Samir Si-Mohammed

PhD, Postdoctoral Researcher

Born on August 2nd, 1998. Algerian.

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Current Situation

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

Work Experience

07/2025 : **Visiting Researcher (1 week)**, *Pusan National University*, WINE Lab, South Korea.
Topic: Quantum annealing for routing in IoT networks.
Collaborator: Won-Joo Hwang.

07/2025 : **Visiting Researcher (2 weeks)**, *University of Malaga*, NICS Lab, Spain.
Topic: Security in Digital Twins.
Collaborators: Cristina Alcaraz, Javier Lopez.

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 Drone's flights in 5G Networks.
Advisors: Yacine Challal, Amar Balla.

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

International collaborations

05/2025 - **Pusan National University**, *Prof.Won-Joo Hwang*, Pusan, South Korea.
Topic: Quantum annealing for routing in IoT networks.

04/2025 - **University of Malaga**, *Dr. Cristina Alcaraz & Prof. Javier Lopez*, Malaga, Spain.
Topic: Providing security in Digital Twins.

03/2025 - **University of Waterloo**, *Dr. Maryam Amini*, Waterloo, Canada.
Topic: Reinforcement learning for resource allocation in Wi-Fi 6 networks.

09/2023 - **University at Buffalo**, *Dr. Filippo Malandra*, New York, USA.
Topics:
- No-code simulation for IoT networks in ns-3,
- Evaluating communication technologies performances in distributed optimization architectures.

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.
Operating Systems : Contiki, RIOT.
Tools : ns-3, FIT IoT-Lab, Cooja.
Database : MySQL, MongoDB.

Publications

International Journals

2024 : **Samir Si-Mohammed**, Anthony Bardou, Thomas Begin, Isabelle Guérin Lassous, and Pascale Vicat-Blanc. *NS+NDT: Smart Integration of Network Simulation in Network Digital Twin, Application to IoT Networks*. *Future Generation Computer Systems*, volume 157, pages 124–144.

2024 : Mohammad Abuyaghi, **Samir Si-Mohammed**, George Shaker, and Catherine Rosenberg. *Positioning in 5G Networks: Emerging Techniques, Use Cases, and Challenges*. *IEEE Internet of Things Journal*.

2023 : **Samir Si-Mohammed**, 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 : **Samir Si-Mohammed**, 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

Under submission : **Samir Si-Mohammed** and Fabrice Théoleyre. *Towards Accurate, Data-Driven and Lightweight Digital Twins for Wireless Networks*. ***Under submission*** *to International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM).*

2025 : **Samir Si-Mohammed** and Fabrice Théoleyre. *Data-Driven Prediction Models for Wireless Network Configuration*. In *AINA 2025 - 2025 International Conference on Advanced Information Networking and Applications (to appear).*

2024 : Nicholas Accurso, **Samir Si-Mohammed**, Diptangshu De, and Filippo Malandra. *WTTool: A Visual Web-based Topology Generator and 5G Network Simulator with ns-3* ***(demo)***, *CIoT 2024 - 2024 Conference on Cloud and Internet of Things 2024*.

2023 : **Samir Si-Mohammed**, 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 : **Samir Si-Mohammed**, 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 : **Samir Si-Mohammed**, 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 : **Samir Si-Mohammed**, 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

2025 : **Samir Si-Mohammed** and Fabrice Théoleyre. *Modèles de prédiction basés sur des données pour la configuration des réseaux sans-fil, CoRes 2025 (to appear)*.

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

White Papers

2025 : Mathieu Bacou, David Beserra, Eugen Dedu, Loïc Desgeorges, Didier Donsez, Alexandre Guitton, Baptiste Jonglez, Arnaud Legrand, Georgios Papadopoulos, Olivier Richard, **Samir Si-Mohammed**, Nina Tamdrari, and Fabrice Theoleyre. Journée thématique du GDR RSD : Pratiques expérimentales de la communauté systèmes & réseaux.

Reviews

Technical Program Committee

2025 : - **IEEE Vehicular Technology Conference (VTC)**.

2024/2025 : - **IEEE Symposium on Computers and Communications (ISCC)**.

2024 : - **IEEE International Conference on Network Protocols (ICNP) Posters/Demos session**.

International Journals

- **Elsevier Computer Networks**.
- **Elsevier Computer Communications**.
- **Elsevier Ad Hoc Networks**.
- **ITU Journal on Future and Evolving Technologies**.
- **IEEE Access**.
- **IEEE Networking Letters**.
- **IEEE Communications Magazine**.
- **SAGE Structural Health Monitoring**.

International Conferences

- **International Conference on Computing, Networking and Communications (ICNC)**.
- **IEEE International Conference on Communications (ICC)**.

- IEEE International Conference on Pervasive Computing and Communications - Workshops and Affiliated Events - (HCCS).

Supervision

11/2024 - * : **Ghinwa Ismail**, *University of Strasbourg*, PhD thesis.
Digital Twins for Efficient Wireless Networks. Co-supervision with Fabrice Théoleyre

01/2025 - 05/2025 : **Pierre Matter**, *University of Strasbourg (Bac+4)*, Travail d'Étude et de Recherche (TER).
Implementation of communication technologies for distributed optimization algorithms in ns-3.

01/2025 - 05/2025 : **Léo Piveteau-Wernert**, *University of Strasbourg (Bac+4)*, TER.
Comparison between experimental and emulation platforms for 802.15.4 MAC performance evaluation.

06/2024 - 08/2024 : **Selma D'Alimonte**, *ENSEEIHT (Bac +4)*, Summer Internship.
Build the Digital Twin of a Wi-Fi 6 (IEEE 802.11ax) network. Co-supervision with Fabrice Théoleyre

01/2024 - 05/2024 : **Benjamin Gliech**, *University of Strasbourg (Bac+4)*, TER.
End-to-end Simulation of IoT Networks through the Integration of Web platforms WT-Tool and SIFRAN.

06/2021 - 09/2021 : **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

Spring 2024/2025 : **Wireless Networks**, *University of Strasbourg (Bac+4)*.
Course Responsible.
Volume: 22h (Lectures + Exercise/Practical sessions).

Spring 2024 : **Systems Programming**, *University of Strasbourg (Bac+2)*.
Responsible: Benoît Naegel.
Volume: 20h (Practical sessions).

Spring 2024 : **Local Networks**, *University of Strasbourg (Bac+3)*.
Responsible: Pascal Mérindol.
Volume: 8h (Lectures + Exercise sessions).

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

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

Spring 2021 : **Distributed Algorithms**, *University of Lyon 1 Claude Bernard (Bac+4)*.
Responsible: Isabelle Guérin Lassous.
Volume: 27h (Practical/Exercise Sessions).

Invited Talks

25/01/2025 : **"Les Entretiens de l'Excellence"**, *Invited Speaker*, EM Strasbourg, Animated a session on Education and Research for high school students..

2024-25 : **Digital Twins for Self-Configurable Wireless Networks**, Seminar.
- HoWNet Team, LIP lab, Lyon, 02/25
- ARN Team, CRAN lab, Nancy, 01/25
- FUN Team, Inria Lille, Lille, 12/24
- NPA Team, LIP6 lab, Sorbonne Université, Paris, 11/24
- DIANA Team, Inria Sophia-Antipolis (Online), 11/24

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

Software

Spring 2024 : **WT-Tool, a no-code framework for building and sharing wireless technologies**, *University of Strasbourg, Collaboration with University at Buffalo (USA)*.
Used tools: ns-3, Flask, Docker.

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, French, Arabic: Read, Written, Spoken.

Amazigh: Native.