Quentin Guilloteau

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Research Interests

Distributed Systems, Reproducible Research, Performance Evaluation, Autonomic Computing

Education

Oct. 2020 - Sep. 2023	**PhD Student** in Computer Science at Université Grenoble Alpes, France *Autonomic Approach to Runtime Management of HPC Cluster Resources* Supervised by Eric Rutten and Olivier Richard
Sep. 2017 - June 2020	**Master Student** in Computer Science at ENSIMAG, Grenoble, France
Sep. 2015 - July 2017	Intensive 2-year-degree in Maths, Physics, and Computer Science Preparation for the admission to the French engineering schools at Lycée Camille Guerin, Poitiers (France)
July 2015	**Baccalauréat in Sciences**, with option in Computer Science at Lycée Isaac de l'Etoile, Poitiers (France)

Research and Technical Experiences

PhD Student at UGA, Grenoble, France (Oct. 2020 - Sept. 2023)

Investigated the introduction of feedback loops mechanisms in HPC systems to guarantee Quality-of-Service for users, with technics from the field of Control Theory. A special effort has been developed on the reproducibility of distributed experiments. Supervised by Eric RUTTEN and Olivier RICHARD.

Master Intern at LIG, Grenoble, France (Feb 2020 - June 2020)

Investigated the introduction of feedback loops in HPC systems to guarantees Quality-of-Service for users. Supervised by Eric RUTTEN and Olivier RICHARD.

Software Intern at Tait, Christchurch, New-Zealand (June 2019 - Sept. 2019)

Developed in autonomy an adaptor between the radio base-station and the database storing server using Rust. Supervised by Lionel HOPGOOD.

Research Intern at LIG, Grenoble, France (Jan. 2019 - June 2019)

Implemented a parallel mergesort in Rust with an adaptive sharing of tasks. Evaluated and compared the solution to the state of the art. Supervised by Frédéric WAGNER.

Summer Intern at Alstom, La Rochelle, France (July 2018 - Aug. 2018)

Developed in autonomy, a user-friendly VBA application to automatize a time-consuming manual process. Supervised by Eric MARC.

Research Intern at LIG, Grenoble, France (June 2018)

Helped develop a Rust library to visualize the execution of parallel algorithms. Supervised by Frédéric WAGNER.

Publications & Communications

International conferences

[C1] Quentin Guilloteau, Jonathan Bleuzen, Millian Poquet, and Olivier Richard. "Painless Transposition of Reproducible Distributed Environments with NixOS Compose". In: *CLUSTER 2022 - IEEE International Conference on Cluster Computing*. Vol. CLUSTER 2022 - IEEE International Conference on Cluster Computing. Heidelberg, Germany, Sept. 2022, pp. 1–12. URL: https://hal.science/hal-03723771.

[C2] Quentin Guilloteau et al. "Model-free control for resource harvesting in computing grids". In: *CCTA 2022 - Conference on Control Technology and Applications, CCTA 2022*. Trieste, Italy: IEEE, Aug. 2022. DOI: 10.1109/CCTA49430.2022.9966035. URL: https://hal.science/hal-03663273.

[C3] Quentin Guilloteau, Olivier Richard, Bogdan Robu, and Eric 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*. Iasi, Romania, Oct. 2021, pp. 1–6. DOI: 10.1109/ICSTCC52150.2021.9607292. URL: https://hal.inria.fr/hal-03363709.

National conferences

[N1] Quentin Guilloteau, Adrien Faure, Millian Poquet, and Olivier Richard. "Comment rater la reproductibilité de ses expériences ?" In: 1-9 (July 2023). URL: https://hal.science/hal-04132438.

[N2] Quentin Guilloteau, Jonathan Bleuzen, Millian Poquet, and Olivier Richard. "Transposition d'environnements distribués reproductibles avec NixOS Compose". In: (July 2022), pp. 1–9. URL: https://hal.science/hal-03696485.

[N3] Quentin Guilloteau, Olivier Richard, and Éric Rutten. "Étude des applications Bag-of-Tasks du méso-centre Gricad". In: (July 2022), pp. 1–7. URL: https://hal.science/hal-03702246.

[N4] Quentin Guilloteau, Olivier Richard, Eric Rutten, and Bogdan Robu. "Collecte de ressources libres dans une grille en préservant le système de fichiers : une approche autonomique". In: (July 2021), pp. 1–11. URL: https://hal.inria.fr/hal-03282727.

Working papers

[W1] Quentin Guilloteau. "Simulating a Multi-Layered Grid Middleware". working paper or preprint. May 2023. URL: https://hal.science/hal-04101015.

[W2] Quentin Guilloteau, Olivier Richard, Raphaël Bleuse, and Eric Rutten. "Folding a Cluster containing a Distributed File-System". working paper or preprint. 2023. URL: https://hal.science/hal-04038000.

[W3] Quentin Guilloteau. "Parallel Dithering: How Fast Can We Go ?" M2 Project. Mar. 2022. URL: https://hal.science/hal-03594790.

Theses

[T1] Quentin Guilloteau. "Minimizing Cluster Under-use using a Control-Based Approach". Internship report. Grenoble INP Ensimag ; Université Grenoble Alpes, June 2020. URL: https://hal.inria.fr/hal-03167242.

Tutorials

[P1] Quentin Guilloteau, Jonathan Bleuzen, Millian Poquet, and Olivier Richard. *Initiation to NixOS Compose*. URL: https://nixos-compose.gitlabpages.inria.fr/tuto-nxc/ (visited on 07/10/2023).

[P2] Quentin Guilloteau et al. *Introduction to Control Theory for Computer Scientists*. URL: https://control-for-computing.gitlabpages.inria.fr/tutorial/intro.html (visited on 07/10/2023).

Software

[SW1] Quentin Guilloteau, Jonathan Bleuzen, Millian Poquet, and Olivier Richard. *NixOS-Compose*. 2022. URL: https://gitlab.inria.fr/nixos-compose/nixos-compose.

Teaching

Polytech Grenoble, Univ. Grenoble Alpes, Grenoble, France (94h)

Algorithms and Imperative Programming for undergraduates (2020-2022): 38.5h/year

Introduction to C and Algorithms for undergraduates (2022-2023): 17h/year

UFR IM2AG, Univ. Grenoble Alpes, Grenoble, France (48.5h)

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

Tutoring software project for undergraduates (2020-2021): 6h/year

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

Supervision

Co-supervision of 4 second-year master students in Control Theory (3 MiSCIT, 1 Politecnico di Milano)

Co-supervision of 3 first-year master students in Computer Science (3 Polytech Grenoble)

Languages

English:	Fluent (TOEIC: 960/990)
French:	Mother-tongue
German:	B1