

# CV – YASSINE HAMOUDI

## OVERVIEW

---

- First/Last name: Yassine HAMOUDI
- Address: LaBRI, Bureau 375, 351 cours de la Libération, 33405 Talence, FRANCE
- Email address: [ys.hamoudi@gmail.com](mailto:ys.hamoudi@gmail.com)
- Personal website: <https://yassine-hamoudi.github.io/>
- ORCID profile: <https://orcid.org/0000-0002-3762-0612>

### *Research Activities*

My primary research interest is *quantum computing*. I study the impact of quantum mechanics on algorithm design and computational complexity theory. I have contributed to new quantum *algorithms* in diverse areas such as optimization, statistical analysis, streaming data, graph problems and cryptanalysis. I am also interested in new algorithmic and *lower-bound* methods for understanding the interplay between the computational resources available to quantum computers, with a particular interest in time-space tradeoffs.

## EMPLOYMENT AND EDUCATION

---

### **CNRS junior researcher (“chargé de recherche”) .....**

- LaBRI, Université de Bordeaux, France – October 2023–present.
- Head of the “Quantum Information and Computing” group: <https://quantique.labri.fr/>.

### **Postdoctoral researcher .....**

- University of California, Berkeley, United States – September 2021 to August 2023.

### **Doctoral degree .....**

- IRIF, Université Paris Cité, France – September 2017 to June 2021.

### **Bachelor’s and Master’s Degrees in Computer Science .....**

- Ecole Normale Supérieure de Lyon, France – September 2013 to August 2017.

## PUBLICATIONS

---

### Peer-reviewed conferences .....

- “The NISQ Complexity of Collision Finding”,  
*Proceedings of the 43rd International Conference on the Theory and Applications of Cryptographic Techniques (EUROCRYPT)*, 2024.  
Yassine Hamoudi, Qipeng Liu and Makrand Sinha.  
DOI : 10.1007/978-3-031-58737-5\_1. ArXiv: 2211.12954.
- “A Sublinear-Time Quantum Algorithm for Approximating Partition Functions”,  
*Contributed talk at the 26th Conference on Quantum Information Processing (QIP)*, 2023.  
*Proceedings of the 34th Symposium on Discrete Algorithms (SODA)*, 2023.  
Arjan Cornelissen and Yassine Hamoudi.  
DOI : 10.1137/1.9781611977554.ch46. ArXiv: 2207.08643.
- “Classical and Quantum Algorithms for Variants of Subset-Sum via Dynamic Programming”,  
*Proceedings of the 30th European Symposium on Algorithms (ESA)*, 2022.  
Jonathan Allcock, Yassine Hamoudi, Antoine Joux, Felix Klingelhöfer and Miklos Santha.  
DOI: 10.4230/lipics.esa.2022.6. ArXiv: 2111.07059.
- “Near-Optimal Quantum Algorithms for Multivariate Mean Estimation”,  
*Contributed talk at the 25th Conference on Quantum Information Processing (QIP)*, 2022.  
*Proceedings of the 54th Symposium on Theory of Computing (STOC)*, 2022.  
Arjan Cornelissen, Yassine Hamoudi and Sofiene Jerbi.  
DOI: 10.1145/3519935.3520045. ArXiv: 2111.09787.
- “Quantum Sub-Gaussian Mean Estimator”,  
*Proceedings of the 29th European Symposium on Algorithms (ESA)*, 2021.  
Yassine Hamoudi.  
DOI: 10.4230/lipics.esa.2021.50. ArXiv: 2108.12172.
- “Quantum Time-Space Tradeoff for Finding Multiple Collision Pairs”,  
*Proceedings of the 16th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC)*, 2021. **“Outstanding Paper Award”**.  
Yassine Hamoudi and Frédéric Magniez.  
DOI: 10.4230/lipics.tqc.2021.1. ArXiv: 2002.08944.
- “Quantum Chebyshev’s Inequality and Applications”,  
*Proceedings of the 46th International Colloquium on Automata, Languages, and Programming (ICALP)*, 2019.  
Yassine Hamoudi and Frédéric Magniez.  
DOI: 10.4230/lipics.icalp.2019.69. ArXiv: 1807.06456.
- “Simultaneous Multiparty Communication Complexity of Composed Functions”,  
*Proceedings of the 43rd International Symposium on Mathematical Foundations of Computer Science (MFCS)*, 2018.  
Yassine Hamoudi.  
DOI: 10.4230/lipics.mfcs.2018.14. ArXiv: 1710.01969.

## Peer-reviewed journals .....

- “Preparing Many Copies of a Quantum State in the Black-Box Model”,  
*Physical Review A*, 2022.  
Yassine Hamoudi.  
DOI: 10.1103/physreva.105.062440. ArXiv: 2207.11014.
- “Quantum Algorithms for Hedging and the Learning of Ising Models”,  
*Physical Review A*, 2021.  
Patrick Rebentrost, Yassine Hamoudi, Maharshi Ray, Miklos Santha, Xin Wang and Siyi Yang.  
DOI: 10.1103/physreva.103.012418. ArXiv: 2002.06003.
- “Quantum and Classical Algorithms for Approximate Submodular Function Minimization”,  
*Quantum Information & Computation*, 2019.  
Yassine Hamoudi, Patrick Rebentrost, Ansis Rosmanis and Miklos Santha.  
DOI: 10.26421/qic19.15-16-5. ArXiv: 1907.05378.

## Preprints .....

- “A Brief Introduction to Quantum Query Complexity”,  
*In submission*, 2025.  
Yassine Hamoudi.  
ArXiv: 2508.08852.
- “Non-linear Quantum Monte Carlo”,  
*In submission*, 2025.  
Jose Blanchet, Yassine Hamoudi, Mario Szegedy et Guanyang Wang.  
ArXiv: 2502.05094.

## SCIENTIFIC RESPONSIBILITIES

---

### Grants .....

- Coordinator of the project “Maisons du Quantique - Nouvelle-Aquitaine” (CEA/GENCI grant of €1.2 million): <https://www.hqi.fr/les-maisons-du-quantique/> – 2024 to 2028.

### Supervision of students .....

- Shrinidhi Teganahally Sridhara, LaBRI (France) – PhD co-supervised with Adrian Tanasa (October 2024–present).
- Ananya Rajas Ranade, Chennai Mathematical Institute (India) – Bachelor internship (May–July 2025).
- Rishav Gupta, Chennai Mathematical Institute (India) – Bachelor internship (May–July 2024).

### Program committees and reviewer .....

- Program committee member: QTML 2022, TQC 2023, TQC 2024, QCTiP 2025.

- Conference reviewer: ESA 23,24; FCT 23; FOCS 20,21; FSTTCS 20,21; ICALP 19,21,22,23,25; ITCS 20,25; MFCS 18,21,22,23,24; QIP 21,22,23,24,25; SAC 21; SoCG 22; SODA 21,22,23,24,25; STACS 21,23,24,25; STOC 23,24,25; TQC 22,25.
- Journal reviewer: ACM Transactions on Quantum Computing, Algorithmica, Discrete Mathematics & Theoretical Computer Science, IEEE Transactions on Computers, International Journal of Quantum Information, Mathematics of Operations Research, Quantum, Quantum Information & Computation, SIAM Journal on Computing.

## Organization of scientific events .....

- Co-organizer of the workshop “Basque Country - Bordeaux Quantum Algorithms Meeting” : <https://quantique.labri.fr/bayonne2025/> – April 2025.
- Co-organizer of the workshop “Quantum Algorithms for Massive Data” : [https://dept-info.labri.fr/~gavoille/qudata/meeting\\_bordeaux\\_jan2024.html](https://dept-info.labri.fr/~gavoille/qudata/meeting_bordeaux_jan2024.html) – January 2024.
- Organizer of the group seminar “Algorithms and Complexity” at IRIF from 2017 to 2021. List of all sessions at: <https://www.irif.fr/en/seminaires/algocomp/>.

## TALKS

---

### Invited talks and courses .....

- Lecturer at the *CEMRACS/CIRM Summer School on Quantum Computing*, Marseille, France, July 2025. “Optimization Problems on Quantum Computers”.
- Lecturer at the *UPV/EHU Summer Course on Quantum Technologies*, San Sebastian, Spain, September 2024. “Introduction to Quantum Computing”.
- Invited speaker at the *American Physical Society (APS) March Meeting*, Las Vegas, United States, March 2023. “Quantum Speedups for Computing Expectation Values and Partition Functions”.
- Lecturer at the *IAS/Park City Mathematics Institute (PCMI) Graduate Summer School on Quantum Computation*, United States, July 2023. “Quantum Query Complexity”.

### Conference talks .....

- *International Conference on the Theory and Applications of Cryptographic Techniques (EUROCRYPT)*, Zurich, Switzerland, 29 May 2024.
- *International Conference on Quantum Information Processing (QIP)*, Ghent University, Belgium, 8 February 2023. Video: <https://www.youtube.com/watch?v=BI3hi3p-jsg>.
- *European Symposium on Algorithms (ESA)*, Hasso Plattner Institut, Germany, 7 September 2022 (virtual). Video: <https://youtu.be/EI02dxqVQ8U>.
- *Symposium on Theory of Computing (STOC)*, Rome, Italy, 20 June 2022. Video: <https://youtu.be/D00VreIL9so>.
- *European Symposium on Algorithms (ESA)*, Instituto Superior Técnico, Portugal, 7 September 2021 (virtual). Video: <https://youtu.be/dlvme3gUJcY>.

- *Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC)*, University of Latvia, 6 July 2021 (virtual). Video: <https://youtu.be/eXvznaL2d-M>.
- *International Colloquium on Automata, Languages and Programming (ICALP)*, University of Patras, Greece, 9 July 2019.
- *International Symposium on Mathematical Foundations of Computer Science (MFCS)*, University of Liverpool, United Kingdom, 27 August 2018.

## Seminars .....

- *Numerics Seminar*, Université de Bordeaux, France 16 October 2024.
- *COSMIQ Seminar*, INRIA Paris, France, 30 January 2023.
- *Quantum Information Seminar*, LIP6, France, 8 December 2022.
- *GT Info-Quantique*, LaBRI, France, 6 December 2022.
- *CAPP Seminar*, LIG, France, 30 November 2022.
- *QInfo Seminar*, École normale supérieure de Lyon, France, 28 November 2022.
- *Stanford Theory Lunch*, Stanford University, United States, 9 June 2022.
- *Quantum Brainstorming Session*, Simons Institute for the Theory of Computing, United States, 19 November 2021.
- *GT Info-Quantique*, LaBRI, France, 9 November 2021 (virtual).
- *QuSoft Seminar*, CWI, Netherlands, 8 October 2021 (virtual).
- *Bristol QIT Seminar*, University of Bristol, United Kingdom, 4 March 2020.
- *Centre for Quantum Technologies Seminar*, CQT, NUS, Singapore, 6 March 2019.

## Workshops .....

- *Quantum Algorithms for Massive Data (QUDATA)*, LaBRI, France, 26 January 2024.
- *Quantum Summer Cluster Workshop*, Simons Institute, United States, 11 July 2023.
- *CIQC Annual Meeting*, UC Berkeley, United States, 12 June 2023.
- *Quantum Algorithms for Massive Data (QUDATA)*, LaBRI, France, 26 January 2024.
- *Quantum Algorithms and Complexity*, IQC, University of Waterloo, Canada, 25 October 2019.
- *Quantum Algorithms and Applications (QUANTALGO)*, CWI, Netherlands, 18 September 2019.
- *Quantum Algorithms for Massive Data (QUDATA)*, IRIF, France, 10 January 2019.
- *Journées Informatique Quantique (JIQ)*, Loria, France, 8 November 2018.
- *Quantum Algorithms and Applications (QUANTALGO)*, IRIF, France, 25 September 2018.

**Invited visits .....**

- Simons Institute, United States, April–May 2024.
- Columbia University, United States, October 2022.
- University of Bristol, United Kingdom, March 2020.
- University of Waterloo, Canada, October 2019.
- Centre for Quantum Technologies, Singapore, April–June 2017, February–June 2019.
- Carnegie Mellon University, United States, January–June 2016.