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UiT profile
I am 30 years old

Loïc GUÉGAN

Postdoc at UiT The Arctic University of Norway

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 **Design and Evaluation of Single-Board Computer Based Power Monitoring for IoT and Edge Systems**, *GreenCom 2023*, Ocean Flower Island, China
Loïc Guégan, Salma Tofaily, Issam Raïs
- 2023 **Simulation of Distributed Systems for Constrained Environments Using ESDS: The Arctic Tundra Case**, *CPSCOM 2023*, Ocean Flower Island, China
Loïc Guégan, Issam Raïs
- 2023 **Validation of ESDS Using Epidemic-Based Data Dissemination Algorithms**, *DCOSS-IoT 2023*, Pafos, Cyprus
Loïc Guégan, Issam Raïs and Otto Anshus
- 2023 **(POSTER) Towards Data Dissemination Policy Prediction for Constrained Environments Using Analytics**, *DCOSS-IoT 2023*, Pafos, Cyprus
Loïc Guégan, Issam Raïs and Otto Anshus
- 2022 **A flow-level Wi-Fi model for large scale network simulation**, *MSWIM 2022*, Montreal, Canada
Clément Courageux-Sudan, Loïc Guégan, Anne-Cécile Orgerie and Martin Quinson
- 2022 **Impact of loosely coupled data dissemination policies for resource challenged environments**, *CCGrid 2022*, Taormina, Italy
Issam Raïs, Loïc Guégan and Otto Anshus
- 2022 **LoRaLitE: LoRa protocol for Energy-Limited environments**, *MASCOTS 2022*, Nice, France
Lukasz Sergiusz Michalik, Loïc Guégan, Issam Raïs, Otto Anshus and John Markus Bjørndalen
- 2019 **A Large-Scale Wired Network Energy Model for Flow-Level Simulations**, *AINA 2019*, Matsue, Japan
Loïc Guégan, 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
Loïc Guégan 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, Loïc Guégan and Sylvain Bonhommeau
- 2017 **Integrating Over Sea Radio Channel for Sea Turtles Localization in the Indian Ocean**, *IEEE Radio 2017*, Cape Town, South Africa
Loïc Guégan, 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.*

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- 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 ICPADS: International Conference on Parallel and Distributed Systems (*TPC member*)
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 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

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Position

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