STEFANO CASTRO TOGNINI

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Research Associate at **Oak Ridge National Laboratory** mainly working on *Celeritas*, a GPU Monte Carlo (MC) detector simulation code for High Energy Physics that will enable the integration of DOE's Leadership Computing Facilities (LCFs) with HEP experiments. In the past I was a collaborator on **MINOS** and **NOνA**, managed by **Fermi National Accelerator Laboratory** (Fermilab). These are long-term multi-million dollar endeavors built to understand the nature of neutrinos and answer fundamental questions related to astrophysics, dark matter, and more. My **7+ years of experience**, working with diversified teams, led to many **published data analyses**, all developed using **C++, Python, ROOT, shell scripting, massive parallel computing, and MC simulations**. Software development is managed using **version control (GIT)**, allied with automated code referencing (**Doxygen**). Production of **technical documentation** is routinely done. Finally, I have experience **teaching** at undergraduate level, **mentoring** graduate students, presenting technical seminars, and talking to the public at **science outreach** events.

PROFESSIONAL EXPERIENCE

Research Associate

HPC Methods for Nuclear Applications Group
Nuclear Energy and Fuel Cycle Division
Oak Ridge National Laboratory
2019 — Present | Oak Ridge (TN), U.S.

COLLABORATIONS

Celeritas Project

github.com/celeritas-project

2020 — Present | ORNL

Core member of the Celeritas development team.

URL Muon Detector Project

2020 — Present | ORNL

Core team member involved with all stages of the project: detector design, simulation, commissioning, deployment, and analysis.

NOνA Experiment

novaexperiment.fnal.gov

2013 — 2018 | Fermilab / ANL / UFG

- Leading author of a published data analysis: PRD **99** 122004.
- Integrated a Monte Carlo package with the Fermilab computing framework that is being used by two other experiments at Fermilab and CERN.
- Commissioned/maintained a Remote Operation Center (ROC) at UFG.
- Hardware work that consisted in testing the quality of Avalanche Photo Diodes before being installed in the NOνA Near Detector.

MINOS Experiment

www-numi.fnal.gov

2011 — Present | Fermilab / ANL / UFG

- Worked in 2 published data analyses: PRD **91** 112006 / PRD **93** 052017.
- Wrote documentation for commissioning and certifying ROCs.
- Installed and maintained the MINOS Main Operation Center at Fermilab.
- Built, documented, and maintained a MINOS ROC at UFG.

SCIENTIFIC PUBLICATIONS

iNSPIRE HEP | inspirehep.net/authors/1074966

SOFT SKILLS

Teaching (3 yrs) | Mentoring (4 yrs) | Scientific outreach | Public speaking

Portuguese (native) ●●●●●
English ●●●●●
Italian ●●●○○
French ●●○○○

HARD SKILLS

Technical skills

Data structuring | Parallel computing | Data analysis | Monte Carlo simulation

Programming & scripting languages

C/C++ | Python | SQL | Shell | LaTeX

Frameworks, libraries & tools

Fermilab art Framework | GIT | Doxygen | Geant4 | ROOT | CORSIKA | TORQUE

EDUCATION

Ph.D. in Physics – High Energy Physics

Federal University of Goias
Funding: CAPES, CNPq, ANL
2012 — 2018 | Goiania (GO), Brazil

DOE OSTI www.osti.gov/biblio/1468447
iNSPIRE HEP inspirehep.net/record/1692030

M.Sc. in Physics – High Energy Physics

Federal University of Goias
Funding: CAPES, Fermilab
2010 — 2012 | Goiania (GO), Brazil

B.Sc. in Physics

Federal University of Goias
2005 — 2010 | Goiania (GO), Brazil