Quentin Guilloteau

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Professional Experience

2023 **Post-Doctoral Researcher,** University of Basel, Basel, Switzerland

2020 - 2023 **PhD Student,** Univ. Grenoble Alpes, Grenoble, France

2020 **Research Intern,** Univ. Grenoble Alpes, Grenoble, France

2019 **Software Intern,** Tait Communications, Christchurch, New-Zealand

Education

2020 - 2023 **PhD in Computer Science,** Ctrl-A and Datamove teams, LIG, Univ. Grenoble Alpes, Grenoble, France. "Control-based runtime management of HPC systems with support for reproducible experiments" (tel-04389290)
Advisors: Eric Rutten and Olivier Richard
Jury: Alexandru Costan, Alessandro Papadopoulos, Fabienne Boyer, Georges Da Costa, and Noël de Palma

2017 - 2020 **Engineering and Master Degree,** Grenoble-INP ENSIMAG and MoSIG, Univ. Grenoble Alpes, Grenoble, France. Specialization in distributed systems.

2015 - 2017 **Intensive 2-year degree in Maths, Physics, and Computer Science,** Lycée Camille Guerin, Poitiers, France

Teaching

University of Basel, Basel, Switzerland

2024 **High Performance Computing** one lecture and praticals for postgratudates computer science students

Polytech Grenoble, Univ. Grenoble Alpes, Grenoble, France

2022 - 2023 **Introduction to C and Algorithms (17h/year)** lectures and pratical for undergratudates engineering students

2020 - 2022 **Algorithms and Imperative Programming (38.5h/year)** practicals and labs for undergraduates engineering students

2020 - 2022 **Algorithms and Modelisation (16.5h/year)** practicals for undergraduates

UFR IM2AG , Univ. Grenoble Alpes, Grenoble, France

2021 - 2022 **Parallel Algorithms (9.5h/year)** practicals for postgraduates

2020 - 2021 **Software Project (6h/year)** mentoring for undergraduates

Supervision

2024 **Antoine Waehren**: Study of the State of the Practice of Artifacts Sharing in High Performance Computing Conferences, B.Sc. student, University of Strasbourg, Strasbourg, France (10.5281/zenodo.13860834)
Co-supervision with Florina M. Ciorba

2023 **Samuel Brun**: Étude du phénomène Stat-Storm - Limitation des appels systèmes pour les systèmes de fichiers distribués de type store, M.Sc. student, Polytech Grenoble, Grenoble, France (hal-04197724)
Co-supervision with Olivier Richard

2023 **Alexandre Lithaud**: Contribution au projet NixOS Compose, M.Sc. student, Polytech Grenoble, Grenoble, France (hal-04197720)
Co-supervision with Olivier Richard

2023 **Rosa Pagano**: Adaptive control of HPC clusters for server overload avoidance, M.Sc. student, Politecnico di Milani, Milan, Italia (hal-04390558)
Co-supervision with Bogdan Robu, Sophie Cerf, Raphaël Bleuse, and Eric Rutten

2022 **Ahmadreza Ahmadi**: Model-Free Control Approach for the Collection of Resources in High Performance Computing, M.Sc. student, MiSCIT, Univ. Grenoble Alpes, Grenoble, France
Co-supervision with Bogdan Robu, Raphaël Bleuse, and Eric Rutten

2022 **Ali Noura**: Integration of Scheduler Knowledge into CiGri Control Loop, M.Sc. student, MiSCIT, Univ. Grenoble Alpes, Grenoble, France (hal-03826649)
Co-supervision with Bogdan Robu, Raphaël Bleuse, and Eric Rutten

2021 **David Donkor**: Controlling a cluster of computing resources: the model free control approach, M.Sc. student, MiSCIT, Univ. Grenoble Alpes, Grenoble, France (hal-03292373)
Co-supervision with Bogdan Robu, and Eric Rutten

Other Activities

2024 Member of EuroSys'25 Reproducibility Committee (Fall and Spring submissions)

2024 Member of SC24 Reproducibility Committee

2022 Co-chair of the "Control for Computing" session at CCTA 2022

2022 - 2023 Member of the regional jury for the "Trophes NSI", a programming competition for French high school students

Languages

English: Fluent (TOEIC: 960/990)

French: Native

Publications

International Journals

[J1] Q. Guilloteau, R. Bleuse, S. Cerf, B. Robu, R. Pagano and E. Rutten, “Autonomic Resource Harvesting in HPC: Control Methods and their Reusability,” in submission in ACM Transactions on Autonomous and Adaptive Systems (TAAS)

International Conferences

[C1] Q. Guilloteau, F.M. Ciorba, M. Poquet, D. Goepp and O. Richard, “Longevity of Artifacts in Leading Parallel and Distributed Systems Conferences: a Review of the State of the Practice in 2023,” in ACM Conference on Reproducibility and Replicability (REP 2024), Jun. 2024 [Online]. Available: https://hal.science/hal-04562691

[C2] Q. Guilloteau, J. Bleuzen, M. Poquet, and O. Richard, “Painless Transposition of Reproducible Distributed Environments with NixOS Compose,” in CLUSTER 2022 - IEEE International Conference on Cluster Computing, Sep. 2022, pp. 1–12. [Online]. Available: https://hal.science/hal-03723771

[C3] Q. Guilloteau, B. Robu, C. Join, M. Fliess, É. Rutten, and O. Richard, “Model-free control for resource harvesting in computing grids,” in CCTA 2022 - Conference on Control Technology and Applications, CCTA 2022, Aug. 2022. doi: 10.1109/CCTA49430.2022.9966035.

[C4] Q. Guilloteau, O. Richard, B. Robu, and E. Rutten, “Controlling the Injection of Best-Effort Tasks to Harvest Idle Computing Grid Resources,” in ICSTCC 2021 - 25th International Conference on System Theory, Control and Computing, Oct. 2021, pp. 1–6. doi: 10.1109/ICSTCC52150.2021.9607292.

National Conferences

[N1] D. Goepp, S. Brun, Q. Guilloteau, O. Richard. ”Un prototype de cache de métadonnées pour le passage à l’échelle de NixOS-Compose,” in COMPAS 2024 - Conférence d’informatique en Parallèlisme, Architecture et Système, Jul. 2024, pp. 1-8. [Online]. Available https://hal.science/hal-04632952

[N2] Q. Guilloteau, J. H. Muller Korndorfer, F. M. Ciorba. ”Seamlessly Scaling Applications with DAPHNE,” in COMPAS 2024 - Conférence d’informatique en Parallèlisme, Architecture et Système, Jul. 2024, pp. 1-11. [Online]. Available: https://hal.science/hal-04637841

[N3] Q. Guilloteau, A. Faure, M. Poquet, and O. Richard, “Comment rater la reproductibilité de ses expériences ?,” in ComPAS 2023 Conférence francophone en informatique, Jul. 2023, p. à paraître. [Online]. Available: https://hal.science/hal-04132438

[N4] Q. Guilloteau, O. Richard, and É. Rutten, “Étude des applications Bag-of-Tasks du méso-centre Gricad,” in COMPAS 2022 - Conférence francophone d'informatique en Parallélisme, Architecture et Système, Jul. 2022, pp. 1–7. [Online]. Available: https://hal.science/hal-03702246

[N5] Q. Guilloteau, J. Bleuzen, M. Poquet, and O. Richard, “Transposition d'environnements distribués reproductibles avec NixOS Compose,” in COMPAS 2022 - Conférence francophone d'informatique en Parallélisme, Architecture et Système, Jul. 2022, pp. 1–9. [Online]. Available: https://hal.science/hal-03696485

[N6] Q. Guilloteau, O. Richard, E. Rutten, and B. Robu, “Collecte de ressources libres dans une grille en préservant le système de fichiers : une approche autonomique,” in COMPAS 2021 - Conférence d'informatique en Parallélisme, Architecture et Système., Jul. 2021, pp. 1–11. [Online]. Available: https://inria.hal.science/hal-03282727

Thesis

[T1] Q. Guilloteau, “Control-based runtime management of HPC systems with support for reproducible experiments”, PhD Thesis, 2023. [Online]. Available: https://hal.science/tel-04389290

[T2] Q. Guilloteau, “Minimizing Cluster Under-use using a Control-Based Approach”, Master Thesis, 2020. [Online]. Available: https://inria.hal.science/hal-03167242

Tutorials

[U1] Q. Guilloteau, S. Cerf, E. Rutten, R. Bleuse, and B. Robu, “Under Control: A Control Theory Introduction for Computer Scientists.” in ACSOS 2024 - International Conference on Autonomic Computing and Self-Organizing Systems, [Online]. Available: https://hal.science/hal-04666859

[U2] Q. Guilloteau, J. Bleuzen, M. Poquet, and O. Richard, “Tutorial: Reproducible distributed environments with NixOS Compose.” [Online]. Available: https://hal.science/hal-04460307

Working Papers

[W1] Q. Guilloteau, O. Richard, R. Bleuse, and E. Rutten, “Folding a Cluster containing a Distributed File-System,” 2023. [Online]. Available: https://hal.science/hal-04038000

[W2] Q. Guilloteau, “Simulating a Multi-Layered Grid Middleware,” May 2023. [Online]. Available: https://hal.science/hal-04101015

[W3] Q. Guilloteau, “Parallel Dithering: How Fast Can We Go ?,” Mar. 2022. [Online]. Available: https://hal.science/hal-03594790

[W4] Q. Guilloteau, “Adaptive Parallel Merge Sort in Rust,” Jun. 2019. [Online]. Available: https://hal.science/hal-04078798

Posters

[P1] Q. Guilloteau, F. M. Ciorba, “Reproducibility in Parallel and Distributed Computing: Challenges, State-of-the-practice, Limitations, and Opportunities,” Swiss Reproducibility Conference, June 2024. [Online]. Available: https://hal.science/hal-04601351

[P2] Q. Guilloteau, “Autonomic Approach to the Runtime Management of HPC Cluster Resources,” LIG PhD Day, Apr. 2022. [Online]. Available: https://hal.science/hal-04570283