Vangelis **Kourlitis** PhD

Data Scientist | ex-CERN

PROFILE

Data scientist and software developer with 10 years experience in various technical projects and leadership positions within the ATLAS Experiment at CERN. Specialized in developing scalable pipelines in big data analytics and machine learning domains, with a proven track record of optimizing workflows and delivering impactful solutions. Skilled leader with extensive experience mentoring teams, presenting complex results to diverse audiences, and authoring and reviewing technical reports. Now seeking to transition into industry to apply advanced technical expertise to commercial challenges in fintech.

CONTACT

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GitHub: ekourlit

SKILLS

Advanced
Python • C++ • Git

Intermediate
Bash

Novice
GCP • SQL • Docker

EDUCATION

UNIVERSITY OF SHEFFIELD
PhD in Physics
2015 - 2019 | Sheffield, UK

ARISTOTLE UNIVERSITY OF THESSALONIKI
B.Sc. in Physics
2009 - 2015 | Thessaloniki, GR

EXPERIENCE

TECHNICAL UNIVERSITY OF MUNICH & CERN | Geneva, CH
Analysis Model Group Coordinator
Oct 2023 - Dec 2024

- Managed a geographically distributed 120-member group in charge of ATLAS data analysis software (∼1M LOC) and data formats, ensuring milestones alignment with organizational priorities.
- Drove the adoption of a lightweight data format ahead of schedule, offering 3x reduction in data storage costs.
- Mentored early-career developers projects, delivering innovative software products on time and fostering growth.
- Organized tutorials promoting the scientific Python ecosystem in particle physics data analysis, enhancing UX and insights extraction speed.

Data Science Researcher
Mar 2023 - Sept 2023

- Led a 10-member team to modernize legacy C++ data analysis tools with scalable array-based implementations, achieving a 4× increase in throughput while aligning with industrial data science standards; project funded by personal grant.

Python libraries: `Awkward`, `Dask`, `Numba`, `CuPy`

ARGONNE NATIONAL LABORATORY | Chicago, US
Data Science Researcher
Nov 2019 - Feb 2023

- Led a team of 7 researchers to utilize advanced analysis algorithms and ML methods in particle identification, increasing experimental reach by 12% and conducting ATLAS first full statistical analysis in pure Python.
- Played key role in optimizing the ATLAS simulation software, identified bottlenecks and doubled its processing speed with physics optimizations.
- Prototyped 3D CNN solution for further accelerating simulations up to 20% and developed scalable GPU training strategies.
- Benchmarked emerging hardware accelerators (SambaNova RDU) for training autoencoder ML models.
- Facilitated collaboration among 10 international teams by establishing and documenting standardized methodologies and metrics for robust AI-driven results.
- Stress-tested the operational readiness and elasticity of the GCP for particle physics data analysis workflows.

Python libraries: `PyTorch`, `Ray`, `PySpark`

UNIVERSITY OF SHEFFIELD | Sheffield, UK
Doctoral Researcher
Nov 2015 - Oct 2019

- Delivered ATLAS technical report on new physics searches, the first to leverage the largest available dataset at the time and to feature the first release of a full analysis likelihood from CERN.
- Developed and maintained C++ data analysis software for high-throughput computations across the full development lifecycle.
- Instructed Python labs to MSc students, covering core programming and scientific computing concepts.

Python libraries: `NumPy`, `pandas`, `SciPy`, `scikit-learn`, `Matplotlib`