Imbert Léonard

Address : 20 rue Jean Jaures, 44000, Nantes
Academic Email : imbert@subatech.in2p3.fr
Email : imbert418@gmail.com
Telephone : +33649160221
Birth : 6, Feb. 1998
Citizenship : French

Education

Ph.D studies in subatomic physics, Nantes University- SUBATECH — Nantes, France
with Dr. Yermia Frederic and Dr. Viaud Benoit — 2021 –currently

Title of doctoral thesis: "Deep learning methods and Dual Calorimetric analysis for high precision neutrino oscillation measurements at JUNO"

Master RPS, Nantes University — Nantes, France
Subatomic Physics. — 2019 –2021

Physics Licence, Nantes University — Nantes, France
Subatomic Physics. — 2016 –2019

Software development school, IMIE — Nantes, France
Software development — 2014 –2016

High school diploma, Lycée Livet — Nates, France
Science, Technology and Industry of Sustainable development — 2014

Professional experience

- **Software developer**, Origyne Nantes, France 2017–2018

  Topics: Development and design of internal tools for a white label telecom provider.

- **Apprentice Software developer**, Clever Cloud Nantes, France 2014–2016

  Topics: Development of software in the R&D center of an IT automation platform

Scholarships

- Ph.D scolarship from Centre National de Recherche Scientifique (CNRS). 2021–2024
- Ph.D scolarship from Region Pays de la Loire. 2021–2024

Research Interests

Machine learning for reconstruction and classification of physics phenomenae

Reliability of machine learning

Comparison and combination of machine learning methods with classical methods

Precision physics, data analysis, computational physics

Oral Communications

- "Design, implementation and reliability of machine learning algorithms in JUNO" 08/2023
  Neutrino Physics and Machine Learning 2023 (talk), Boston, USA

Publications

[1] A. Abusleme *et al.*, "JUNO sensitivity to invisible decay modes of neutrons", May 2024, eprint: 2405.17792.

[2] A. Abusleme *et al.*, "Potential to identify the neutrino mass ordering with reactor antineutrinos in JUNO", May 2024, eprint: 2405.18008.

[3] A. Abusleme *et al.*, "Real-time monitoring for the next core-collapse supernova in JUNO", *JCAP*, vol. 01, p. 057, 2024, eprint: 2309.07109.

[4] A. Abusleme *et al.*, "JUNO sensitivity to ^{7}be, pep, and CNO solar neutrinos", *JCAP*, vol. 10, p. 022, 2023, eprint: 2303.03910.

[5] A. Cabrera *et al.*, "Multi-calorimetry in light-based neutrino detectors", Dec. 2023, eprint: 2312.12991.

[6] L. Imbert, "Design, implementation and reliability of machine learning algorithms in JUNO", in *SLAC Indico (Indico)*, Aug. 24, 2023.

trainings and Schools

- Ecole de Gif 2022: La Physique des Neutrinos 09/22
  Paris, France

Teaching

- **Teaching Assistant** at IMT-Atlantique 2021-2022
  C++, Monte-Carlo and Geant 4 simulations for Engineering.

Computer skills

- **Languages :** C++, Python, Rust, Scala, Javascript, Typescript, LateX.
- **Softwares :** Slack, Git, Overleaf, Google suit, MicrosoftWord suit.

Languages

- **French :** native
- **English :** fluent

Extracurricular Activities

- 2022 Science Festival of Nantes 2022
  Presentations to non-specialists adults and children about subatomic physics
- 2022 "Nuit blanche des Chercheurs" Nantes 2022
  Presentations to non-specialists adults and children about subatomic physics