



# Nazar BARTOSIK


Nuclear-physics researcher, *PhD*

Languages: English, Italian, Ukrainian, Russian

Nationality: UKRAINE

Residence: Turin, ITALY

 [nazarthinks.com](https://nazarthinks.com)

 [nazar-bartosik](https://www.linkedin.com/in/nazar-bartosik)

## EDUCATION

### Ph.D. in High Energy Physics

2015 | Hamburg University (*Germany*)

### Master in Physics

2011 | National University of Kyiv-Mohyla Academy (*Kyiv, Ukraine*)

### Post-graduation courses:

2024 | GSoM x CDP entrepreneurship course for technology transfer

2023 | HSF Advanced C++ course

2019 | EIROforum School on Instrumentation at ESTEC (ESA)

2019 | Machine Learning for HEP

2017 | INFN School of Statistics

2015 | Terascale Monte Carlo School

## SKILLS

### Data science

Python, Numpy, Pandas, SciPy, Matplotlib, ML basics, HTML/CSS, JavaScript, SQL

### Scientific computing

C/C++, Geant4, UNIX admin., OpenStack, Docker, Git, CI/CD

### Independent research

### International collaboration

### Technical writing

LaTeX, MkDocs, grant proposals

### Public speaking

## SUMMARY

I have 15+ years of experience in academic research spanning a wide range of projects in experimental particle physics, from small teams (10+) to large international collaborations (4000+ members).

I have strong analytical mindset and capacity to independently solve complex technical problems. Critical thinking, data analysis and software development, coordination with international teams, presentations at international conferences, scientific writing and supervision of younger peers are all daily aspects of my daily work.

Besides, I'm passionate about efficiency, UX and good design.

## WORK EXPERIENCE

now  
↑  
APR 2024

### TECHNOLOGY RESEARCHER

UPO | Università Piemonte Orientale (*Alessandria, Italy*)

Coordinating the simulation and performance studies of the CMS tracking detector.  
Teaching experimental methods in physics.

now  
↑  
APR 2024

### RESEARCH SCIENTIST

INFN | Istituto Nazionale di Fisica Nucleare (*Turin, Italy*)

Leading an R&D of the muLINER project to design a cost-effective detector of Cosmic Rays for commercial applications, funded by a competitive technology-transfer grant: [INFN R4I 2024](#).

MAR 2024  
↑  
MAR 2022

### PROJECT ASSOCIATE RESEARCHER

CERN | European Organization for Nuclear Research (*Geneva, Switzerland*)

Worked on performance optimization of the software framework used for detailed detector simulation at the future Muon Collider experiment, suitable for multithreading and multiprocessing.

Streamlined the building process of the whole software stack to simplify parallel execution on distributed high-performance computing clusters.

# Nazar BARTOSIK

PARTICLE-PHYSICS RESEARCHER  
Ph.D.

## ACHIEVEMENTS

### Won a R4I technology-transfer grant for my research project

2024 | [INFN \(Turin, Italy\)](#)

### Shift leader of operations in critical and high-stress environment

2022-2024 | CMS experiment  
(Geneva, Switzerland)

### My talk selected for publication in a peer-reviewed journal

2021 | [vCHEP 2021 conference](#)  
(Computing for High Energy Physics)

### Won the INFN fellowship in scientific computing for future collider experiments

2019 | INFN (Turin, Italy)

### Seal of excellence for the Horizon 2020 grant proposal

2016 | Marie Curie actions call

## RESPONSABILITIES

**Coordinator** of the *Detector and Physics Group* of the [CMS experiment](#)

**Task-force coordinator** for the [Muon Collider](#) simulation software

**R&D expert** for the calorimeter detector of the [FOOT experiment](#)

## HOBBIES

**Blog writing** | [Substack](#)

**UX critical review** | [r/frustration](#)

**Photography**

**Video production**

**Rollerblading**

FEB 2022



OCT 2015

### RESEARCH SCIENTIST

INFN | Istituto Nazionale di Fisica Nucleare  
(Turin, Italy)

Built a complete statistical analysis and visualization platform in Python for the wafer-level quality assurance of over 4K microchips for the new pixel-tracking detector in the CMS experiment at the Large Hadron Collider.

Developed tools for quality monitoring of a detector subsystem in the CMS experiment, focusing on temperature effects on its stability and its correlation with other performance metrics.

Led the R&D of a scintillating calorimeter for the FOOT experiment in hadron therapy, supervising a PhD and a master student. Worked on prototype development in the laboratory and testing it with particle beams at the CNAO therapy centre (Pavia, Italy), developed data-acquisition software and performed statistical analysis of the data.

JUL 2015



OCT 2012

### DOCTORAL FELLOWSHIP

DESY | Deutsches Elektronen Synchrotron  
(Hamburg, Germany)

Performed complex statistical analysis of big data from the CMS experiment searching for the Higgs-boson production, with results described in a peer-reviewed paper published in a scientific journal.

Extended an existing algorithm for software-based alignment of thousands of tracking sensors using data-driven  $X^2$  minimization methods.

MAY 2011



MAR 2011

### RESEARCH INTERNSHIP

FNAL | Fermi National Laboratory (Batavia, USA)

Contributed to statistical analysis of data for the detector-performance characterization in the  $D\bar{0}$  experiment at the Tevatron accelerator. Operated calorimeter detector during data taking.

## ACADEMIC SUMMARY



**20+ publications**  
in peer-reviewed  
scientific journals



**25+ talks**  
at international  
conferences



**5+ grant proposals**  
submitted for  
competitive funding



**ORCID profile:** [0000-0002-7196-2237](#)