Alessandro Farace di Villaforesta

79-85 Old Brompton Road, London, SW7 3LB, England
+44 7717 858 719 faracea2000@gmail.com A-F-V
USA & Italian Passports / British Resident

SKILLS

- Proficient in **C++, C, CMake, Python, C#, Java, Javascript, OCaml, Prolog, git**.
- **Machine Learning** with experience in **PyTorch, PyG, Sklearn, Numpy, Pandas**.
- **Blockchain development** with **Solidity** and **Ethers.js**.
- **Web development** with **React, Next.js, HTML, CSS, Bulma**.

EDUCATION

University of Cambridge, 1st Class, Computer Science 2019-2022

- **King's Scholar** for receiving a **1st** in second and third year exams.
- **Student Rep** (2020-2021).
- Part of the inaugural cohort of the **King's Entrepreneurship Lab**.

Courses taken include:

- **APPLIED**: · Artificial Intelligence · Machine Learning · Quantum Computing · Cryptography · Security · Bioinformatics · Formal Models of Language · Data Science · Databases · Computer Graphics · Human-Computer Interaction.
- **THEORY**: · Category Theory · Algorithms & Data Structures · Type Theory · Information Theory · Complexity Theory · Computation Theory · Logic & Proof · Semantics of Programming Languages · Compiler Construction.
- **SYSTEMS**: · Cloud Computing · Networking · Computer Architecture · Concurrent & Distributed Systems · Operating Systems · Digital Electronics.

St Paul's School / Colet Court, Barnes, London 2008-2019

- A* in Mathematics, Further Mathematics and Computer Science and D1 in Physics A-Level.
- 11 A* at GCSE.
- Senior Scholar.
- Senior Prizes for Computer Science and Further Mathematics.

EXPERIENCE

Junior C++ Developer, Pulsar Trading October 2022-Present

Worked in the core C++ team developing low-latency market data feeds. Gained deeper knowledge of C++23, Template Metaprogramming, Boost and CMake. Work included designing and implementing a connection scheduling framework to reduce throttling, refactoring common code across all exchanges, and enhancing Websocket and REST client functionality.

Supervisor, University of Cambridge October 2023-December 2023

Remotely tutored 10 second year Cambridge students in the C & C++ course.

Intern, Arqit Summer 2022

Worked in the Innovation Team, exploring possible applications of their post-quantum cryptography in blockchain technologies. Made use of Tamarin prover in verifying security protocols.

Intern, SS&C Technologies Holdings Summer 2018

Created a service to detect bank fraud using unsupervised machine learning. Isolation forest trained on over 5 million transactions. Interacts through a REST API.

PROJECTS

Arcana — May 2023-July 2023

Developed a suite of AI-powered utilities for Obsidian, a note taking application, which I built on top of Langchain.js and React.js. Key features include customizable chat agents, text generation, automatic note tagging, flashcard generation, and predictive note naming.

Explainable AI for Cancer Diagnosis — September 2021-May 2022

Developed an automated cancer diagnosis program that makes predictions on H&E histological images. Implemented HoVerNet to generate cell graphs. Used Graph Convolution Network to predict presence of cancer, and used GCExplainer to justify predictions. Worked under the supervision of Professor Pietro Liò, Lucie Charlotte Magister and Pietro Barbiero.

ACHIEVEMENTS

Winner UK Young Enterprise Final 2018 & JA Europe Company of the Year

SureLight, Marketing Director
A ten-month competition against over 10,000 participants, hurdled regional and national competitions and went on to win European first place. Managed a team of five to market a brake light for bicycles. Learned the value of collaboration, leadership, and clear communication to improve efficiency and output.

HOBBIES

- **Sports:** Football, Squash, Tennis, Running, Jumping Rope.
- **Cooking:** Attended several amateur courses.
- **Films**