

# Sherenaz Waleed Al-Haj Baddar

## Personal Information

**Nationality:** Jordanian

**Current Employer:** King Abdullah II School for Information Technology-  
Department of Computer Science, The University of Jordan, Amman 11942,  
Jordan.

**Phone Number:** +962 79 6944048

**Google Scholar page:** <https://scholar.google.com/citations?user=tdIm-9oAAAAJ&hl=en>

## Academic Information:

2005 – 2009 **Kent State University, USA:** Department of Computer Science, Ph.D. Computer Science, GPA: 4.0, Dissertation Advisor: Prof. Kenneth E. Batchner).

2001 – 2003 **The University of Jordan, Jordan:** Department of Computer Science, M.Sc. Computer Science, GPA: 3.96).

1997 – 2001 **The University of Jordan, Jordan:** Department of Computer Science, B.Sc. Computer Science, GPA: 3.86).

## Publications:

### Journal Papers:

- **S. Al-Haj Baddar**, A. Languasco, M. Migliardi, *Efficient analysis of overdispersed data using an accurate computation of the Dirichlet multinomial distribution*, **IEEE Transactions on Pattern Analysis & Machine Intelligence**, vol. , no. 01, IEEE, pp. 1-9, PrePrints 5555, doi: 10.1109/TPAMI.2024.3489645, 2024
- M. Alkasassbeh, **S. Al-Haj Baddar**, *Intrusion detection systems: A state-of-the-art taxonomy and survey*, **Arabian Journal for Science and Engineering**, Springer, vol. 48, no. 8, 10021–10064, doi:10.1007/s13369-022-07412-1, 2022
- Saeed, Y.A., Ismail, R.A. & **Al-Haj Baddar, S.W**, “D-SAG: A Distributed Sort-Based Algorithm for Graph Clustering”, *Arab J Sci Eng* 46, 8665–8676, 2021.
- Alothman, Zainab, Alkasassbeh, Mouhammd, and **Al-Haj Baddar, Sherenaz**, “An Efficient Approach to Detect IoT Botnet Attacks Using Machine Learning”, in *Journal of High Speed Networks*, vol. 26, no. 3, pp. 241-254, 2020.

- **S. Al-Haj Baddar**, A. Merlo and M. Migliardi, "Behavioral-Anomaly Detection in Forensics Analysis," in *IEEE Security & Privacy*, vol. 17, no. 1, pp. 55-62, 2019.
- **S. Al-Haj Baddar**, A. Merlo, M. Migliardi, F. Palmieri, "Saving energy in aggressive intrusion detection through dynamic latency sensitivity recognition", *Computers & Security* 76, p. 311-326, 2018
- **S. Al-Haj Baddar**, Alessio Merlo and Mauro Migliardi: "Generating statistical insights into network behavior using SKETURE", *Journal of High Speed Networks*, 22(1), 65–76, 2016.
- **S. Al-Haj Baddar**, Alessio Merlo, Mauro Migliardi, "Anomaly Detection in Computer Networks: A State-of-the-Art Review", *Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications*, Vol. 5, No. 4, pp. 29-64, 2014.
- **S. Al-Haj Baddar**, Basel A. Mahafzah, "Bitonic Sort on a Chained-Cubic Tree Interconnection Network", *Journal of Parallel and Distributed Computing*, Vol. 74, No. 1, pp. 1744-1761, January 2014.
- **S. Al-Haj Baddar** and Kenneth E. Batcher, "An 11-Step Sorting Network For 18 Elements", *Parallel Processing Letters*, Vol. 19, No. 97, pp. 97-103, 2009.

#### Conference Papers:

- M. Abutaha, M. Ababneh, K. Mahmoud and **S. Al-Haj Baddar**, *URL Phishing Detection using Machine Learning Techniques based on URLs Lexical Analysis*, **2021 12th International Conference on Information and Communication Systems (ICICS)**, Valencia, Spain, IEEE, pp. 147-152, doi: 10.1109/ICICS52457.2021.9464539, 2021
- Mauro Migliardi, Alessio Merlo, **S. Al-Haj Baddar**, "Reducing the Impact of Traffic Sanitization on Latency Sensitive Applications", The 11<sup>th</sup> International Conference on Complex, Intelligent, and Software Intensive Systems (CISIS-2017), Torino, Italy, July 10-12, pp. 1019-1026.
- **S. Al Haj Baddar**, Alessio Merlo, Mauro Migliardi, Francesco Palmieri, "Dynamic Latency Sensitivity Recognition: An Application to Energy Saving", The 12<sup>th</sup> International Conference Green, Pervasive, and Cloud Computing GPC 2017, Cetara, Italy, May 11-14, pp. 138-151
- R. Alqrainy, **S. Al-Haj Baddar**, "DAS: Distributed analytics system for Arabic search engines", The 7<sup>th</sup> International Conference on Information and Communication Systems (ICICS), Irbid, 2016, pp. 20-26.
- **S. Al-Haj Baddar**, "Identifying Energy-Deprivation in Wireless Sensor Networks", 2016 30<sup>th</sup> International Conference on Advanced Information Networking and Applications Workshops (WAINA), Crans-Montana, 2016, pp. 276-279.
- **S. Al-Haj Baddar**, Alessio Merlo, Mauro Migliardi, "SKETURE: A Sketch-based Packet Analysis Tool", Proceedings of the 7<sup>th</sup> ACM CCS International

Workshop on Managing Insider Security Threats, MIST '15, Denver, Colorado, USA, October 12-16, 2015.

**Books:**

- Mauro Migliardi, Alessio Merlo, **S. Al-Haj Baddar**, “Adaptive Mobile Computing”, Edited Book, Elsevier, ISBN: 9780128046036, 2017.
- **S. Al-Haj Baddar**, Kenneth E. Batchner, “Designing Sorting Networks: A New Paradigm”, Springer Science + Business Media. New York, USA. ISBN: 978-1461418504, 2011.

**Book Chapters:**

- **S. Al-Haj Baddar** , “How on Earth Could That Happen? An Analytical Study on Selected Mobile Data Breaches”, Adaptive Mobile Computing Advances in Processing Mobile Data Sets, Elsevier, ISBN: 9780128046036, pp. 153-183, 2017

**Referee/Reviewer in**

- Journal of Network and Computer Applications
- The Journal of Supercomputing
- Scientific Reports
- Arabian Journal of Science and Engineering (AJSE)
- Journal of High Speed Networks
- JMLR- Journal of Machine Learning Research
- The 10<sup>th</sup> International Workshop on Security and High Performance Computing Systems (SHPCS 2015)
- The 11<sup>th</sup> International Workshop on Security and High Performance Computing Systems (SHPCS 2016)
- The 11<sup>th</sup> International Workshop on Security and High Performance Computing Systems (SHPCS 2017)

**Employment:**

September 2021 – Present:

Associate professor of Computer Science, King Abdullah II School for Information Technology, *The University of Jordan, Amman – Jordan.*

September 2019- August 2021:

Associate professor of Computer Science, King Hussein School of Computing Sciences, **Princess Sumaya University for Technology, Amman – Jordan.**

June 2016 – August 2019:

Associate professor of Computer Science, King Abdullah II School for Information Technology, *The University of Jordan, Amman – Jordan.*

- Assistant Dean for Quality and Development Affairs (September 2016- September 2018).

June 2009 – June 2016:

Assistant professor of Computer Science, King Abdullah II School for Information Technology, *The University of Jordan, Amman – Jordan*.

- Assistant dean for Laboratory Affairs (September 2011- August 2013).
- Assistant Dean for Computer and Quality Affairs, DAR, September 2012
- Assistant Dean for Community Outreach, DAR, September 2011
- Computer Center Director (August 2013 - September 2014 )
- Director of Website Contents (October 2015 – September 2016)

#### **Invited Talks / Conferences Talks:**

- Sherenaz Al-Haj Baddar, "**Data Science for Security**", WIDS (Women in Data Science) Amman, PSUT, July 2020, Amman, Jordan.
- Sherenaz Al-Haj Baddar, "**Dynamic Latency Sensitivity Recognition: an Application to Energy Saving**", GPC2017: The 12th International Conference on Green, Pervasive and Cloud Computing, Cetara, Amalfi Coast, Italy, May 11-14, 2017.
- Sherenaz Al-Haj Baddar, "**SKETURE: A Sketch-based Packet Analysis Tool**", the 7th ACM CCS International Workshop on Managing Insider Security Threats, MIST '15, Denver, Colorado, USA, October 12-16, 2015.

#### **Memberships:**

- ACM/ACM-W
- ACM SIGARCH - Special Interest Group on Computer Architecture
- AWS Cloud Club in Jordan
- Google Developer Group (GDG), Amman

#### **Research Interests:**

- Behavioral Anomaly detection in computer networks.
- Sorting Networks
- Parallel and distributed processing.

#### **Skills:**

- Technical: Java | C/C++ | Python | Shell Scripting (Linux/Windows) | MPI using C | nesC | Assembly | Prolog | Matlab | Fortran | COBOL | Pascal | Basic Android Programming | Basic Node.js

- Tools: WireShark | Latex | Overleaf | R | basic Octave
- Interpersonal: Strong communication (verbal, non-verbal, and listening) skills | Effective team member | Strong sense of responsibility | Solid problem solving and decision making skills | Very good at negotiation and conflict resolution.

**Spoken Languages:** Arabic, English

**Scholarships and Awards:**

- *Erasmus Mundus - HERMES postdoctoral Scholarship, University of Genoa, Italy, September 2014- May 2015*

**Thesis Supervision:**

- Supervised M.Sc. student, Batool Malkawi, thesis entitled: “A Distributed Community Detection Algorithm for Big Graphs”
- Supervised M.Sc. student, Yemen Al-Jabali, thesis entitled: “A Distributed Clustering Algorithm for Graphs”
- Helped in supervising the PhD candidate Marcos Oliveira at EPFL, March 2019-September 2020. I also acted as an external examiner on his committee upon defending his PhD dissertation entitled “LOW-LATENCY HIGH-BANDWIDTH CIRCUIT AND SYSTEM DESIGN FOR TRIGGER SYSTEMS IN HIGH ENERGY PHYSICS”. The student utilized the fastest known 22-key sorting network, which I discovered, to help improve the performance of trigger selection within the well-known particle collider, the LHC (Large Hadron Collider) at CERN (European Center of Nuclear Research).

**Courses taught:**

- Computer Skills for Scientific Faculties(1931102)
- Discrete Mathematics(1901101)
- Programming Techniques in Special Languages(1901239)
- Cloud Computing(1914254)
- Data Structures(1901233)
- Computer Networks(1901363)
- Theory of Algorithms(1901341)
- Internet of Things(1905430)
- Distributed Systems(1901466)
- Network Programming(1901442)

- Social Media Platforms(1900101)
- University Ethics (3400105)

**References:**

- Dr. Mauro Migliardi, DEI, University of Padova, Italy.
- Dr. Francesco Palmieri, University of Salerno, Salerno, Italy.
- Prof. Hassan Peyravi, Department of Computer Science, Kent State University, USA.