NATALIA TRIANTAFYLLOU

APPLIED PHYSICIST, PHD

DETAILS

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Geneva, Switzerland

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NATIONALITY
Greek/EU citizen

PROGRAMMING AND SOFTWARE

Python (numpy, scipy, pandas, matplotlib, PySpark, scikit-learn), Git, Windows, MacOS, Linux

LANGUAGES

Greek
● ● ● ● ●

English
● ● ● ● ●

French
● ● ● ○ ○

LINKS

Publications

LinkedIn

Webiste

PROFILE

Physicist with expertise in **data analysis**, **modeling**, and **monitoring** of complex physical systems' evolution. Skilled in **developing data pipelines** and **simulations** that translate multi-sensor data into **actionable insights**. Motivated to apply these skills to environmental projects and data-driven decision-making.

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher-Accelerator Physics, CERN   Geneva, CH
Feb 2022 — Present

- Developed and optimized **monitoring tools** for particle beam diagnostics, **integrating multi-sensor data** to assess system **performance** and **stability**
- Processed and analyzed **large multi-parameter datasets** using **Python** for **anomaly detection** and **performance validation**
- Developed algorithms for **noise reduction** and **data pre-selection**, improving data transmission and **analysis efficiency**
- Conducted **performance testing** and **calibration** of diagnostic equipment, ensuring reliability of sensor data used for operational decisions
- Led commissioning tasks and machine protection studies requiring **rapid interpretation** of data to support **operational decision-making**
- Collaborated with **interdisciplinary teams** on **predictive simulations** of physical systems, **balancing model complexity** and **computational speed**

PhD Researcher-Accelerator Physics, CERN   Geneva, CH
Nov 2018 — Nov 2022

- **Modeled complex physical processes** through multi-parameter simulations, including noise spectrum analysis and **uncertainty quantification**
- Build **data analysis pipelines** to compare experimental and simulated results for **system validation** and **performance assessment**
- Leveraged **GPU** and **cluster computing** to accelerate **large-scale simulations** and enable **higher-resolution** modeling
- **Processed** large **raw** datasets to **extract** relevant features for simulation input and visualization
- Contributed to **remote data acquisition workflows**, integrating signals from multiple diagnostics

EDUCATION

PhD in Accelerator Physics, University of Liverpool   Liverpool, UK
Nov 2018 — Feb 2023

Bachelor in Physics, Aristotle University of Thessaloniki   Thessaloniki, GR
Sep 2013 — Oct 2018

Graduated with High Honors. Selected coursework: Nuclear, high-energy physics, and atmospheric physics, electromagnetism

Erasmus+ Exchange, University of Łódź   Łódź, PL
Feb 2017 — Jun 2017