Elia Gatti

Master's Student in Computer Science | Software Developer

elia.gatti01@gmail.com · /in/elia-gatti · /MaiDormo · maidormo.github.io

Work Experience

Dedagroup - Internship Software Developer May 2024-Sept 2024

- Reduced VM resource requirements by 50% for the 'TEN' treasury application by **migrating the deployment infrastructure** from a legacy Windows environment to Linux servers.
- Enhanced user experience for internal clients by **developing reactive frontend features** using HTMX and maintaining the Java/Spring backend.

Education

Expected 2026 **Master's Degree in Computer Science** **University of Trento**
Graduated 2024 **Bachelor's Degree in Computer Science** **University of Trento**

Projects & Achievements

DWT-SVD Digital Watermarking Tool

- **Won 1st Place** in the "Capture the Mark" university competition by engineering a robust watermarking algorithm.
- **Implemented** a novel embedding strategy using Singular Value Decomposition (SVD) within Discrete Wavelet Transform (DWT) blocks (Python/OpenCV).
- **Validated resilience** by engineering an automated attack suite to stress-test detection thresholds via ROC analysis.

MovieMatch (Microservices Architecture)

- **Architected** a scalable recommendation system composed of **15 microservices** (Python/FastAPI).
- **Orchestrated** containerized deployment using Docker Compose, ensuring isolation of recommendation logic and user data.
- **Unified** data access by implementing a standardized JSON API gateway, integrating 3rd-party streaming availability providers.

Crosstrack Italia - Mobile Application

- **Launched** a cross-platform mobile app (Flutter/Dart) for motocross track discovery with OpenStreetMaps integration.
- **Engineered** a reactive state management system using Riverpod 2.0 and Freezed to handle asynchronous user data.
- **Secured** backend operations using Firebase Auth for identity management and Firestore for real-time data syncing.

Sparse Matrix-Vector Multiplication (SpMV) Optimization

- **Maximized GPU utilization** on NVIDIA A30 hardware by engineering a Hybrid Adaptive CUDA kernel.
- **Benchmarked** parallel computing performance against Cublas implementation, analyzing Execution Time and GFLOPS.
- **Optimized** memory access patterns in C/CUDA to increase Memory Bandwidth throughput.

Skills

Languages	Java, Python, C, CUDA, Dart, SQL, Shell Scripting
Frameworks	Spring Boot, FastAPI, Flutter, Akka, Riverpod
Infrastructure	Docker, Git, Linux, Firebase, Mininet, PBS Schedulers
Concepts	Microservices, Distributed Systems, HPC (MPI, OpenMP), GPU Computing