# Giacomo Fenzi

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## Education

**ETH Zürich** — Zürich, Switzerland
MSc CyberSecurity — Sep 2020 - Present

**St. Andrews University** — St. Andrews, United Kingdom
BSc Mathematics & Computer Science — Sep 2016 - May 2020
*Expect to graduate with a* First. **GPA**: 18.1/20

**Worth School** — Turners Hills, United Kingdom
IB Diploma (39/45) — Sep 2014 - May 2016

## Experience

**University of St. Andrews** — St. Andrews, United Kingdom
*Undergraduate Summer Reseach Assistant* — June 2020 | August 2020

- Worked on "High Performance Mathematical Algorithms in Rust", a project using Rust to develop machinery to improve performance in crucial computational group theory areas.
- Developed, tested and benchmarked various algorithms for both orbits, transversal, factored transversal and ultimately stabilizer chain constructions, using the Schreier–Sims algorithm.
- Explored performance of Monte Carlo variations of these methods.

**Goldman Sachs** — London, United Kingdom
*Summer Intern, MBD Strat* — June 2019 | August 2019

- Developed mathematical models to solve linear constraint optimization problems in order to maximize leverage on investments.
- Designed a general indexing service to allow for configurable and efficient querying of a variety of company-owned data sources.
- Delivered a full stack solution for automating collection of regulatory documents, and integrating it with the company's workflow solution and existing data solutions.

**Deloitte** — Milan, Italy
*Advanced Analytic Consulting Intern* — June 2018 | July 2018

- Developed tools for Statistical Analysis and Forecasting clients' employee flow, using a combination of statistical methods such as ARIMA and machine learning frameworks such as XgBoost and TensorFlow.
- Delivered a portfolio website to showcase projects of the Advanced Analytic Team, using a combination of D3.js and Bootstrap.
- Engineered a Telegram Bot to allow user to query Qlik dashboards and gather quantitative information on the fly.

**Goldman Sachs** — London, United Kingdom
*Spring Intern, Engineering* — April 2018

- Designed a system leveraging preexisting data sources in order to expose a API for companies fundamentals data, to be used within the Investement Management Division.

**TecGlass Digital** — Lalín, Spain
*Summer Intern* — June 2017

- Built from the ground up WPF applications to be used routinely by both the marketing team and the R&D department, using .NET and C#.

## Skills

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|---|---|
| Programming Languages: | Rust, Go, C++, C, Java, Python, JavaScript, Haskell |
| Technologies: | Docker, Tensorflow, XgBoost, RabbitMQ, Angular |
| Research Interests: | Quantum Computing, Cryptography, Programming Language Design |
| Languages: | Italian, English *(Advanced)* \| French, Spanish *(Basic)* |

## Awards

**Dean's List** St. Andrews University
Annual award for academic excellence, awarded three years in a row 2017-2018-2019
**Headmaster's Outstanding Achievement for Mathematics** Worth School
Highest possible honour awarded at the school, gained for Mathematical prowess 2016

## Publications

*The Latin Diachronic Frequency Dictionary*
Spinelli, T., Short, W., Fenzi, G., Leslie, J. BRILL (forthcoming)
(The book has undergone peer-review and has been accepted for publication pending minor revision. Draft and documentation available).
This book, which is based on the Latin Diachronic Database project (Spinelli/Fenzi 2019; https://risweb.st-andrews.ac.uk/portal/en/datasets/the-latin-diachronic-database-project(05bf041f-9654-4173-8c8a-b93a2efa0926).html, provides the first chronological and statistical analysis of the frequency of Latin lemmas as attested in a corpus of 9.5 million words and 307 Latin authors (4th BCE-6th CE).

**The Latin Diachronic Database Project**
Spinelli, T., Fenzi, G. doi:10.5281/zenodo.2562829
This project aims to create an innovative toolkit for the quantitative computational analysis of the Latin language as well as to support and further enhance the digital study of ancient intertextuality.

**The First Online Dictionary of Latin Near-Synonyms**
Spinelli, T., Fenzi, G. doi:10.17630/3cf644e6-86b8-44d0-a50a-b33c7ca86072
The First Online Dictionary of Latin Near-Synonyms is a digital humanities project aimed at providing students and researchers with the first modern monolingual dictionary of Latin near-synonyms.

## Presentations

**Quantum Computing** University of St. Andrews
*Teach Me X* 27 February 2020

- Introduction to Quantum Computing, starting from the basic mathematics, developing understanding of the quantum physical framework and culminating with an overview of the Quantum Fourier Transform
- Slides available here

**Rust and Safe Systems Programming** University of St. Andrews
*Teach Me X* 13 February 2019

- Presentation about Rust, systems programming in general, and in particular new techniques to mitigate memory unsafety
- Slides available here