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 — 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 — 2023 - 2024

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 — 2012 - 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