Quentin Guilloteau

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Research Interests

Distributed Systems, Reproducible Research, Performance Evaluation, Autonomic Computing

Education French system

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

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.

Languages

English: Fluent (TOEIC: 960/990), French: Native, German: Beginner

Teaching

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

- Algorithms and Imperative Programming: practicals/labs, undergraduates (2020-2022, 38.5h/year)
- Introduction to C and Algorithms: lectures/practicals, undergraduates (2022-2023, 17h/year)

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

- Algorithms and Modelisation: practicals, undergraduates (2020-2022, 16.5h/year)
- Software project: mentoring, undergraduates (2020-2021, 6h/year)
- Parallel Algorithms: practicals, postgraduates (2021-2022, 9.5h/year)

Intern Supervision

- Co-supervision of 3 first-year master students in Computer Science (Polytech Grenoble)
- Co-supervision of 4 second-year master students in Control Theory (MiSCIT and Politecnico di Milano)

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*, pp. 1–12. URL: https://hal.science/hal-03723771.

[C2] 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*, pp. 1–6. URL: https://hal.inria.fr/hal-03363709.

[C3] Quentin Guilloteau et al. "Model-free control for resource harvesting in computing grids". In: *CCTA 2022*. IEEE. URL: https://hal.science/hal-03663273.

National conferences

[N1] Quentin Guilloteau, Jonathan Bleuzen, Millian Poquet, and Olivier Richard. "Transposition d'environnements distribués reproductibles avec NixOS Compose". In: COMPAS 2022 (), pp. 1–9. URL: https://hal.science/hal-03696485.

[N2] Quentin Guilloteau, Adrien Faure, Millian Poquet, and Olivier Richard. "Comment rater la reproductibilité de ses expériences ?" In: COMPAS 2023 (), pp. 1–9. URL: https://hal.science/hal-04132438.

[N3] Quentin Guilloteau, Olivier Richard, and Éric Rutten. "Étude des applications Bag-of-Tasks du méso-centre Gricad". In: COMPAS 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: COMPAS 2021 (), pp. 1–11. URL: https://hal.inria.fr/hal-03282727.

Working papers

[W1] Quentin Guilloteau. "Parallel Dithering: How Fast Can We Go ?" URL: https://hal.science/hal-03594790.

[W2] Quentin Guilloteau. "Simulating a Multi-Layered Grid Middleware". May 2023. URL: https://hal.science/hal-04101015.

[W3] Quentin Guilloteau, Olivier Richard, Raphaël Bleuse, and Eric Rutten. "Folding a Cluster containing a Distributed File-System". 2023. URL: https://hal.science/hal-04038000.

Theses

[T1] Quentin Guilloteau. "Minimizing Cluster Under-use using a Control-Based Approach". Internship report. G-INP Ensimag; UGA, 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/.

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

Software

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