

# Loïc GUEGAN

Postdoc at UiT The Arctic University of Norway

Hansine Hansens veg 56  
9019 Tromsø  
Norway  
+33 767 19 09 66  
loic.guegan@uit.no  
loicguegan.com  
manzerbredes  
0000-0002-2576-2672  
UiT profile  
I am 29 years old

## Education

- 2021 **PhD in Computer Science**, *École Normale Supérieure*, Rennes, France  
Title: Scalable end-to-end models for the time and energy performance of Fog infrastructures.  
Brief summary: Working on the study and modeling of large-scale Fog infrastructures. For that, I used network simulation and testbed experiments to model the network performance and its energy consumption. The aim is to provide a scalable simulation framework to study the energy consumption of the end-to-end network (cloud, network and edge).
- 2017 **Master's degree in Software Engineering**, *Université de Rennes 1*, Rennes, France
- 2015 **Bachelor's degree in Computer Science**, *Université de La Réunion*, Saint-Denis, La Réunion

## Current Position

- Position Postdoc at UiT The Arctic University of Norway since May 2021
- Supervisors Issam Raïs, Otto Anshus
- Description I am working on providing energy efficient Cyber-Physical Systems (CPS) as part of the Distributed Arctic Observatory project. The aim is to provide an efficient distributed monitoring infrastructure for constraint environments by using several approaches including AI/ML methods. I am also working on the simulation of Distributed Systems, to ease and improve the research on CPS and distributed systems in general.

## Internships

- 2019 **Intel DVFS performance prediction**, *Northeastern University*, Boston, 3 months  
Working on the Intel RAPL driver of the Linux Kernel and trying to predict the CPU performance under power-capping.
- 2017 **Master thesis on LoRa geolocation**, *French Research Institute for Exploitation of the Sea*, Reunion island, supervised by Sylvain Bonhommeau and Nour Mohammad Murad  
Six months internship in collaboration with the University Institutes of Technology of Reunion Island on LoRa radio beacon geolocation for sea turtles geolocation. I worked on trilateration algorithms, Matlab simulations and the conception of 3 prototypes based on LoRa and Raspberry pi boards.
- 2016 **Raspberry Pi based autonomous terminal**, *Dystri-Éducation*, Rennes, 3 months

## Publications

### Conferences

- 2023 **Validation of ESDS Using Epidemic-Based Data Dissemination Algorithms**, *DCOSS-IoT 2023*, Pafos, Cyprus  
Loic Guegan, Issam Raïs and Otto Anshus
- 2023 **(POSTER) Towards Data Dissemination Policy Prediction for Constrained Environments Using Analytics**, *DCOSS-IoT 2023*, Pafos, Cyprus  
Loic Guegan, Issam Raïs and Otto Anshus
- 2022 **A flow-level Wi-Fi model for large scale network simulation**, *MSWIM 2022*, Montreal, Canada  
Clément Courageux-Sudan, Loic Guegan, Anne-Cécile Orgerie and Martin Quinson
- 2022 **Impact of loosely coupled data dissemination policies for resource challenged environments**, *CCGrid 2022*, Taormina, Italy  
Issam Raïs, Loic Guegan and Otto Anshus
- 2022 **LoRaLitE: LoRa protocol for Energy-Limited environments**, *MASCOTS 2022*, Nice, France  
Lukasz Sergiusz Michalik, Loic Guegan, Issam Raïs, Otto Anshus and John Markus Bjørndalen
- 2019 **A Large-Scale Wired Network Energy Model for Flow-Level Simulations**, *AINA 2019*, Matsue, Japan  
Loic Guegan, Betsegaw Lemma Amersho, Anne-Cécile Orgerie and Martin Quinson
- 2019 **Estimating the end-to-end energy consumption of low-bandwidth IoT applications for WiFi devices**, *CloudCom 2019*, Sydney, Australia  
Loic Guegan and Anne-Cécile Orgerie
- 2017 **Why satellite localization beacons are not adapted for marine turtles' study: a sea wireless sensors network solution**, *GIIS 2017*, Saint-Pierre, La Réunion  
Nour Mohammad Murad, Loic Guegan and Sylvain Bonhommeau
- 2017 **Integrating Over Sea Radio Channel for Sea Turtles Localization in the Indian Ocean**, *IEEE Radio 2017*, Cape Town, South Africa  
Loic Guegan, Nour Mohammad Murad, Jean-Michael Lebreton and Sylvain Bonhommeau

## Teaching

### UiT The Arctic University of Norway

- 2022-2023 **Parallel Programming**, *Master 1st year*, 4 hours  
Creating the assignments. Creating and performing the lecture on MPI. *Course leader was Assoc. Prof. Issam Raïs.*
- 2022-2023 **Operating System**, *Bachelor*, 10 hours  
Performing the lectures on Virtual Memory, Storage Systems and File Systems. *Course leader was Prof. Anders Andersen.*

### University of Rennes 1

- 2019-2020 **Network Engineering**, *Master 1st year*, 16 hours  
VLAN, DHCP, NAT, STP, Cisco routers/switches. *Course leader was Assoc. Prof. Gilles Guette.*
- 2019-2020 **Cooperation and concurrency in computer systems and network**, *Master 1st year*, 32 hours  
Java, multithreading, synchronisation mechanisms, OOP. *Course leader was Assoc. Prof. Cédric Tedeschi.*
- 2018-2019 **Functional and Immutable Programming**, *Bachelor 1st year*, 32 hours  
Scala, algebraic data type, high order, recursion. *Course leader was Assoc. Prof. Delphine Demange.*
- 2018-2019 **Computer Architecture**, *Bachelor 3rd year*, 32 hours  
Logical circuits, ISA, process management, I/O, memory management, file system and assembly. *Course leader was Prof. Guillaume Pierre.*

2017-2018 **Linux System Programming**, *Bachelor 3rd year*, 30 hours  
C, system calls, sockets, shared memory, cache management. *Course leader was Prof. Guillaume Pierre.*

---

## Advising

### Co-Advisor

2022-2023 **Network Simulation of the Distributed Arctic Observatory**, *Erik Amandus Heggeli*, Master Student  
2022 **Characteristics and architectures of scientific test-beds**, *Maxime Bruno*, Master Student

---

## Scientific Responsibilities

### Scientific Reviews

2023 ICCS: International Conference on Computational Science  
2022 ACM Computing Surveys  
ICCS: International Conference on Computational Science  
2020 IEEE ISCC: IEEE Symposium on Computers and Communications  
2019 Elsevier, Journal of Computational Design and Engineering  
Euro-Par: International European Conference on Parallel and Distributed Computing

### Other Activities

2018-2020 Elected member of the Irisa laboratory council from 2018.11.15 to 2020.11.30  
2019 Volunteer at the "Informatique débrancher". The aim is to introduce Computer Science to schoolboys

### Talks

2021 Seminar at [aneo.eu](http://aneo.eu) about network simulation  
2019 **XUG** (eXperimental User Group) at IRISA Rennes France the 2019-02-28

---

## References

### Names

Issam Raïs  
Otto Anshus  
Martin Quinson  
Anne-Cécile Orgerie

### Emails

issam.raïs@uit.no  
otto.anshus@uit.no  
martin.quinson@ens-rennes.fr  
anne-cecile.orgerie@irisa.fr

### Position

Associate Professor at UiT  
Full professor at UiT  
Full professor at ENS Rennes  
Research scientist at CNRS