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Education

2020	Ph.D. in Computer Science and Engineering	<i>Università di Bologna, Italy</i>
2008	M.Sc. in Information Technology	<i>Universiti Utara Malaysia, Malaysia</i>
2005	BSc. in Computer Science	<i>Al Al-Bayt University, Jordan</i>

Employment

April 2020 – present	Research Fellow	<i>Università di Bologna, Italy</i>
April 2017 – February 2020	Research Assistant	<i>Centro Interdipartimentale di Ricerca Industriale ICT (CIRI ICT), Università di Bologna, Italy</i>
2018 – 2019	Teaching Assistant	<i>Scuola di Ingegneria e Architettura, Università di Bologna, Italy</i>
2009 - 2016	Full-time Lecturer	<i>University of Business and Technology, Kingdom of Saudi Arabia</i>

Scientific Production Indicators

Google scholar Data		h-index: 7	Citations: 138
Scopus Author Data	Scopus Author ID: 57204811672	h-index: 6	Citations: 79

April 2020 -
present

Experience

Research Fellow

Università di Bologna, Italy

Responsibilities:

[1] Writing research papers (as a first lead corresponding author or as a co-author) and publishing in high-impact venues (international journals indexed in ISI Thomson Reuters and Scopus and top-ranked conferences such as IEEE GLOBECOM and IEEE ICC).

[2] Preparing course materials and co-teaching a course for Ph.D. students at the department of Computer Science and Engineering at *Università di Bologna, Italy*. *The course is scheduled for the* second semester in 2021/2022 (**upcoming**)

[3] Presenting our research papers in high impact conferences such as IEEE GLOBECOM and IEEE ICC

- Presented my paper at IEEE ICC 2021 (June 2021)
- Presented my paper at IEEE GLOBECOM 2020 (December 2020)
- Presented my paper at IEEE CAMAD 2020 (September 2020)

[4] Participating in **Technical Program Committee (TPC)** of the International Black Sea Conference on Communications and Networking (IEEE BlackSeaCom 2021).

[5] Presenting and training attendees as an **invited talk speaker** at the Free and Open-Source Software for Geospatial (FOSS4G2021¹) conference, Buenos Aires, Argentina, Online edition. Invited by Microsoft Corporation.

[6] Reviewing manuscripts for flagship journals and conferences including the following:

- IEEE transactions on emerging topics of computing (since 2021), **Journal**
- ACM computing surveys (since 2021), **Journal**
- IEEE Internet of Things Journal (since 2021), **Journal**
- MDPI applied sciences (since 2021), **Journal**
- Transactions on Emerging Topics in Computing (since 2021), **Journal**
- IEEE GLOBECOM 2020, **conference**
- IEEE Symposium on Computers and Communications (ISCC) 2020, **conference**

[7] Writing external funding proposals. I have successfully written a research fund proposal requesting external fund from Microsoft. The proposal was successful, and I have been awarded an **'AI for Earth'** Microsoft Azure Compute Grant (worth **15000 USD**).

[8] Co-supervising student's Bachelor graduation projects.

¹ FOSS4G is the largest global gathering for geospatial software

April 2017 –
February 2020

Research Assistant

*Centro Interdipartimentale di
Ricerca Industriale ICT (CIRI ICT),
Università di Bologna, Italy*

Responsibilities:

[1] Writing research papers (as a main author or as a co-author) and publishing in high-impact venues, top-ranked conferences such as IEEE GLOBECOM and IEEE ICC)

[2] Conducting high-quality research as a recipient of a research fund from a project titled: “SACHER (Smart Architecture for Cultural Heritage in Emilia-Romagna)”

- Designing a distributed NoSQL-based data lake for cultural heritage data in Italy and implementing a standard compliant prototype.
- Presenting our work in international exhibitions such as Research to Business (R2B) in Bologna Fiere (June 2018), Italy. Also, in Salone Internazionale del Restauro, dei Musei e delle Imprese Culturali in Ferrara Fiere (March 2018), Italy.

[3] Presenting our research papers in conferences, summer schools and workshops

2018 – 2019

Teaching Assistant

*Scuola di Ingegneria e Architettura,
Università di Bologna, Italy*

Responsibilities:

[1] Teaching the lab session of a master’s degree level course titled the “***principles, models and applications for distributed systems m***”

Laurea Magistrale in scuola di ingegneria e architettura of the University of Bologna

[2] Preparing teaching materials for the lab, which was focusing on advanced programming concepts in distributed systems and their applications in Java, such as multithreading and networking

[3] Preparing and conducting lab exams for the course, in addition to marking the exams

2009 - 2016

Full-time Lecturer

*University of Business and
Technology, Kingdom of Saudi
Arabia*

Responsibilities:

[1] Teaching various Information Technology courses at bachelor’s degree level, including, for example, object-oriented programming in Java, databases, and advanced data warehousing.

[2] Preparing teaching materials including syllabus, lab, and term exam papers, in addition to marking student’s exams.

- [3] Supervising student's graduation projects (bachelor's level projects) to the highest quality standards that comply with *Capstone* standards.
- [4] Preparing course files for the national (**NCAAA**) and international (**ABET**) accreditation programs.
- [5] Conducting high-quality research and publishing in high-impact venues.

Awards & Grants

2020 – 2022	AI for Earth Microsoft Azure Compute Grant	Grant = \$15000	Microsoft
2016 - 2019	PhD@ISA Fellowship	Fellowship	Institute of the Advanced Studies (ISA), University of Bologna, Italy
2015	Research Grant	30000 SAR (equivalent to \$8000)	University of Business and Technology

Publications [J: Journal, C: Conference, B: Book Chapter]

N.B. a star (*) to the left of my name indicates being the first (main)/ corresponding author

Peer-reviewed Journals (Indexed in Thomson Reuters ISI)

- [j5] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini, and R. Montanari. QoS-Aware Approximate Query Processing for Smart Cities Spatial Data Streams. *Sensors* 2021, 21, 4160. Journal **Impact Factor** (indexed in **ISI Thomson Reuters**): **3.576**
- [j4] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini, and R. Montanari, "Efficient QoS-Aware Spatial Join Processing for Scalable NoSQL Storage Frameworks," *IEEE Transactions on Network and Service Management*, 2020. Journal **Impact Factor** (indexed in **ISI Thomson Reuters**): **3.878**
- [j3] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini and R. Montanari, "Big Spatial Data Management for the Internet of Things: A Survey," *Journal of Network and Systems Management*, pp. 1-46, 2020. DOI: 10.1007/s10922-020-09549-6. Journal **Impact Factor** (indexed in **ISI Thomson Reuters**): **2.250**
- [j2] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini, R. Montanari, J. Berrocal and J. M. Murillo, "A Pre-Filtering Approach for Incorporating Contextual Information Into Deep Learning Based Recommender Systems," *IEEE Access*, vol. 8, pp. 40485-40498, 2020. DOI: 10.1109/ACCESS.2020.2975167. Journal **Impact Factor** (indexed in **ISI Thomson Reuters**): **3.745**

[j1] * **I. M. Aljawarneh**, "Design of a data warehouse model for decision support at higher education: A case study," Information Development, vol. 32, (5), pp. 1691-1706, 2016. DOI: 10.1177/0266666915621105. Journal **Impact Factor** (indexed in **ISI Thomson Reuters**): **1.440**

Peer-reviewed Conferences and Workshops

[C12] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini and R. Montanari, "Context Incorporation Techniques for Social Recommender Systems," ICC 2021 - IEEE International Conference on Communications, 2021, pp. 1-6. **(IEEE ICC 2021)** ²

[C11] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini and R. Montanari, "Locality-Preserving Spatial Partitioning for Geo Big Data Analytics in Main Memory Frameworks," GLOBECOM 2020 - 2020 IEEE Global Communications Conference, 2020, pp. 1-6. **(IEEE GLOBECOM 2020)** ²

[C10] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini, and R. Montanari, "Spatially Representative Online Big Data Sampling for Smart Cities," in 2020 IEEE 25th International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), 2020: IEEE, pp. 1-6.

[C9] * **I. M. Al Jawarneh**, P. Bellavista, L. Foschini and R. Montanari, "Spatial-aware approximate big data stream processing," in 2019 IEEE Global Communications Conference (GLOBECOM), 2019, pp. 1-6. **(IEEE GLOBECOM 2019)** ²

[C8] * **I. M. Al Jawarneh**, P. Bellavista, F. Bosi, L. Foschini, G. Martuscelli, R. Montanari and A. Palopoli, "Container orchestration engines: A thorough functional and performance comparison," in ICC 2019-2019 IEEE International Conference on Communications (ICC), 2019, pp. 1-6. **(IEEE ICC 2019)** ²

[C7] * **I. M. Al Jawarneh**, P. Bellavista, L. Foschini, G. Martuscelli, R. Montanari, A. Palopoli and F. Bosi, "Qos and performance metrics for container-based virtualization in cloud environments," in Proceedings of the 20th International Conference on Distributed Computing and Networking, 2019, pp. 178-182.

[C6] * **I. M. Al Jawarneh**, P. Bellavista, A. Corradi, L. Foschini, R. Montanari and A. Zanotti, "In-memory spatial-aware framework for processing proximity-alike queries in big spatial data," in 2018 IEEE 23rd International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), 2018, pp. 1-6.

[C5] * **I. M. Al Jawarneh**, P. Bellavista, F. Casimiro, A. Corradi and L. Foschini, "Cost-effective strategies for provisioning NoSQL storage services in support for industry 4.0," in 2018 IEEE Symposium on Computers and Communications (ISCC), 2018, pp. 1227.

[C4] S. Bertacchi, **I. M. Al Jawarneh**, F. I. Apollonio, G. Bertacchi, M. Cancilla, L. Foschini, C. Grana, G. Martuscelli and R. Montanari, "SACHER project: A cloud platform and integrated

² IEEE ICC and IEEE GLOBECOM are flagship conferences in Computer Science

services for cultural heritage and for restoration," in Proceedings of the 4th EAI International Conference on Smart Objects and Technologies for Social Good, 2018, pp. 283-288.

[C3] * **I. M. Al Jawarneh**, P. Bellavista, L. Foschini, R. Montanari, J. Berrocal and J. M. Murillo, *"Toward privacy-aware healthcare data fusion systems,"* in International Workshop on Gerontechnology, 2018, pp. 26-37.

[C2] * **I. M. Aljawarneh**, P. Bellavista, C. R. De Rolt and L. Foschini, *"Dynamic identification of participatory mobile health communities,"* in Cloud Infrastructures, Services, and IoT Systems for Smart Cities Springer, 2017, pp. 208-217.

[C1] * **I. M. Aljawarneh**, P. Bellavista, A. Corradi, R. Montanari, L. Foschini and A. Zanotti, *"Efficient spark-based framework for big geospatial data query processing and analysis,"* in 2017 IEEE Symposium on Computers and Communications (ISCC), 2017, pp. 851-856.

Peer-reviewed Book Chapters

[B1] **P. Bellavista**, J. Berrocal, A. Corradi, S. K. Das, L. Foschini, **I. M. Al Jawarneh** and A. Zanni, *"How Fog Computing Can Support Latency/Reliability sensitive IoT Applications: An Overview and a Taxonomy of State-of-the-art Solutions,"* Fog Computing: Theory and Practice, pp. 139-213, 2020.

Professional Training

July 2019 3rd International **Summer School on Deep Learning** (DeepLearn 2019). Warsaw, Poland.

July 2017 Seventh European **Business Intelligence & Big Data Summer School** (eBISS 2017), Brussels, Belgium.

- Presented a poster titled *"QoS-Aware Big Geospatial Data Processing"*

Language Competence

Arabic native proficiency

English full professional proficiency (³Level: C1)

Italian average working proficiency (³Level: A2)

³ CERF levels, Common European Reference Framework