# HUGO THOMAS

## CIFRE Ph.D. student at Sorbonne Université, Ecole Normale Supérieure and Quandela

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## EDUCATION

2023 – now	<b>CIFRE (industrial) Ph.D. student in Quantum Machine Learning for Photonic</b> , Sorbonne Université, ENS and Quandela, Paris Advisors: Elham Kashefi (LIP6), Ulysse Chabaud (DIENS), Pierre-Emmanuel Emeriau (Quandela).
2021 - 2023	Master's degree in Quantum Information, Sorbonne Université, Paris—with highest honors Master's thesis: <i>Links between quantum circuits amplitudes and matrix permanents</i> Master's thesis advisors: Rawad Mezher (Quandela) and Pierre-Emmanuel Emeriau (Quandela).
2019 - 2021	Bachelor's degree in Computer Sciences, Université de Paris-Diderot, Paris— <i>with highest honors</i> Second and third years of Bachelor's degree in Computer Sciences.
2018 - 2019	<b>Bachelor's degree in Computer Sciences</b> , Université de Tours, Tours First vear of Bachelor's degree in Computer Sciences.

#### INTERNSHIPS

June – August Quantum algorithms for matrix approximation and interior points methods, IRIF, Paris 2022 Advisor: Simon Apers

### PUBLICATIONS

Preprints Léo Monbroussou, Eliott Z Mamon, **Hugo Thomas**, Verena Yacoub, Ulysse Chabaud and Elham Kashefi, *Towards quantum advantage with photonic state injection*. Available at: https: //arxiv.org/abs/2410.01572.

**Hugo Thomas**, Pierre-Emmanuel Emeriau, Elham Kashefi, Harold Ollivier and Ulysse Chabaud, *On the role of coherence for quantum computational advantage*. Available at: https://arxiv.org/abs/2410.07024.

**Hugo Thomas**, Pierre-Emmanuel Emeriau and Rawad Mezher, *Connecting quantum circuit amplitudes and matrix permanents through polynomials*. Available at: https://arxiv.org/abs/2408.08857.

## DISSEMINATION

Conferences	<i>Towards quantum advantage with photonic state injection</i> , the International Conference on Quantum Technology for High-Energy Physic (QT4HEP 2025), CERN, Switzerland (presenter: Léo Monbroussou).
	On the role of coherence for quantum computational advantage, the $2^{nd}$ Colloquium on Quantum Technologies (GdR-TeQ 2024), Paris, France.
Workshops	Towards quantum advantage with photonic state injection, the $2^{nd}$ Quantum Energy Initiative Workshop (QEI 2025), Grenoble, France (presenter: Léo Monbroussou).
	<i>Towards quantum advantage with photonic state injection</i> , Quantum Software Lab Anniversary Workshop 2024, the University of Edinburgh, U.K.
Posters	<i>Connecting quantum circuit amplitudes and matrix permanents through polynomials</i> , the 7 <sup>th</sup> International Conference for Young Quantum Information Scientists (YQIS24), Paris, France.
	<i>Connecting quantum circuit amplitudes and matrix permanents through polynomials</i> , Quantum Computing Theory in Practice (QCTiP 2024), the University of Edinburgh, U.K.
	<i>Quantum algorihtms for matrix spectral approximation and interior point methods</i> , 2022 Bad Honnef Summer School on Quantum Computing, Germany.

Invited Seminar On the role of coherence for quantum computational advantage, LaBRI, Université de Bordeaux, France.