Paul Lartaud

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EDUCATION

Ecole polytechnique fédérale de Lausanne — **Lausanne, Suisse**
Master of science in nuclear engineering — *Sept. 2019 - Août 2021*

Ecole polytechnique — **Palaiseau, France**
"Ingenieur polytechnicien" program with a major in energy sciences — *Sept. 2016 - Août 2020*

WORK EXPERIENCE

Phd Thesis in applied mathematics
CEA DAM - Ecole polytechnique — *Oct. 2021 - Sept. 2024*

- Development of uncertainty quantification methods applied to inverse problems in random neutronics, based on supervised learning techniques
- Proficiencies in surrogate modelling, optimal design of experiments, inverse problems and sensitivity analysis.
- PhD thesis under the supervision of Josselin Garnier (Ecole polytechnique) and Philippe Humbert (CEA DAM).
- Teaching assistant at Ecole polytechnique on Markov chains and importance sampling.

Master's thesis
CEA DAM — *March 2021 - Aug. 2021*

- Study of Bayesian resolution of inverse problems in random neutronics with the help of Monte-Carlo Markov chain methods.
- Study of objective priors for the inverse problem resolution.

Graduate internship
CEA Saclay — *June 2020 - Sept. 2020*

- Development and study of neutron noise methods with the neutronic Monte-Carlo code Tripoli4®
- Development of post-processing tools for the analysis of neutron histories to study temporal correlations.

Research internship
Argonne National Laboratory — *April 2019 - Aug. 2019*

- Complete modelisation of two sodium-cooled reactor cores with the ARC suite of deterministic neutronic codes.
- Development of the Python interface PyARC for the automatic generation of 2D geometries in the ARC codes.

Graduate internship
EDF R&D Saclay — *June 2018 - Aug. 2018*

- Conducted a project on the reliability analysis for the qualification of nuclear equipement under high-frequency seismic loads.

PUBLICATIONS

- Lartaud, P., Humbert, P., and Garnier, J. (2024). Sequential design for surrogate modeling in bayesian inverse problems. *arXiv preprint arXiv:2402.16520*
- Lartaud, P., Humbert, P., and Garnier, J. (2023). Multi-output gaussian processes for inverse uncertainty quantification in neutron noise analysis. *Nuclear Science and Engineering*, 197(8):1928–1951
- Lartaud, P., Humbert, P., and Garnier, J. (2022). Uncertainty quantification in neutron noise analysis using monte-carlo markov chain methods: An application to nuclear waste drum assay. In *Proceedings of the International Conference on Physics of Reactors*, pages 2674–2683
- Usman, I., Lartaud, P., and Stauff, N. (2019). Sensitivity analysis and uncertainty quantification of FFTF cycle 8c using the neams workbench. In *proceedings of ANS Winter Meeting, DC*

TECHNICAL SKILLS

- **Programming languages**: Python (advanced), Unix (intermediate), R, SQL, Java (beginner)
- **Nuclear engineering codes**: Monte-Carlo codes (MCNP, Serpent, Tripoli4®), lattice codes (CASMO), nodal solvers (PARCS, SIMULATE), thermohydraulics (TRACE, RELAP).
- **Languages**: English (fluent), German (intermediate)