## STRENGTHS

### Mathematical Modeling

Drove innovative solutions by combining problem-solving skills with rigorous analytical thinking, independently tackling a wide range of technical challenges.

### Data Analysis

Optimized data integrity through imputation, anomaly detection, and rigorous adherence to data quality protocols, enhancing time series analysis in fast-paced settings.

### Team Leadership

Led the development of novel features in a variety of cross-departmental projects, providing guidance in data interpretation and management, and directing modeling processes.

## SKILLS

C++ · C · C# · Python · MATLAB · SQL · .NET · OpenMP · OpenGL · Azure DevOps · Git · JIRA · Buck · CMake · Machine Learning · Parallel Programming · Non-Linear Optimization

## CERTIFICATIONS

### AI for Trading

*Udacity*
Completed real-world projects designed by industry experts, covering topics from asset management to trading signal generation.

### Financial Engineering

*Indian Institute of Quantitative Finance*
Mastered modeling and applications of mathematics, statistics and econometrics in investment finance.

### Advanced Statistics and Machine Learning

*Coursera*

### Parallel Computing with CUDA

*Pluralsight*

## PATENTS

### Method and system for pressure drop estimation

WO2017158343A1, The Patent Cooperation Treaty (PCT), 2017.

# FABRIZIO DONATI

Mathematical Modeler | Data Scientist | Machine Learning Expert

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Zürich, Switzerland

## SUMMARY

Proactive modeling expert with a focus on data-driven processes with 10+ years object-oriented programming experience in C++ and Python. Skilled in developing multi-disciplinary simulations, with a strong ability to understand risks and limitations and optimize performance. My methodology includes collaborating with diverse teams, incorporating a deep knowledge of mathematical and statistical concepts into a practical strategy, to ensure that my simulations are not only theoretically sound, but also capable of offering actionable insights.

## EXPERIENCE

### Senior Simulation Development Engineer — 02/2017 - Present

Stake F1 Team — Hinwil, Switzerland

Lead the mathematical modeling and software development of vehicle simulations and state-of-the-art data analysis tools used company-wide.

- Develop software and methodologies for telemetry data analysis, employing machine learning algorithms for enhanced channel information extraction.
- Implement code performance optimization algorithms, to enable integration of the original car model into higher frequency applications by boosting the data loading/processing by 300%, and reduce AWS cloud services costs by 30%.
- Partner with trackside engineers to streamline tools for race preparation and post-event analysis, leading the development of car setup scans and various tools such as lap time, race start, pit lane, ride analysis, wind and strategy simulations.
- Transform and integrate GPS data, live-sensor measurements and lap time simulations across all race events to fuel regression methodologies for deriving key metrics to rank competitor performances.
- Design the power unit model to explore the impact of the FIA F1 2026 regulation changes, delivering critical simulation insights to the Technical Director.

### Software Engineer — 01/2023 - 06/2023

Meta — Zürich, Switzerland

Developed software solutions for the high-end mixed reality headset Meta Quest 3.

- Reduced rendering latency in a proprietary virtual reality application by 20%.
- Enhanced the reliability of the system by developing automated end-to-end tests for camera stability, image reconstruction and dynamic range adjustment.
- Redefined a 3D graphics mixed reality occlusion feature in an AndroidOS application, using OpenGL for virtual object rotation control.

### Computational Biomedical Scientist — 01/2012 - 04/2016

King's College London — London, England

Conducted cardiovascular modelling research at St. Thomas' Hospital.

- Improved patient stratification by formulating a novel method to estimate blood pressure from medical imaging data, resulting in a 50% reduction in misdiagnoses.
- Embedded a simplified hemodynamics solver in a multi-physics human heart modeling software, enabling the simulation of complex heart dynamics within clinical timelines.

## EDUCATION

### Ph.D., Biomedical Engineering — 2012 - 2016

King's College London — London, England

- Major: Imaging Sciences

### M.Sc., Aerospace Engineering — 2009 - 2011

Politecnico di Torino — Turin, Italy

- Major: Computational Fluid Dynamics

### B.Sc., Aerospace Engineering — 2005 - 2009

Politecnico di Torino — Turin, Italy

- Major: Experimental Aerodynamics

## LANGUAGES

| | | | |
|---|---|---|---|
| English | Native | Italian | Native |
| French | Intermediate | German | Beginner |