Hugo Mirault

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Research Interest

Distributed algorithms, Information theory, Concurrency, Fault resilience, Byzantine resilience, Distributed protocols.

Education

PhD in Computer Science: *2024-* **Augusta University (USA)**
PhD in Distributed Algorithms under the supervision of Dr. Robinson.

Master's in Algorithmics (ALGO/MIT): *2020-2022* (*With Honors*) **University of Montpellier**
Algebraic Computation, Cryptography, Constraint Programming, Graph Theory, Complexity Theory, Information Theory, Computational Models, Operations Research, Formal Methods.

Bachelor's Degree in Computer Science: *2017-2020* (*With Honors*) **University of Montpellier**
Bachelor's Degree in General Computer Science

Publications See Google Scholar for more

Brief Announcement: Towards Energy-Efficient Distributed Agreement *PODC 2025*
Hugo Mirault and Peter Robinson. In Proceedings of the ACM Symposium on Principles of Distributed Computing. Association for Computing Machinery. `https://doi.org/10.1145/3732772.3733554`

Brief Announcement: Perfect Matching with Few Link Activations *SIROCCO 2025*
Mirault, H., Robinson, P., Tan, M.M., Zhu, X. Brief Announcement: In Structural Information and Communication Complexity. Lecture Notes in Computer Science, vol 15671. Springer, Cham. `https://doi.org/10.1007/978-3-031-91736-3_28`

Professional experiences

Graduate Research Assistant: *2024-2027* **Augusta University**
Graduate Research Assistant under supervision of Dr. Robinson.

Formal Methods Engineer: *2023* **Systerel**
Formal Methods Engineer for the Design/Formal Verification of Automatic Trains (CBTC). B Method and Interactive Proof.

End-of-study internship - Secure multiparty computation: *2022* **LIRMM**
Study of secure multiparty computation protocols (MPC), in the context of algebraic computation on matrices with polynomial coefficients. Writing of the final dissertation. Final grade: 15/20. `https://doi.org/10.48550/arXiv.2211.06732`

Student Project - Scheduler: *2021* **University of Montpellier**
Modeling of a scheduling problem, followed by implementations, development of an exact linear programming (MIP) solver and heuristics. Study and comparison of heuristics with the exact solver. Final grade: 15.63/20

Research Internship - Kolmogorov Complexity and Randomness: *2021* **LIRMM**
Study of the link between Kolmogorov prefix complexity and the Martin-löf notion of randomness, presented on the Chaitin constant.

Langues

French Mother Tongue
English Fluent (B2/C1)