Samir Si-Mohammed

PhD, Postdoctoral Researcher

Born on August 2nd, 1998. Algerian.

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Current Situation

10/2023 - : **Postdoctoral Researcher**, *Université de Strasbourg*, ICube laboratory, France.
Research Interest: Internet of Things, Wireless Networks, Digital Twins, Cybersecurity.
Advisor: Fabrice Théoleyre.

Work Experience

06/2023 - 09/2023 : **Visiting Scholar**, *University of Waterloo*, Department of Electrical and Computer Engineering, Canada.
Topic: Internet of Things, 5G, Localization.
Advisor: Catherine Rosenberg.

01/2020 - 06/2020 : ***Research Internship***, *Eurecom*, Sophia-Antipolis, France.
Topic: Orchestration and Optimization of UAV Flights in 5G Networks.
Advisor: Adlen Ksentini.

09/2018 : ***Internship***, *Ericsson*, Algiers, Algeria.
Topic: Design of a technical and commercial offer for Algérie Télécom on IMS Core Network.
Advisors: Wladimiro Storti, Yassine Zerrouki.

Education

2020 - 2023: **PhD, Computer Science**, *École Normale Supérieure de Lyon*, Lyon, France.
Topic: Multi-criteria Selection and Configuration of IoT Network Technologies.
Advisors: Thomas Begin, Isabelle Guérin Lassous, Pascale Vicat-Blanc.
Jury: Fabrice Théoleyre, Thomas Watteyne, Alexandre Guitton, Angela Nicoara.

2019 - 2020 : **Master of Research, Computer Science**, *École nationale Supérieure d'Informatique*, Algiers, Algeria.
Topic: Study of Deep Learning techniques for Tracking in Augmented Reality.
Advisor: Karima Benatchba.

2015 - 2020 : **Engineer, Computer Science**, *École nationale Supérieure d'Informatique*, Algiers, Algeria.
Topic: Orchestration and Optimization of UAV Flights in 5G Networks.
Advisors: Yacine Challal, Amar Balla.

2015 : **Baccalaureate, Mathematics**, *Lycée El Khansa*, Tizi-Ouzou, Algeria.

Summer Schools

08/2022 : **6G Summer School**, *IEEE Signal Processing Society*, Linkoping, Sweden.
Topic: Defining 6G: Theory, Applications, and Enabling Technologies.

07/2021 : **Seeds for the Future**, *Huawei*, Online.
Topic: 5G, Artificial Intelligence, Cloud Computing, IoT.

09/2019 : **Disruptive Data Summer School**, *University of La Tuscia, ByTek*, Viterbo, Italy.
Topic: Data Science, Machine/Deep Learning.

07/2019 : **CIMPA Summer School**, *Centre International de Mathématiques Pures et Appliquées*, Tunis, Tunisia.
Topic: Data Science, Machine/Deep Learning, Optimization.

Technical Skills

Languages : Python, C, C++, C#, Java, Javascript, Linux Bash.

Tools : Network Simulator 3, FIT IoT-Lab.

Database : MySQL, MongoDB.

Publications

International Journals

Submitted : **Si-Mohammed, Samir**, Anthony Bardou, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *Smart Integration of Network Simulation in Network Digital Twin for Optimizing IoT Networks*. *Elsevier Future Generation Computer Systems,* ***(Preprint)***.

2023 : **Si-Mohammed, Samir**, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *HINTS: A Methodology for IoT Network Technology and Configuration Decision*. *Elsevier IoT Journal*, volume 22.

2021 : **Si-Mohammed, Samir**, Maha Bouaziz, Hamed Hellaoui, Oussama Bekkouche, Adlen Ksentini, Tarik Taleb, Lechoslaw Tomaszewski, Thomas Lutz, Gokul Srinivasan, Tanel Jarvet, and Pawel Montowtt. *Supporting Unmanned Aerial Vehicle Services in 5G Networks: New High-Level Architecture Integrating 5G With U-Space*. *IEEE Vehicular Technology Magazine*, volume 16, pages 57–65.

International Conferences

2023 : **Si-Mohammed, Samir**, Zakaria Fraoui, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *StackNet: IoT Network Simulation as a Service, ICC 2023 - 2023 IEEE International Conference on Communications*.

2022 : **Si-Mohammed, Samir**, Malasri Janumporn, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *SIFRAN: Evaluating IoT Networks with a no-code Framework based on ns-3*. In *ACM LANC 2022 - Latin American Networking Conference*.

2022 : **Si-Mohammed, Samir**, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *ADIperf: A Framework for Application-driven IoT Network Performance Evaluation*. In *ICCCN 2022 - 2022 IEEE International Conference on Computer Communications and Networks*.

2020 : **Si-Mohammed, Samir**, Adlen Ksentini, Maha Bouaziz, Yacine Challal, and Amar Balla. *UAV mission optimization in 5G: On reducing MEC service relocation*. In *GLOBECOM 2020 - 2020 IEEE Global Communications Conference*.

National Conferences

2023 : **Si-Mohammed, Samir**, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *COSIMIA : Combiner Simulation et Apprentissage Automatique pour l'Optimisation des Configurations Réseau IoT, CoRes 2023*.

Reviews

International Journals

- **ITU Journal on Future and Evolving Technologies**.
- **IEEE Access**.
- **IEEE Networking Letters**.
- **IEEE Communications Magazine**.

International Conferences

- **International Conference on Computing, Networking and Communications (ICNC)**.
- **ACM PE-WASUN**.

- **IEEE International Conference on Communications (ICC)**.

Supervision

Summer 2021 : **Malasri Janumporn**, *Institut Universitaire de Technologie (IUT) Lyon 1 (Bac+2)*, Internship.
Development of a web platform for the interactive use of ns-3 scripts. Co-supervision with Thomas Begin.

Teaching

Fall 2021 : **Performance Evaluation in Networks**, *École Normale Supérieure de Lyon (Bac+4)*.
Responsible: Éric Thierry.
Volume: 28h.

Fall 2021 : **Introduction to Networks**, *École Normale Supérieure de Lyon (Bac+3)*.
Responsibles: Thomas Begin, Isabelle Guérin Lassous.
Volume: 32h.

Spring 2021 : **Distributed Algorithms**, *Université de Claude Bernard Lyon I (Bac+4)*.
Responsible: Isabelle Guérin Lassous.
Volume: 27h.

Certifications

07/2021 : ***Huawei Seeds for the Future* program:**.
- 5G basics: Introduction on 5G knowledge.
- Cloud Basics: Development and Basic Concepts.
- AI Basics: Overview of AI.

04/2020 : ***Huawei Certified ICT Associate:*** 5G Course.

07/2020 : ***International Cybersecurity Institute CCNS:*** Certified Network Security Specialist.

08/2019 : ***Nvidia Deep Learning Institute:***.
- Fundamentals of Accelerated Computing with C/C++.
- Fundamentals of Accelerated Computing with Python.
- Fundamentals of Deep Learning for Computer Vision.

Invited Talks

04/2023 : **Towards a Digital Twin coupling Simulation & ML for IoT Networks Design and Optimization**, *Networks Team*, Invited Speaker, ICube Lab, University de Strasbourg.

01/2023 : **Towards a Machine Learning based method for Optimizing the Network Technology Configuration using Simulation**, *INRIA Agora Happy Tuesday*, Speaker, Online.

07/2022 : **HINTS: A Methodology for IoT Network Technology-and-Configuration Selection**, *Journées LPWAN 2022*, Speaker, Online.

04/2022 : **Review of "Troubling Trends in Machine Learning Scholarship"**, *INRIA Agora Reading Club*, Speaker, Online.

07/2021 : **Towards an Application-Based Methodology for IoT Network Performance Evaluation**, *Journées LPWAN 2021*, Speaker, Online.

09/2020 : **Orchestration and Optimization of UAV Flights in 5G Networks**, *GT-Eval Perf*, Speaker, CITI Lab, INSA de Lyon.

05/2020 : **MSP Unfiltered**, *Microsoft Student Learn Ambassadors program*, Speaker, Online.

05/2020 : **All About Microsoft Student Partners**, *Microsoft Student Learn Ambassadors program*, Speaker & Host, Online.

04/2020 : **Neural Networks Workshop**, *AI2E School of AI Algiers*, Speaker & Trainer, Online.

04/2020 : **Introduction to Python for AI**, *Microsoft Student Learn Ambassadors program*, Speaker, Online.

Community Programs

09/2019 - 09/2023 : **Microsoft Student Learn Ambassador**.

10/2019 - 10/2020 : **Scientific Club of ESI**, *Communication Team*.

10/2018 - 10/2020 : **Artistic and Cultural Club of ESI**, *HR Responsible*.

Projects

Summer 2021 : **SIFRAN, a no-code framework for the interactive use of NS-3**, *École Normale Supérieure de Lyon*.
Used tools: ns-3, Flask, Scalingo, MongoDB.

09/2019 : **AI model for the Prediction of the outcomes of Italian football league games**, *Disruptive Data Summer School*.
Used tools: Scikit Learn, Python, MySQL.

Summer 2017 : **JobExpress, a platform for allowing the interaction between workers and individuals**, *Hack!T Hackathon: Special Prize of the Jury*.
Used tools: Laravel, PHP.

02/2017 - 06/2017 : **Stud'Up, a desktop application for student agenda**, *École nationale Supérieure d'Informatique*.
Used tools: C#, Vistual Studio, MySQL.

Languages

English : Read, Written, Spoken.

French : Read, Written, Spoken.

Arabic : Read, Written, Spoken.

Kabyle : Native.