

Rihab JMAL

Assistant Professor of Computer Science

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Curriculum Vitae



Education

2018 <i>Sfax-Tunisia</i>	PhD's degree in Computer Systems Engineering National Engineering School of Sfax (ENIS).
2013 <i>Sfax-Tunisia</i>	Research master's degree in Computer Science and Multimedia Higher Institute of Computer and Multimedia Sfax (ISIMS)
2011 <i>Sfax-Tunisia</i>	Master degree in Computer Science and Multimedia Higher Institute of Computer and Multimedia Sfax (ISIMS)
2007 <i>Sfax-Tunisia</i>	MATH section Baccalaureate High school in Sfax

Work experience

Feb 2023-Now: Assistant Professor of Computer Science at Higher Institute of Computer and Multimedia Sfax (ISIMS). **Courses:** Internet Of Things (IoT), Networks Fundamentals, Software Architecture.

Feb 2021-Jan 2023: Assistant Professor of Computer Science at Higher Institute of Applied Languages and Computer Science of Beja (ISLAIB). **Courses:** Internet Of Things (IoT), Parallel and distributed computing, Data visualization,...

Sep 2019-Feb 2021: R&I Project Advisor at Sfax Technopark (PMO for national and European projects: H2020, IEV,...).

2015- 2020: Contractual assistant Professor at Higher Institute of Computer and Multimedia Sfax (ISIMS).

TPs: Web development, Networks Fundamentals, Web and Databases integration, XML

Supervision and co-supervision of Phd and Master thesis

Academic Year	Student	Institut	Degree	Title
2020-2025	Wiem BEKRI	Enetcom	PhD	Security and Trust Management Framework for IoT Networks based on SDN and Blockchain
2018-2024	Fadoua Debbabi	Isitcom	PhD	Allocation et gestion dynamique des slices dans les réseaux 5G
2024-2025	Taissir Boulifa	ISIMS	Research Master	Study and contribution to improve security of industry 4.0 manufacturing systems
2023-2024	Aimen HAMDI	ISIMS	Research Master	Study and contribution to smart farming application based on cyberphysical system and IoT
2023-2024	Arwa BADRI	ISIMS	Research Master	Towards Secure and Privacy-Aware Metaverse
2022-2023	Hana Ben alaya	ISIMS	Research Master	Design and prototyping of a hospital 4.0 platform

2022-2023	Walid Ghabri	ISIMS	Research Master	Study and implementation of a Trust and Privacy-aware IoT network of cyber physical systems based on SDN and Blockchain
2021-2022	Saber mekni & Amina jouini	ISLAIB	Professionnal Master	Etude et analyse de performance des applications MapReduce dans un environnement programmable basé sur les contrôleurs SDN
2020-2021	Manel Kouki	ISLAIB	Professionnal Master	Conception et développement d'une solution Industrie 4.0 de maintenance prédictive
2018-2019	Wiem BEKRI	ISIMS	Research Master	Conception et mise en oeuvre d'une solution de gestion de réseaux IoT avec SDN, destinée aux applications de vie assistée.

Research activities

- Scientific community:

Member of the SM@RTS laboratory that belongs to the digital research center of Sfax ([CRNS](#)).

- Thesis in Computer Systems Engineering (during 4 years):

Title: Supervision of content-centric networks (CCN) deployed in a programmable network architecture (SDN) based on OpenFlow controllers.

Tools: Mininet emulator (python), Floodlight controller (Java), Openvswitch, Json, CCNx implementation, ndnSIM simulator (C++) based on NS3, WireShark, VMware, MPEG DASH player and converter.

- Research Master in Computer Science and Multimedia:

Title: Contribution to the study and specification of new routing mechanisms for Metro Ethernet networks.

Tools: Mininet emulator (python), Pox controller (python), Openvswitch, and WireShark.

- Reviewer and Technical Program Committee :

- High quality journals: IEEE Internet of Things Journal (**SJR Q1**) ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM) (**SJR Q1**), Computer Standards & Interfaces (CSI) (**SJR Q2**), Future Generation Computer Systems (FGCS) (**SJR Q1**), and Transactions on Emerging Telecommunications Technologies (ETT) (**SJR Q2**).
- International conferences **ranked B** such as : International Wireless Communications & Mobile Computing Conference (IWCMC) et International Conference on Software, Telecommunications and Computer Networks (SoftCOM) et Globecom.

Publications

Book (PhD thesis):

Rihab JMAL, « Nouvelle architecture Internet basée sur les réseaux hybrides SDN-CCN », ISBN-13: 978-620-2-27695-5, ISBN-10:6202276959EAN:9786202276955, Maison d'édition: Editions universitaires européennes, 15-01-2018.

- List of articles published in scientific journals:

[j1] **Rihab Jmal**, and Lamia Chaari Fourati, "An OpenFlow Architecture for Managing Content-Centric-Network (OFAM-CCN) based on popularity caching strategy," Computer Standards & Interfaces, vol. 51, pp. 22–29, Mar. 2017. (**SJR Rank: Q2**) (**Impact Factor: 1.633**)

- [j2] **Rihab Jmal**, and Lamia Chaari Fourati, “Software Defined Content-Centric Networking Survey”, *IEEE Transactions on Network and Service Management*, 2017, vol. 14, no 4, p. 1128-1142. **(SJR Rank: Q1) (Impact Factor: 4.758)**
- [j3] **Rihab Jmal**, and Lamia Chaari Fourati, “Assisted DASH-aware Networking over SDN-CCN Architecture”, *Photonic Network Communications*, Springer US, Volume 38, Issue 1, pp 37–50, 2019. **(SJR Rank: Q2) (Impact Factor: 2.028)**
- [j4] **Rihab Jmal**, and Lamia Chaari Fourati. "Distributed Software Defined Information Centric Networking (DSD-ICN)", *International Journal of High Performance Computing and Networking* 16.1 (2020): 14-25. **(SJR Rank: Q3)**
- [j5] Bekri, W., **Rihab Jmal** and Chaari Fourati, L. Internet of Things Management Based on Software Defined Networking: A Survey. *International Journal of Wireless Information Networks* 27.3 (2020): 385-410. <https://doi.org/10.1007/s10776-020-00488-2> **(SJR Rank: Q3)**
- [j6] W. Bekri, **Rihab Jmal** and L. C. Fourati, "Softwarized Internet of Things Network Monitoring," in *IEEE Systems Journal*, vol. 15, no. 1, pp. 826-834, March 2021, doi: 10.1109/JSYST.2020.3015435. **(SJR Rank: Q1) (Impact Factor: 5.28)**
- [j7] F. Debbabi, **R. Jmal**, L. C. Fourati and A. Ksentini, "Algorithmics and Modeling Aspects of Network Slicing in 5G and Beyonds Network: Survey," in *IEEE Access*, vol. 8, pp. 162748-162762, 2020, doi: 10.1109/ACCESS.2020.3022162. **(SJR Rank: Q1) (Impact Factor: 3.367)**
- [j8] F. Debbabi, **Rihab Jmal**, and L. C. Fourati. "5G network slicing: Fundamental concepts, architectures, algorithmics, projects practices, and open issues." *Concurrency and Computation: Practice and Experience* 2021, vol. 33, no 20, p. e6352. **(SJR Rank: Q3) (Impact Factor: 1.536)**
- [j9] F. Debbabi, **Rihab Jmal**, L. Chaari and R. L. Aguiar, "An Overview of Inter-Slice & Intra-Slice Resource Allocation in B5G Telecommunication Networks," in *IEEE Transactions on Network and Service Management*, 2022, doi: 10.1109/TNSM.2022.3189925. **(SJR Rank: Q1) (Impact Factor: 4.758)**
- [j10] Debbabi, F., Aguiar, R.L., **Jmal, R.** et al. Game theory for B5G upper-tier resource allocation using network slicing. *Wireless Netw* 29, 2047–2059 (2023). <https://doi.org/10.1007/s11276-023-03243-6> **(SJR Rank: Q2) (Impact Factor: 2.1)**
- [j11] Bekri, W., **Jmal, R.** & Fourati, L.C. Secure and trustworthiness IoT systems: investigations and literature review. *Telecommun Syst* 85, 503–538 (2024). <https://doi.org/10.1007/s11235-023-01089-z> **(SJR Rank: Q2) (Impact Factor: 1.7)**

- List of articles published in international conferences:

- [c1] **Rihab Jmal** and L. Chaari Fourati, “Implementing shortest path routing mechanism using Openflow POX controller,” in *the 2014 International Symposium on Networks, Computers and Communications*, 2014, pp. 1–6. **(Ranked: C)**.
- [c2] **Rihab Jmal** and L. Chaari Fourati, “An overview of shortest path mechanisms for Metro-Ethernet networks,” in *2nd World Symposium on Web Applications and Networking (WSWAN)*, 2015, pp.1–6.
- [c3] **Rihab Jmal**, G. Simon and L. Chaari Fourati, “Network-Assisted Strategy for DASH over CCN”, *on the 18th IEEE International Conference On Multimedia And Expo (ICME) 2017* **(Ranked: B)** (Acceptation rate 30%)
- [c4] **Rihab Jmal** and L. Chaari Fourati, “Emerging Applications for Future Internet Approach Based-on SDN and ICN”, *ACS/IEEE International Conference on Computer Systems and Applications AICCSA 2017* **(Ranked: C)** (Acceptation rate 25%)

[c5] **Rihab Jmal** and L. Chaari Fourati, “CCNFlow:Content-Centric Networking Managed by OpenFlow Controller”, *on the 7h IEEE International Conference on Communications and Networking (ComNet’2018)*

[c6] Tesnim Mekki, **Rihab Jmal**, Issam Jabri, Lamia Chaari, and Abderrezak Rachedi, “Vehicular Fog Resource Allocation Scheme: A Multi-Objective Optimization based Approach”, CCNC 2020. **(Ranked: B)**

[c7] H. Belhadj, **Rihab Jmal**, H. Chelligue and L. Chaari Fourati, “A2ISDIoT : Artificial Intelligent Intrusion Detection System For Software Defined IoT Networks”, AINA 2020 **(Ranked: B)**

[c8] DEBBABI, F., **Rihab Jmal**, CHAARI, L., AGUIAR, R. L., GNICHI, R., and TALEB, S. (2022, May). Overview of AI-based Algorithms for Network Slicing Resource Management in B5G and 6G. In 2022 International Wireless Communications and Mobile Computing (IWCMC) (pp. 330-335). IEEE. **(Ranked: B)**

[c9] BEKRI, W., LAYEB, T., **Rihab Jmal**, and FOURATI, L. C. (2022, May). Intelligent IoT Systems: security issues, attacks, and countermeasures. In 2022 International Wireless Communications and Mobile Computing (IWCMC) (pp. 231-236). **(Ranked: B)**

[c10] DEBBABI, F., Taktak, R., **Rihab Jmal**, CHAARI, L., and AGUIAR, R. L., Inter-slice B5G Bandwidth Resource Allocation. In the 21th IEEE International Symposium on Network Computing and Applications (NCA 2022). **(Ranked: B)**

[c11] Debbabi, F., **Jmal, R.**, Chaari Fourati, L., Taktak, R., Aguiar, R.L. (2024). Adaptive Admission Control for 6G Network Slicing Resource Allocation (A2C-NSRA). In: Barolli, L. (eds) Advanced Information Networking and Applications. AINA 2024. Lecture Notes on Data Engineering and Communications Technologies, vol 199. Springer, Cham. https://doi.org/10.1007/978-3-031-57840-3_22**(Ranked: B)**

Presentations in Conferences as an author

2014 International Symposium on Networks, Computers and Communications **ISNCC’14 Tunisia**

2015 2nd World Symposium on Web Applications and Networking **WSWAN’15 Tunisia**

2017 ACS/IEEE International Conference on Computer Systems and Applications **AICCSA’17 Tunisia**

2018 7h IEEE International Conference on Communications and Networking **ComNet’18 Tunisia**

International cooperation activities:

May-june 2016: Doctoral stay in the RSM department of Telecom Bretagne, Rennes, France.

November 2015: Doctoral stay within the DIANA research team at the Inria research center in Sophia Antipolis – Mediterranean, France.

Administrative responsibilities:

2021-Now: Member of the quality committee at the Higher Institute of Applied Languages and Computer Science in Béja.

2021- Now: Member of the PAQ-DGSE project of the Higher Institute of Applied Languages and Computer Science of Béja.

Certifications

2025 : NetSim Simulator

2024 : Fundamentals of Deep Learning- **NVIDIA**

2023 : IoT- **3S**

2021 : Internal Quality Assurance - **Université Jendouba**

2020 : Intellectual property DL101 -**WIPO**

2019 : H2020 R&I European projects - **UGPE**

2019 : Blockchain Essentials from Cognitive Class - **IBM**

2018 : Soft skills- **University of Sfax**

2016 : Scripting an online course (IFeL)- **UVT**

Langues

- **Arab** : native language
- **Frensh** : C1
- **English** : B2