Emilio Melis

Portfolio LinkedIn
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Education

Polytech Tours
2022/2027
Computer Engineering Degree

Lycée Francais de Moscou Alexandre Dumas
2019/2022
High School Diploma (Maths/Physics)
Graduated with honors (Mention Bien)

Languages

French - native - C2
English - fluent - C1
Italian - intermediate - B2
Spanish - intermediate - B2
Russian - beginner - B1

Interests

3D Modeling & Printing: Machine maintenance, functional part design for embedded projects.

14 years of expatriation ; highly adaptable in multicultural environments.

E-Sports competitor (Top 0.03% EU "Immortal 3") ; requires asymmetric decision-making and team coordination under high pressure

About me :

Engineering student in training, specializing in algorithmic optimization and artificial intelligence on constrained systems. Building on my experience in low-level development (C/C++) and sensor fusion, I aim to apply my Deep Learning and signal processing skills to challenges within the automotive and aerospace industries (embedded systems, real-time, ADAS).

Technical Experience (Projects)

Embedded Control Prototype (Autonomous Submarine) (C++)

- Developed the software navigation architecture and control loop in an unstable physical environment.
- Mathematically implemented Kalman filters to fuse raw data from inertial sensors (IMU), ensuring the calculation of heading maintenance.

Mobile AI Inference Engine "LLMEdge" (C++, JNI, Kotlin)

- Designed a unified native runtime for ARM mobile architecture, capable of executing heterogeneous models: LLMs, Visual Generation (Diffusion), and Audio Processing (Whisper/Bark).
- Implemented hardware acceleration via Vulkan Compute to parallelize matrix operations.
- Optimized memory bandwidth using raw pointers and "Zero-copy" transfers (JNI) between the JVM and the native backend.

Diffusion Inference Optimization "Light Diffusion" (Python, PyTorch)

- Completely re-engineered latent diffusion algorithms with a focus on computational efficiency.
- Reduced inference time by 30% compared to open-source standards by mathematically optimizing schedulers and managing low-level VRAM tensor allocation.
- Recognition: Project selected for its technical rigor at the Ready Tensor CV Projects Expo 2024.

Decision Algorithmic Engine "CChess" (C)

- Developed a decision search engine from scratch, focusing on raw performance.
- Implemented Minimax algorithms with Alpha-Beta pruning and optimized spatial complexity using bitboard structures (bitwise operations).

Skills

- **Languages & Systems:** C, C++, Python, Kotlin, Linux (Arch, NixOS, Kernel troubleshooting).
- **AI & Data:** PyTorch, Edge/Mobile Inference, Model Optimization, Computer Vision.
- **Embedded:** Arduino, Signal Processing (Kalman Filters), Sensor Fusion, 3D Printing (Rapid Prototyping).

Professional Experience

AI Research Intern | HEC Montréal | Upcoming Summer 2026

- Solving combinatorial optimization problems using language models and visual representations (notably the Traveling Salesperson Problem).

Churkin Moscow International Model United Nations (C-MIMUN) | 2021–2022

- Diplomatic representation and negotiation of complex resolutions in English.
- Developed synthesis and communication skills in crisis situations.