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# Ioannis Karkanias

Python Developer, Physics PhD

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Other: [LinkedIn](#), [Github](#)

## Skills

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### Data Science

scipy, pandas, numpy, matplotlib, PySpark, ROOT, SQL

### Artificial Intelligence (AI) / Machine Learning (ML)

sk-learn, PyTorch, Keras, LangChain, gradio, HuggingFace

### Web Development

Flask, REST APIs, PostgreSQL, Tailwind, Docker, Jekyll

## Experience

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### Web Developer & Writer

DECEMBER 2022 - PRESENT

- [Journal Hub](#) - Prototype literature discussion platform, allowing users to have public and private discussions over research articles from arXiv, PubMed and more. Uses a Flask backend, RDBMS storage and Google/LinkedIn authentication. Hosted with Docker and nginx.
- [iokarkan.github.io](http://iokarkan.github.io) - personal Jekyll tech blog/portfolio project, showcasing AI/ML demos and original content about AI, ML and Data Science in python.

### IT Business Analyst / Arhs Developments Hellas

DECEMBER 2021 - DECEMBER 2022

Principal Business Analyst on a Big-Data analytics project, with data quality, anonymisation and tiered database pipelines. Coordinated development effort with User Stories, and automated Requirements and Impact analysis using MS Excel and python.

### PhD in Experimental Particle Physics / Aristotle University of Thessaloniki

NOVEMBER 2017 - JUNE 2022

Statistical profile-likelihood analysis in physical system experimental particle collision data from the ATLAS experiment at the LHC at CERN, in collaboration with an international analysis group ([Thesis](#)).

- Binned hypothesis testing using kinematic variables and classification (ML and DL) scores for observed data and simulated signal and background in parameter estimation of physical extension models.

- Synthetic data generation using SMOTE and GANs.
- Systematic error modeling in python and data visualization with ROOT.

## Selected Courses

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### Data Analysis with Python, Open Uni (2022) / Helsinki University

MARCH 2023

- Python | numpy | pandas (time series) | matplotlib | sk-learn (Linear Regression, Naïve Bayes, Clustering, PCA)

### PyTorch for Deep Learning in 2023: Zero to Mastery / Udemy

MARCH 2023

- Python | PyTorch | Fine-tuning | Computer Vision | Transformer models

### The Flask Mega Tutorial / Udemy

MARCH 2023

- Python | Flask | SQLAlchemy | APIs | SQLite | Elasticsearch

### Big Data Platforms / Helsinki University

NOVEMBER 2021

- Python | PySpark | RDDs | DataFrames | MLlib | GraphFrames

### Full Stack Open 2021 / Helsinki University

AUGUST 2021

- Javascript | React | Express | Selenium | MongoDB

## Education

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### MSc in Elementary Particle Physics / Durham University, UK

2016 - 2017

Graduated with Distinction.

### BSc in Physics / Aristotle University of Thessaloniki

2011 - 2016

Graduated following the Theoretical Physics curriculum and a GPA of 8.11/10.

## Languages

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**Greek** - Native Speaker

**English** - Professional Level (C2)

**German** - Advanced Level (C1)