

## Ala'a Z. Alhowaide

Ph.D. in Computer Science, Memorial University of Newfoundland

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## Employment

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Per-course Instructor	Winter 2019, 2022
<ul style="list-style-type: none"> <li>Computer Science Department, Memorial University of Newfoundland</li> </ul>	
Postdoctoral Researcher	Nov. 2021 - Feb. 2022
<ul style="list-style-type: none"> <li>Computer Science Department, Memorial University of Newfoundland</li> </ul>	
Executive Director of Academic	Jul. 2020 – Mar. 2021
<ul style="list-style-type: none"> <li>Graduate Students Union, Memorial University of Newfoundland</li> </ul>	
Teaching Assistant	Jan. 2017 – May 2021
<ul style="list-style-type: none"> <li>Computer Science Department, Memorial University of Newfoundland</li> </ul>	
Lecturer	Oct. 2014 – Aug. 2016
<ul style="list-style-type: none"> <li>Faculty of Computer Sciences and Information Technology, King Faisal University (KFU), KSA</li> </ul>	
Research Assistant	Sept. 2015 – Aug. 2016
<ul style="list-style-type: none"> <li>College of Technological Innovation, Zayed University, UAE</li> </ul>	
Lecturer	Sept. 2012 – July 2014
<ul style="list-style-type: none"> <li>Faculty of Computer and Information Technology, Jordan University of Science and Technology, Jordan</li> </ul>	
Teaching Assistant	Sept. 2011 – May 2012
<ul style="list-style-type: none"> <li>Faculty of Computer and Information Technology, Jordan University of Science and Technology, Jordan</li> </ul>	

## Education

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Ph.D. in Computer Science, Memorial University of Newfoundland (MUN), Canada, Jun. 2021

- Thesis: "Towards autonomous IoT IDSs using Ensemble learning and feature selection methods"

Master's Degree in Computer Science, Jordan University of Science and Technology (JUST), Jordan, May 2012

- Thesis: "SCANS: Stop Character Automatic signature generation System"

Bachelor's Degree in Computer Information Systems, Yarmouk University, Jordan, Jun. 2008

## Research Interests

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- Data mining and analysis
- Machine Learning (ML)
- Big data and dimensionality reduction
- Cybersecurity (Intrusion Detection Systems (IDS))
- Internet of Things (IoT) and smart cities

## Publications

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### Peer-Reviewed Journal Articles

1. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "Ensemble Detection Model for IoT IDS," Internet of Things Journal, Vol. 16, 2021 (**Impact Factor 5.9**)
2. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "Towards the Design of Real-Time IoT NIDS," Cluster Computing, pages 1-14, Jan. 2021 (**Impact Factor 4.4**)
3. Monther Aldwairi, **Alaa Alhowaide**, Wail Mardini. "Anomaly Payload Signature Generation System Based on Efficient Tokenization Methodology," Praise Worthy Prize, International Journal on Communications Antenna and Propagation (IRECAP), Vol. 8, Nov. 2018.
4. **Alaa Al Howaide**, Mohammed I. Khaleel, Ayad M. Salhieh. "Updatable Queue Protocol Based On TCP For Virtual Reality Environment," International Journal of Computer Science, Engineering and Applications (IJCSEA), Vol.1, No.5, Pages 35-46, Oct. 2011.

### Conference Proceedings

1. **Alaa Alhowaide**, Izzat Alsmadi, Bilal Alsinglawi. "Ensemble-based Cyber Intrusion Detection for Robust Smart City Protection", The 21<sup>th</sup> Annual International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT 2024), UAE, Apr. 2024.
2. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "PCA, Random-Forest and Pearson Correlation for Dimensionality Reduction in IoT IDS," 2020 IEEE International IoT, Electronics and Mechatronics Conference (IEMTRONICS), Pages 1-6. Vancouver, BC, Canada, Sept. 2020.
3. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "An Ensemble Feature Selection Method for IoT IDS," 2020 IEEE 6th International Conference on Dependability in Sensor, Cloud and Big Data Systems and Application (DependSys), Pages 41-48, 2020.
4. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "Features Quality Impact on Cyber-Physical Security Systems," IEEE IEMCON, Vancouver, Canada, 2019 (**Best Paper Award**)
5. **Alaa Alhowaide**, Ahmad S. Doulat, Yaser Khamayseh. "Performance Evaluation Of Different Scheduling Algorithms In WiMax," International Journal of Computer Science, Engineering and Applications (IJCSEA), Vol.1, No.5, Pages 103-115, Oct. 2011.
6. **Alaa Al Howaide**, Wail E. Mardini, Yaser Khamayseh, Muneer Bani Yasin. "Fast String-Matching Algorithm," "Proceeding of 2010 International Conference on Management Science and Engineering (MSE 2010), Pages 251-254, Wuhan, China, Oct. 2010.

### Preprints

1. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "Balanced Datasets for IoT IDS." *arXiv preprint arXiv:2301.04008* (2022).

### In progress and development

1. **Alaa Alhowaide**, Izzat Alsmadi, Jian Tang. "Enhancing IoT Intrusion Detection Efficiency: A Dynamic Feature Selection Approach"
2. **Alaa Alhowaide**, Hafez Seliem. "Securing Smart Ambulance System".

## Teaching Experience

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### Memorial University of Newfoundland

- Introduction to programming – online and in-person
- Advanced Object-Oriented Programming (OOP) and HCI
- Programming in C/C++

### King Faisal University (KFU)

- Data mining & data warehousing lab
- Database concepts and design lab
- Advanced OOP lab
- IT project management

### Jordan University of Science and Technology

- Taught and coordinated OOP lab
- Introduction to programming using VB.Net
- Programming in C++
- C++ programming lab

## Honors, Fellowships, Grants, and Awards

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Received Accelerate Fellowship, Mitacs, 2021

Awarded the best “Just a Minute Speech” Award, MUNOF, 2021

Awarded the title “Fellow of the School of Graduate Studies” in recognition of the continued academic excellence throughout the Ph.D. program by SGS, MUN, 2021

Awarded the Department of Computer Science Research Award 2019-2020, Memorial University of Newfoundland, Canada, 2019

Awarded the Best Paper Award for IEEE IEMCON 2019, Vancouver, Canada, 2019

Awarded the Best Presenter Award for IEEE IEMCON 2019, Vancouver, Canada, 2019

Awarded TSEP Inclusive Outcomes-oriented Responsive lens, Memorial University of Newfoundland, Canada, 2017

Graduate assistantships, Memorial University of Newfoundland, Canada, 2016 – 2021

School of Graduate Studies fellowships, Memorial University of Newfoundland, Canada, 2016

Outstanding faculty member, Faculty of Computer Sciences and Information Technology, King Faisal University, KSA, 2016

Ranked 2nd out of 42 in master’s degree in Computer Science, Jordan University of Science and Technology, Jordan, 2012

Ranked 1st out of 110 students in bachelor’s degree during the years 2004-2007, Yarmouk University, Jordan, 2004-2007

Outstanding student scholarship granted three times in the years 2004-2006, Ministry of High Education for scientific excellence in BSc degree, Jordan, 2004-2006

## **Professional and Academic Service**

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Reviewer at Journal of Cybersecurity, Present  
Reviewer at Cluster Computing Journal, Present  
Reviewer at Internet of Things Journal, Present  
Reviewer at Computers and Security Journal, 2021  
PC member, The 4th IEEE International Symposium on Future Cyber Security Technologies (FCST 2021), 2021  
Reviewer, ICECT-2021: International Conference on Engineering & Computing Technologies, 2021  
Technical Program Committee, Security and Privacy Track, International Conference on Innovations in Information Technology (IIT'20), UAE, 2020  
Technical Program Committee member in The International Conference on Information and Communication Systems as (ICICS), Jordan University of Science and Technology, Jordan, 2012 - 2020  
PC member of Track 3: Security, Privacy and Trust in International Conference on Computer Systems and Applications (AICCSA), ACS/IEEE, UAE, 2019  
Steering Committee assistant in Algorithms and Data Structures Symposium (WADS), Memorial University of Newfoundland, Canada, 2017  
Reviewer in International Journal of Computer Science, Engineering and Applications (IJCSEA), 2011-2012

## **Industrial/Non-Academic Experience**

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Software Developer, Verafin, Newfoundland, Apr. 2022-Aug. 2023  
Software Developer, Spider Financial, Jordan, 2008-2009  
Developer- Microsoft Summer Internship Program (MISP), Jordan, 2006

## **Technical Skills**

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Languages: Java, Python (OOP, NumPy, SciKitLearn, Matplotlib, Pandas), C++, C#, VB, HTML  
Standard technologies: XML, SQL, ADO.Net  
Development tools: Spyder, Jupyter, IDLE, Eclipse, NetBeans, MS Visual Studio, SVN, Drupal CRM, Rational Rose, Oracle 9i, MySQL SQLyog, Oracle, Gimp, Macromedia Flash, Photoshop CS3, Illustrator CS3  
Data analysis: MS Azure, SciKit-Learn, Weka, Rapid Miner  
Version control: GitHub, FileZilla  
Project development: Agile, Scrum, Waterfall  
OS: Windows, Unix

## **Referees**

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Prof. Jian Tang  
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More available upon request.