Vincent **Lannurien**

Associate Professor · Lab-STICC · SHAKER Team

Université de Bretagne Occidentale, UFR Sciences et Techniques
Département Informatique, 20 avenue Le Gorgeu, CS 83837, 29238 BREST CEDEX 3

(+33) 6 75 46 83 43 | vincent.lannurien@univ-brest.fr | vincentlannurien | Scholar

Interests

My research interests range from Embedded Software to the Serverless Cloud – systems that exhibit trade-offs between performance and availability in highly constrained, heterogeneous environments.

Education

ENSTA Bretagne — *Brest, France*

PhD in Computer Science — *Oct. 2021 - Nov. 2024*

- PhD thesis: *Dynamic allocation and placement on heterogeneous resources in a serverless cloud*.
- Director: Jalil Boukhobza. Co-director: Laurent d'Orazio. Co-advisors: Olivier Barais, Stéphane Paquelet.

University of Western Brittany (UBO) — *Brest, France*

Master's Degree in Embedded Software Engineering — *2019 - 2021*

- Ranked first in class.

University of Western Brittany (UBO) — *Brest, France*

Bachelors's Degree in Computer Science — *2017 - 2019*

- Ranked second in class.

University of Western Brittany (UBO) — *Quimper and Brest, France*

Bachelors's Degree in Economics and Management — *2010 - 2013*

Experience

University of Western Brittany — *Brest, France*

Associate Professor — *Sep. 2025 - Present*

ENSTA — *Brest, France*

Postdoctoral Researcher — *Jan. 2025 - Aug. 2025*

LanguEdge, Large Language Model (LLM) inference on heterogeneous edge platforms – characterization and scheduling for multi-tenant deployment:

- Responsible for project planning and proposal writing: bibliographical study, research directions, budgeting;
- Characterized LLM models with regards to generative quality, performance as well as energy consumption and carbon footprint.

ENSTA Bretagne — *Brest, France*

Postdoctoral Researcher — *Oct. 2024 - Jan. 2025*

DISPEED, Intrusion Detection and Security/Performance/Energy Tradeoff for Drone Swarms:

- Proposed a model encompassing all the project's contributions to present the system in the formalism of autonomous computing;
- Wrote the final report, delivered to the Agence Innovation Défense (AID) in January 2025.

IRT b<>com — *Brest, France*

Research Engineer & Teaching Assistant — *Oct. 2021 - Oct. 2024*

- Contributed in two projects within the institute (SUPRA, sovereign cloud project for sensitive applications; and RPC, private cellular networks);
- Joint work with the institute's Hardware Engineering team: characterization of heterogeneous hardware and software platforms based on performance and energy measurements;
- Presentation and valorization of our work at various milestones: meetings with industrial partners, biannual plenary sessions for both projects.

Ifremer *Brest, France*

Software Engineer – Web Services for Embedded Systems *May 2020 - Sept. 2021*

- *As part of the deep sea computer team, charged of enforcing reliability in the software development process.*
- Shipped a new Sensor SDK release, including a **custom IDE**, to industrial partners of the observatory lab.
- Designed a **simulator** for the embedded HTTP dæmon in order to speed up UI/UX development.
- Devised and developed a **server/client web application** to allow **remote compilation** of the COSTOF2 firmware.

Service

CCGrid'24 *Philadelphia, USA*

Session Chair *May 2024*

- Chaired two technical sessions.

EuroSys'24 *Athens, Greece*

Artifacts Evaluation Committee *April 2024*

- Reviewed artifacts for three submissions.

Various venues

Reviewer *2022 - 2024*

- Journal reviews: Elsevier FGCS (4), IEEE TC (1).
- Conference reviews: IEEE/ACM CCGrid'24 (1), ACM/IEEE DAC'23 and '24 (2), DSD/SEAA '23 and '24 (2), MASCOTS '23 and '24 (2).
- Workshop reviews: BBOP/BigData'22 (1).

Publications

Journal Articles

HeROsim: An Allocation and Scheduling Simulator for Evaluating Serverless Orchestration Policies
Vincent Lannurien, Laurent D'Orazio, Olivier Barais, Stéphane Paquelet, Jalil Boukhobza
IEEE Internet Computing (2024): *Special Issue on Serverless Computing*. IEEE, 2024

Conference Proceedings

HeROcache: Storage-Aware Scheduling in Heterogeneous Serverless Edge - The Case of IDS
Vincent Lannurien, Camélia Slimani, Laurent D'Orazio, Olivier Barais, Stéphane Paquelet, Jalil Boukhobza
2024 IEEE/ACM 24th International Symposium on Cluster, Cloud and Internet Computing (CCGrid), 2024, Philadelphia, USA

HeROfake: Heterogeneous Resources Orchestration in a Serverless Cloud – An Application to Deepfake Detection
Vincent Lannurien, Laurent D'Orazio, Olivier Barais, Esther Bernard, Olivier Weppe, Laurent Beaulieu, Amine Kacete, Stéphane Paquelet, Jalil Boukhobza
2023 IEEE/ACM 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGrid), 2023, Bangalore, India

Book Chapters

Serverless Cloud Computing: State of the Art and Challenges
Vincent Lannurien, Laurent D'Orazio, Olivier Barais, Jalil Boukhobza
Serverless Computing: Principles and Paradigms, 2023, Springer, Cham

Software

HeROsim is a serverless orchestration simulator, tracing allocation and scheduling events at the granularity of a user request, allowing to evaluate and compare various orchestration policies for serverless platforms in a private cloud.
Repository: **https://hal.science/hal-04468894**

Teachings

Courses

Distributed and Virtualized Architectures

3RD YEAR ENGINEERING DEGREE *2021 - 2024*

- Design and delivery of 25% of the (whole semester) unit: lectures, project and exam.
- Graduate level, 15 students.
- Topics: cloud-native development, asynchronous programming, performance metrics, cloud deployment.

Memory Technologies

3RD YEAR ENGINEERING DEGREE *2021 - 2024*

- Preparation and supervision of lab exercises.
- Graduate level, 20 students.
- Topics: C programming, memory hierarchy, Linux I/O, performance measurements

Introduction to Linux Administration

2ND YEAR ENGINEERING DEGREE *2022 - 2024*

- Design and delivery of the 16h unit: lectures, exercises and project.
- Graduate level, 15 students.
- Topics: shell scripting, networking, virtualization.

SQL Databases

1ST YEAR ENGINEERING DEGREE *2022*

- Supervision of lab exercises (20h).
- Undergraduate level, 40 students.

Student Projects

Graduation projects

3RD YEAR ENGINEERING DEGREE *2022 - 2025*

- Co-devised and supervised graduation projects (1 year).
- Topics:
  - 2024 - 2025: **MeSDGE**, *Metrology and performance characterization for distributed storage in embedded edge computing* (2 students).
  - 2023 - 2024: *Kernel-level I/O tracer design and caching policies for HPC applications* (1 student).

Systems Application

3RD YEAR ENGINEERING DEGREE *2022 - 2024*

- Co-devised and supervised the research and development projects (6 months).
- Topics:
  - 2024: *Optimizing serverless resources allocation under carbon emissions constraints* (1 student)
  - 2023: *Web interface for visualization tools in a serverless orchestration simulator* (1 student)
  - 2023: *Private cloud resources provisioning: optimization using genetic algorithms* (1 student)
  - 2022: *Serverless execution trace parser and generator for heterogeneous workloads* (2 students)

Introduction to Scientific Research

1ST YEAR ENGINEERING DEGREE *2022*

- Co-devised and supervised the research project (3 months).
- Topic:
  - *Cloud, datacenters and energy consumption: challenges and opportunities* (5 students)