STEFANO CASTRO TOGNINI

📍 Oak Ridge National Laboratory @ togninis@ornl.gov ⬡ stognini in stognini

Research Scientist at **Oak Ridge National Laboratory** mainly working on *Celeritas*, a **GPU Monte Carlo** (MC) detector simulation code for **High Energy Physics** (HEP) that will enable the use of **DOE's Leadership Computing Facilities**—such as Frontier and Summit—by 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 **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 Scientist
Scalable Algorithms and Coupled Physics
Computational Sciences and Engineering Division
Oak Ridge National Laboratory
📅 2023 — Present 📍 Oak Ridge (TN), U.S.

Postdoctoral Research Associate
HPC Methods for Nuclear Applications
Nuclear Energy and Fuel Cycle Division
Oak Ridge National Laboratory
📅 2019 — 2023 📍 Oak Ridge (TN), U.S.

COLLABORATIONS

Celeritas Project
⬡ github.com/celeritas-project
📅 2020 — Present 📍 ORNL
A GPU Monte Carlo particle transport code for HEP experiments.
 DOE **CODE**: 10.11578/dc.20221011.1

URL Muon Detector Project
📅 2020 — Present 📍 ORNL
A compact muon detector apparatus developed to test and validate new non-destructive techniques for geological disposal safety assessments (GDSA).

NO𝜈A Experiment
🔗 novaexperiment.fnal.gov
📅 2013 — 2018 📍 Fermilab / ANL / UFG
- Leading author of Phys. Rev. D **99**, 122004.
- Contributed to Phys. Rev. D **104**, 012014.

MINOS/MINOS+ Experiment
🔗 www-numi.fnal.gov
📅 2011 — Present 📍 Fermilab / ANL / UFG
- Contributed to Phys. Rev. D **91**, 112006 / Phys. Rev. D **93**, 052017.

PUBLICATIONS

iNSPIRE HEP | inspirehep.net/authors/1074966

SOFT SKILLS

Teaching | Mentoring | Science outreach

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

HARD SKILLS

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

Programming & scripting languages
C/C++ | Python | SQL | Shell | LATEX

Frameworks, libraries & tools
art | GIT | Doxygen | Geant4 | ROOT | CORSIKA | Spack | LSF | 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

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