Cherif **Latreche**

PhD Candidate and Software Engineer

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Summary

I am a Software Engineer pursuing a Ph.D. focused on optimizing resource allocation and performance for Function-as-a-Service in fog computing environments.

Interests : AI for Systems, Distributed Systems, Cloud/Serverless (FaaS), Edge/Fog Computing, Scheduling & Resource Allocation

Research & Publication

FoRLess : A Deep Reinforcement Learning-based Approach for FaaS Placement in Fog

Proceedings of UCC 2024

Peer-reviewed conference paper (Published) — *Dec. 2024*

- Investigated resource allocation challenges for serverless functions in fog/edge environments and their impact on Function-as-a-Service (FaaS) performance.
- Designed and evaluated a deep reinforcement learning scheduler for FaaS placement on Grid'5000, reducing energy consumption by **12%** and latency by **7%**.
- Paper available on IEEE Xplore : **UCC 2024**.

On Centralized and Decentralized RL for FaaS

Under Review

Submitted (double-blind) — *Jan. 2026*

- Studied the energy–latency trade-off for RL-based scheduling/placement in the edge-to-cloud continuum under varying workload intensity.
- Benchmarked centralized control (PPO) against decentralized multi-agent control (MAPPO), analyzing how coordination and information sharing affect system efficiency.
- Evaluated robustness across operating regimes (e.g., partial observability, non-stationary/increasing workloads), identifying the conditions under which each approach is preferable.

Professional Experience

Teaching Assistant (Practical Sessions) - Cloud Computing (M1)

Rennes, France

INSA Rennes — *Jan, Feb, March 2026*

- Designed and delivered lab sessions on containerization (Docker), IaC/config management (Ansible), orchestration (Kubernetes), and cloud deployment on AWS/GCP
- Guided students through building and deploying services (CI/CD-style workflows, monitoring/logging basics, troubleshooting runtime/network issues)
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Software Engineer

Paris, France

Institut Pasteur — *Mar. 2023 – Aug. 2023*

- Contributed to the development and testing of the clEsperanto library for GPU-accelerated image processing on HPC clusters
- Conducted research on OpenCL and CUDA, and focused on integrating CUDA kernels into the library

Software & Machine Learning Engineer

Orsay, France

NAMLA — *Aug. 2021 – Jul. 2022*

- Researched and implemented model compression techniques using TensorFlow for efficient deployment in IoT and Edge Computing
- Evaluated the compressed models at the network edge, focusing on accuracy, inference time, and model size

Education

INSA Rennes

Rennes, France

PhD in Computer Science — *Oct. 2023 – Aug. 2026*

Paris Saclay University

Orsay, France

Master in Quantum and Distributed Computer Science — *Sep. 2022 – Sep. 2023*

École Nationale Supérieure d'Informatique ESI *Algiers, Algeria*

ENGINEERING DEGREE AND MSC IN COMPUTER SCIENCE, SOFTAWRE ENGINEERING *Sep. 2017 – Jun. 2022*

Technical Skills

Programming	Python, Java, C, C++, Go
Cloud Platforms	AWS, Google Cloud Platform (GCP)
Containerization & Orchestration	Docker, Kubernetes
Infrastructure & Configuration	Ansible, Terraform
Serverless	OpenFaaS, Knative
Machine Learning	Gymnasium, TensorFlow, Stable Baselines3
Version Control	Git, GitHub
Project Management	Jira, Trello, Slack

Awards and Honors

StartThèse Competition Winner *Rennes, France*

PEPITE BRETAGNE *May 2025*

- First place in a regional competition recognizing innovative and entrepreneurial doctoral research

International Mobility Grant *Rennes, France*

COLLÈGE DOCTORAL DE BRETAGNE *November 2024*

- Awarded a competitive grant to support international research mobility as part of the doctoral program, to support collaboration and scientific exchange abroad

Languages

— **English** : C1 (IELTS Academic)
— **French** : C1 (TCF SO)
— **Arabic** : Native