Davide Zambon

C++ SOFTWARE ENGINEER | PERFORMANCE SPECIALIST

MSc Cybersecurity student specializing in **Low-Level Optimization**, **Data-Oriented Design**, and **Computational Geometry**. Merging mathematical rigor from Astronomy with modern software engineering to build safe, correct, and high-performance systems.

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PROFESSIONAL EXPERIENCE

C++ Plugin Developer | RBF Morph

Nov 2024 – Present

- **Performance Engineering:** Developing a high-performance C++20 plugin for Autodesk Alias to handle real-time mesh deformation.
- **Optimization:** Implemented **Data-Oriented Design** principles to optimize the integration of RBF (Radial Basis Function) morphing algorithms, significantly reducing latency in viewport updates
- **Complex Integration:** Interfacing with proprietary CAD SDKs, managing memory to avoid overhead, and utilizing Eigen/Nanoflann for efficient 3D spatial queries.
- **Tech Stack:** C++20, Alias SDK, Eigen, Nanoflann, CMake.

Dart Backend Developer | Bitcoin People

May 2025 – Sep 2025

- Designed backend and database architecture in Dart. Performed extensive ORM refactoring (Drift) to improve security, maintainability, database query performance and type safety.
- Implemented secure transaction handling logic within the Bitcoin protocol context.

EDUCATION & AWARDS

MSc Cybersecurity & Software Dev. | Ca' Foscari University

2025 – Present

Focus: *Software Correctness, Formal Methods, Cryptography, Low-level Security.*

National Finalist | CyberChallenge.IT

Feb 2025 – Jul 2025

Selected to represent Ca' Foscari. Intensive training in **Reverse Engineering**, **Binary Exploitation**, and **Cryptography**.

BSc Computer Science | Ca' Foscari University

Final Grade: 106/110

BSc Astronomy (Incomplete) | University of Padua

2020 – 2022

Completed 2 years of rigorous Physics and Calculus before switching to Computer Science. Provided the mathematical foundation for current work in Computational Geometry.

TECHNICAL STACK

CORE & PERFORMANCE

C++ (up to 20), Rust (Basic), Memory Management, Data-Oriented Design, STL.

SYSTEMS & TOOLS

Linux, Git, GDB, Valgrind, Bash Scripting.

DOMAIN SPECIFIC

Computational Geometry, Bitcoin Protocol (P2P/Script), CAD SDKs.

SELECTED ENGINEERING PROJECTS

Huffman Compression (C++)

Low-level implementation of lossless compression. Focus on memory-efficient binary tree structures and bit-manipulation.

BigInteger Library (C++)

Arbitrary-precision integer arithmetic engine. Implemented **Karatsuba algorithm** for optimized multiplication speed.

Custom JSON Parser (C++)

Recursive descent parser built from scratch. Focus on standard compliance and robust error handling without external libs.

Problematic Internet Use (ML)

Data mining project using XGBoost, Random Forest and Keras. Analysis of biological markers from large datasets (HBN study).

MyFood application

Java developing of an Android application to manage and sell items, with an internal chat. Code avaiable on demand

Languages: Italian (Native), English (Full Professional).

Interests: Mountaineering, Climbing, Hiking (Alpinism).