope, logic analyzers) for system validation.

## Education

**MASc. in Electrical & Computer Engineering** | **Queen's University** | **GPA: 4.3/4.3** — **2024 – 2025**
Research focus: Formal Methods, Verification & Validation, Large Language Models, System Modeling, Real-Time Systems.

**BEng. in Mechatronics Engineering** | **Mansoura University** | **GPA: 3.80/4.0** — **2019 – 2024**
Excellence with Honours, Top 10 of class, Academic Excellence Scholarship.

## Awards & Honors

**HUAWEI ICT Competition** — **2024**
First Prize (Global, Shenzhen, China) and Grand Prize (North Africa Regional, Tunisia) in Cloud Track (Cloud, AI & Big Data).

**Ideal Student Award** — **2022**
Recognized by Mansoura University for outstanding academic performance and leadership.

## Technical Skills

- **Languages:** C/C++, Python, C#, Java, Rust, Go, SQL, JavaScript, Assembly, MATLAB
- **Firmware/Embedded:** RTOS (Zephyr, AUTOSAR), Embedded Linux, MCU Debugging, Buildroot
- **Protocols & Standards:** MCTP, PLDM, SPDM, FRU, CAN, LIN, I2C, SPI, SMBus, I3C, Sensor Management
- **Cloud/DevOps:** AWS, Docker, Kubernetes, Terraform, CI/CD
- **System Design:** Distributed Systems, Multi-threading, OpenMP, HPC, Computer Architecture
- **Debug/Tools:** GDB, WinDbg, WireShark, Oscilloscope/Logic Analyzer
- **AI/ML:** TensorFlow, PyTorch, Hugging Face, Scikit-Learn, YOLO, NLP, LLMs

## Selected Projects

- **DeepParse: LLM-Enhanced Log Parsing Framework**
  - Built a hybrid log parsing system (DeepSeek-R1:8B + Drain) with 97.6% accuracy across 16 datasets.
  - Improved anomaly detection and debugging pipelines by combining LLM-driven template generation with scalable deterministic parsing.
- **VehiPlus: Embedded Telematics & Driver Assistance Platform**
  - Built a vehicle safety and telematics system using Raspberry Pi 4, OBD-II, MQTT, YOLO, and TensorFlow MobileNet.
  - Delivered real-time diagnostics, lane departure warnings, and collision avoidance features.
  - Supported SOTA updates and scalable integration as a Software-Defined Vehicle (SDV) platform.

## Community & Volunteering

- Co-Founder, Mansoura Robotics Club (organized 4 hackathons, 4,000+ participants); HUAWEI ICT Academy Ambassador