

TAREQ SI SALEM

Postdoctoral Research Associate
Northeastern University
Boston, Massachusetts, USA

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<https://tareq-si-salem.github.io/>

SUMMARY

Tareq Si Salem is a Postdoctoral Research Associate at Northeastern University, Boston, MA. He received his Master of Science (M.Sc.) (2019) and Doctor of Philosophy (Ph.D.) (2022) in Computer Science from Université Côte d’Azur, France, where he was hosted by Inria Sophia Antipolis. He was a visiting researcher at Delft University of Technology (TU Delft) in 2022.

His research interests lie at the intersection of machine learning, networking, and modeling, with a focus on learning with system constraints (e.g., privacy, safety, fairness, memory, and communication). His work has been published in top academic conferences and journals, including the IEEE/ACM ToN, ACM ToMPECS, ACM SIGMETRICS, ITC, and IEEE INFOCOM. He also received the Best Paper Award at the 33rd International Teletraffic Congress (ITC’33) in 2021.

EDUCATION

Inria Sophia-Antipolis – Université Côte d’Azur, France *2019–2022*

Ph.D. in Computer Science

Supervisor: Giovanni Neglia, Research Director, Inria Sophia-Antipolis, France

Title: Online Learning for Network Resource Allocation

Reviewers:

- Douglas Leith, Professor, Trinity College Dublin, Ireland
- Leandros Tassioulas, Professor, Yale University, USA

Examiners:

- Edmund Yeh, Professor, Northeastern University, USA
- György Dán, Professor, KTH Royal Institute of Technology, Sweden
- Walid Debbous, Research Director, Inria Sophia-Antipolis, France

Defense Date: October 17, 2022

Research team: Network Engineering and Operations (NEO)

Polytech Nice Sophia – Université Côte d’Azur, France *2018–2019*

M.Sc. in Computer Science (Ubiquitous Networking)

Master thesis: Assessment of population exposure to wireless communication radiation

Advisor: A. Legout, Research Director, Inria Sophia-Antipolis

Awards: Labex UCN@Sophia Scholarship

Institut de Génie Electrique et Electronique, Algeria *2015–2017*

BS. and MS. in Electrical and Computer Engineering

Master thesis: Design and implementation of a multi-fiber reconstruction algorithm for diffusion MRI

Advisors: C. Dallila, Assoc. Professor, IGEE, and R. Deriche, Research Director (exceptional class), Inria Sophia-Antipolis

EMPLOYMENT RECORD

Northeastern University, Boston, MA, USA *03/2023–present*

Postdoctoral Research Associate

I am working under the supervision of Stratis Ioannidis on Machine Learning related problems. My role spans different projects in the AI Institute for Future Edge Networks and Distributed Intelligence

(AI-EDGE), Data-Centric Approaches to Distributed Machine Learning, and the Institute of Wireless Internet of Things (WIoT).

Delft University of Technology (TU Delft), The Netherlands 03/2022–08/2022

Long-term visiting appointment

I visited the Embedded and Networked Systems (ENS) group at TU Delft to work with George Iosifidis on network optimization and economics.

Inria, Sophia-Antipolis, France 03/2019–08/2019

Intern

Research team: Design, Implementation, and Analysis of Networking Architectures (DIANA)

Topic: Large-scale assessment of population exposure to wireless communication radiation

Schlumberger, Algeria & UAE 02/2018–07/2018

Wireline Field Engineer

I received an exceeding expectations appraisal from MLC Schlumberger Training Center in the UAE and acquired five professional certifications during this period.

Brandt R&D – Group Cevital, Algeria 09/2017–01/2018

Embedded Systems Engineer

My role included writing hardware abstraction layers, Android OS customization (Java, JNI, and C++), and developing Linux device drivers.

TEACHING EXPERIENCE

Subject	Location	Date
Softwares for Luxury Business Analytics	Campus Georges Méliès, Cannes, France	4 lectures (24H), fall 2022
Optimization for Machine Learning	Polytech, Sophia-Antipolis, France	2 lectures (6H), winter 2021
Distributed Optimization and Games	Polytech, Sophia-Antipolis, France	1 lectures (3H), winter 2020

ACHIEVEMENTS

Prix d'excellence d'Université Côte d'Azur 2021

Best paper award at the International Teletraffic Congress (ITC 33) 2021

LANGUAGES

English/French (Full professional proficiency), Kabyle/Arabic (Native).

PROGRAMMING LANGUAGES

Python, Java, C/C++, HDLs, and ML frameworks (e.g., PyTorch, Scikit-Learn, Tensorflow).

SCHOLARLY AND PROFESSIONAL ACTIVITIES

Reviewer:

- IEEE Communications Letters
- IEEE Transactions on Mobile Computing
- IEEE/ACM Transactions on Networking
- Elsevier Journal on Computer Networks
- Elsevier Journal on Performance Evaluation
- Journal of Combinatorial Optimization
- IEEE INFOCOM

Supervision:

- Supervising/Closely working with 4 Ph.D. students at NU and BU.
- Co-advised with G. Iosifidis: M. Mäkelä and Q. J. Oschatz (CSE3000 research project), TU Delft.
- Co-advised with G. Neglia: A. Hajjaji, and A. Hafid, Ubinet Master, Université Côte d'Azur.

PUBLICATIONS

Conferences.

- [C1] Tareq Si Salem, Gözde Özcan, Iasonas Nikolaou, Evimaria Terzi, Stratis Ioannidis. Online Sub-modular Maximization via Online Convex Optimization. *Annual AAAI Conference on Artificial Intelligence*, Vancouver, Canada, 2024.
- [C2] Tareq Si Salem, George Iosifidis, Giovanni Neglia. Enabling Long-term Fairness in Dynamic Resource Allocation. *ACM SIGMETRICS*, Orlando, Florida, USA, 2023.
- [C3] Yuanyuan Li, Tareq Si Salem, Giovanni Neglia, and Stratis Ioannidis. Online Caching Networks with Adversarial Guarantees. *ACM SIGMETRICS*, Mumbai, India, June 6–10, 2022.
- [C4] Tareq Si Salem, Giovanni Neglia and Damiano Carra. AÇAI: Ascent Similarity Caching with Approximate Indexes. *International Teletraffic Congress (ITC 33)*, Aug. 31st–Sep. 3rd, 2021. **Best Paper Award.**
- [C5] Tareq Si Salem, Gabriele Castellano, Giovanni Neglia, Fabio Pianese, and Andrea Araldo. Towards Inference Delivery Networks: Distributing Machine Learning with Optimality Guarantees. *Mediterranean Communication and Computer Networking Conference (MedComNet 2021)*, June 15–17, 2021.
- [C6] Tareq Si Salem, Giovanni Neglia, and Stratis Ioannidis. No-Regret Caching via Online Mirror Descent. *IEEE International Conference on Communications (ICC 2021)*, June 14–23, 2021.
- [C7] Anirudh Sabnis, Tareq Si Salem, Giovanni Neglia, Michele Garetto, Emilio Leonardi, and Ramesh K. Sitaraman. GRADES: Gradient Descent for Similarity Caching. *IEEE International Conference on Computer Communications (INFOCOM 2021)*, May 10–13, 2021.

Journals.

- [J1] Tareq Si Salem, Gabriele Castellano, Giovanni Neglia, Fabio Pianese, and Andrea Araldo. Towards Inference Delivery Networks: Distributing Machine Learning with Optimality Guarantees. *IEEE/ACM Transactions on Networking*, 2023.
- [J2] Tareq Si Salem, Giovanni Neglia, and Stratis Ioannidis. No-Regret Caching via Online Mirror Descent. *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (ToMPECS)*, 2023.
- [J3] Tareq Si Salem, George Iosifidis, Giovanni Neglia. Enabling Long-term Fairness in Dynamic Resource Allocation. *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, 2023.
- [J4] Tareq Si Salem, Giovanni Neglia and Damiano Carra. Ascent Similarity Caching with Approximate Indexes. *IEEE/ACM Transactions on Networking*, 2022.
- [J5] Anirudh Sabnis, Tareq Si Salem, Giovanni Neglia, Michele Garetto, Emilio Leonardi, and Ramesh K. Sitaraman. GRADES: Gradient Descent for Similarity Caching. *IEEE/ACM Transactions on Networking*, 2022.
- [J6] Yuanyuan Li, Tareq Si Salem, Giovanni Neglia, and Stratis Ioannidis. Online Caching Networks with Adversarial Guarantees. *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, 2022.

TALKS

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- [T1] Online Learning for Network Resource Allocation. Networks Seminar Series, Centre for Networked Intelligence, Indian Institute of Science, November, 2023.
 - [T2] Tutorial on Online Convex Optimization. Machine Learning Reading Group, Northeastern University, October, 2023.

- [T3] No-Regret Caching via Online Mirror Descent. Invited session: What's new in TOMPECS? ITC 35, Turin, Italy, October, 2023.
- [T4] Enabling Long-term Fairness in Dynamic Resource Allocation. Sigmetrics 2023, Orlando, Florida, USA, June, 2023
- [T5] Enabling Long-term Fairness in Dynamic Resource Allocation. Poster Session, WIoT Industry Day, Boston, MA, USA, May, 2023.
- [T6] Online Learning for Network Resource Allocation. AI EDGE Seminar Series 22, Boston, MA, USA, April, 2023.
- [T7] AÇAI: Ascent Similarity Caching with Approximate Indexes. ITC 33, August, 2021.
- [T8] Towards Inference Delivery Networks: Distributing Machine Learning with Optimality Guarantees. MedComNet 2021, June, 2021.
- [T9] No-Regret Caching via Online Mirror Descent. ICC 2021, June, 2021.