

FAHEEM ULLAH

Assistant Professor, College of Interdisciplinary Studies
Zayed University, Abu Dhabi, UAE
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RESEARCH INTERESTS

Cyber Security, Artificial Intelligence, Software Engineering

EDUCATION

PhD in Computer Science *Aug 2016 - June 2020*

The University of Adelaide, Australia

BS Honours in Computer System Engineering *Sept 2009 - Sept 2012*

GIK Institute of Engineering and Technology, Pakistan

TEACHING EXPERIENCE

Assistant Professor *Jan 2024 - Present*

Zayed University, Abu Dhabi, UAE

- Designed and taught the following courses
 - Machine Learning
 - Applied Neural Networks and Deep Learning
 - Problem Solving with Data Structures and Algorithms
 - Information Security and Data Privacy
- Coordinated the development and delivery of Machine Learning course
- Part of the task force developing Applied AI program for ZU
- Leading two research projects as PI
- Supervising 5 final year projects
- Member of the research committee
- Member of the recruitment committee

Assistant Professor *Mar 2022 - Dec 2023*

The University of Adelaide, Australia

- Designed and taught the following courses
 - Concepts in Cyber Security
 - Secure Software Engineering
 - Cyber Security Industry Projects
 - Cyber Security Research Projects
- Supervised PhD and Master students

- Led the R&D of big data cluster at CREST
- Led CSCRC research project as Co-PI

Program Director for Cyber Security

Mar 2022 - Dec 2023

The University of Adelaide, Australia

- Provided academic leadership for Master of Cyber Security Program
- Ensured courses are aligned with the academic and professional accreditation needs
- Mentored subject matter experts and course coordinators
- Conducted student recruitment webinars

Casual Lecturer

Mar 2019 - Nov 2019

The University of Adelaide, Australia

- Designed and taught the following courses
 - Software Architecture
 - Software Requirements Engineering

Associate Lecturer

Mar 2017 - Nov 2018

The University of Adelaide, Australia

- Taught and supported the delivery of the following courses
 - Software Design and Analysis
 - Software Requirements Engineering
 - Software Architecture

Associate Lecturer

Nov 2014 - Sept 2015

GIK Institute of Engineering and Technology, Pakistan

- Designed and conducted lab sessions for the following courses
 - Circuit Analysis
 - Micro controller and Interfacing
 - Computer Architecture
- In-charge of activities (e.g., competitions) in Software Engineering Lab
- Coordinated events of student societies such as ACM and NETRONICS
- Member of the team responsible for Faculty Self-Assessment Program

Associate Lecturer

Aug 2013 - Oct 2014

Center for Advanced Studies in Engineering (CASE), Pakistan

- Designed and conducted lab sessions for the following courses
 - Data Structures and Algorithms
 - Programming Techniques
 - Object Oriented Programming
 - Computer Architecture
 - Computer Organization and Assembly Language

- Digital Logic Design
- In-charge of activities (e.g., competitions) in Software Engineering Lab
- Coordinated events of student societies such as ACM and NETRONICS
- Member of the team responsible for Faculty Self-Assessment Program

RESEARCH EXPERIENCE

Postdoctoral Research Fellow

Aug 2020 - Feb 2022

The University of Adelaide, Australia

- Led the R&D of two industrial projects.
 - The first project was about big data analytics and cloud computing funded by Defense Science and Technology (DSTG), Australia.
 - The second project, supported and funded by Cyber Security Cooperative Research Center (CSCRC) and Cisco, focused on the cyber security of command-and-control systems.
- Co-supervised 2 PhD students and 10+ Master students
- Managed a software development team consisting of 3 developers
- Member of the team responsible for Faculty Self-Assessment Program

Research Assistant

Mar 2020 - July 2020

The University of Adelaide, Australia

- Worked on “Big data analytics for Upstream Oil & Gas Sector” research project for Defense Science and Technology (DSTG), Australia.

INDUSTRY EXPERIENCE

Project Manager

Nov 2016 - Nov 2017

The University of Adelaide, Australia

- Responsible for the management of the project, funded by the University of Adelaide, aimed at developing a mobile application (SuperSort) to educate students about proper disposal of waste.

Software Developer

May 2013 - July 2013

TECNEX, Pakistan

- Worked on a project about the design and development of hospital management system where I was specifically working on bug removal from the code.

AWARDS AND HONORS

Gold Medalist

Year 2007

Board of Intermediate and Secondary Education Mardan
Award: 1st Position among 57,000 students in SSC Exam

Gold Medalist

Year 2009

Board of Intermediate and Secondary Education Peshawar
Award: 1st Position among 62,000 students in HSSC Exam

Bronze Medalist *Year 2013*
Faculty of Computer Engineering, GIK Institute
Award: 3rd position holder in the Faculty of Computer Engineering in BS Honors

Deans Honor for Academic Excellence *2011 - 2013*
Faculty of Computer Engineering, GIK Institute
Award: Received academic distinction awards in 4th-8th semester of BS degree

Most Cited Paper *Year 2022*
Journal of Systems and Software
Award: My research paper titled 'Architectural Tactics for Big Data Cyber Security Analytics: A Review' ranked among the most cited paper between 2018 – 2022

Best Paper Award Nominee *Year 2017*
International Conference on Evaluation of Novel Approaches to Software Engineering
Award: My research paper titled 'Security Support for Continuous Deployment Pipeline' got nominated for best paper award.

RESEARCH GRANTS & FUNDED PROJECTS

Research Intensive Fund, Zayed University *Year 2025*
The Dual Edge of AI - Security Implications of Integrating AI in Mobile Applications
Duration: 2026 - 2027
Principle Investigator: Faheem Ullah
Grant Amount: *AUD 248,000*

Ministry of Education, Saudi Arabia *Year 2025*
Revolutionizing Urban Planning in Saudi Arabia with AI: From NEOM to the Red Sea
Duration: 2025 - 2026
Co-Investigator: Faheem Ullah
Grant Amount: *SAR 50,000*

Start Up Grant, Zayed University *Year 2024*
Dynamic Risk Assessment for IoT-based Smart Cities
Duration: 2024 - 2025
Principle Investigator: Faheem Ullah
Grant Amount: *AED 30,000*

Short Term Grant, Zayed University *Year 2024*
Machine Learning for Detecting Data Exfiltration Attacks
Duration: 2024 - 2025
Principle Investigator: Faheem Ullah
Grant Amount: *AED 10,000*

Cyber Security Cooperative Research Centre, Australia *Year 2022*
SCReed – Sharing Cyber Security Data for Australian Research

Duration: 2022 - 2024
Co-Investigator: Faheem Ullah
Grant Amount: AUD 540,000

Adelaide Summer Research Scholarship

Year 2022

Big Data Analytics for Climate Change Analysis
Duration: Nov 2022 - Feb 2023
Principle Investigator: Faheem Ullah
Grant Amount: AUD 2,400

Adelaide Summer Research Scholarship

Year 2022

Securing of Big Data Systems
Duration: Nov 2022 - Feb 2023
Principle Investigator: Faheem Ullah
Grant Amount: AUD 1,200

Faculty of Sciences, Engineering, and Technology (The University of Adelaide)

Year 2021

Machine Learning for Detecting Data Exfiltration Attacks
Duration: Nov 2021 - Feb 2022
Principle Supervisor: Faheem Ullah
Grant Amount: AUD 1,200

Cyber Security Cooperative Research Centre, Australia

Year 2021

Automated Security Assessment for the Internet of Things
Duration: Nov 2021 - Feb 2022
Principle Supervisor: Faheem Ullah
Grant Amount: AUD 7,200

Cyber Security Cooperative Research Centre & Faculty of SET (University of Adelaide)

Year 2021

Protecting SDN against Packet Injection Attacks
Duration: Nov 2021 - Feb 2022
Principle Supervisor: Faheem Ullah
Grant Amount: AUD 4,800

Adelaide Graduate School (The University of Adelaide)

Year 2021

User Behavioural Analytics for Healthcare Security
Duration: 2021 - 2024
Project Designer: Faheem Ullah
Grant Amount: 1 PhD Scholarship AUD 27,000/year

PUBLICATIONS

Journal Articles

J13. Hussain Ahmad, **Faheem Ullah**, and Rehan Jafri. "A survey on immersive cyber situational awareness systems." *Journal of Cybersecurity and Privacy* 5, no. 2 (2025): 33. *Impact Factor: 4.4*

J12. **Faheem Ullah**, Shagun Dhingra, Xiaoyu Xia, and M. Ali Babar. "Evaluation of distributed data processing frameworks in hybrid clouds." *Journal of Network and Computer Applications* 224 (2024): 103837.

Impact Factor: 6.28

J11. Majid Abdulsatar, Hussain Ahmad, Diksha Goel, **Faheem Ullah**. “Towards Deep Learning Enabled Cybersecurity Risk Assessment for Microservice Architectures” *Journal of Cluster Computing* (2024). *Impact Factor: 3.6*

J10. Raveen Kanishka Jayalath, Hussain Ahmad, Diksha Goel, Muhammad Shuja Syed, **Faheem Ullah**. “Microservice vulnerability analysis: A literature review with empirical insights” *IEEE Access* (2024). *Impact Factor: 3.4*

J9 Yaser Mansouri, **Faheem Ullah**, Shagun Dhingra, and M. Ali Babar. ”Design and implementation of fragmented clouds for evaluation of distributed databases.” *IEEE Transactions on Cloud Computing* (2023). *Impact Factor: 5.0*

J8. Phu, Anh Tuan, Bo Li, **Faheem Ullah**, Tanvir Ul Huque, Ranesh Naha, Muhammad Ali Babar, and Hung Nguyen. ”Defending SDN against packet injection attacks using deep learning.” *Computer Networks* 234 (2023): 109935. *Impact Factor: 4.8*

J7. Hussain Ahmad, Isuru Dharmadasa, **Faheem Ullah**, and M. Ali Babar, A Review on C3I Systems’ Security: Vulnerabilities, Attacks, and Countermeasures, *ACM Computing Surveys*, 2022. *Impact Factor: 14.32*

J6. Yaser Mansouri, Victor Prokhorenko, **Faheem Ullah**, and M. Ali Babar, Resource Utilization of Distributed Databases in Edge-Cloud Environment, *IEEE Internet of Things Journal*, 2022. *Impact Factor: 10.23*

J5. **Faheem Ullah**, M. Ali Babar, Aldeida Aleti, Design and Evaluation of Adaptive System for Big Data Cyber Security Analytics, *Journal of Expert Systems with Applications*, 2022, Elsevier. *Impact Factor: 8.66*

J4. **Faheem Ullah** and M. Ali Babar, On the Scalability of Big Data Cyber Security Analytics, *Journal of Network and Computer Applications (JNCA)*, 2021, Elsevier. *Impact Factor: 6.28*

J3. Bushra Sabir, **Faheem Ullah**, M. Ali Babar, and Raj Gaire. ”Machine Learning for Detecting Data Exfiltration: A Review.” *ACM Computing Surveys (CSUR)* 54, no. 3 (2021): 1-47. *Impact Factor: 14.32*

J2. **Faheem Ullah** and M. Ali Babar, Architectural Tactics for Big Data Cybersecurity Analytics: A Review, *Journal of Systems and Software (JSS)*, Volume 151, Pages: 81-118, 2019, Elsevier. *Impact Factor: 2.82*

J1. **Faheem Ullah**, Matthew Edwards, Rajiv Ramdhany, Ruzanna Chitchyan, M. Ali Babar, and Awais Rashid, Data Exfiltration: A Review of External Attack Vectors and Countermeasures, *Journal of Network and Computer Applications (JNCA)*, Volume 101, Pages: 18-54, 2018, Elsevier. *Impact Factor: 6.28*

Conference Papers

C14. Pragma Kaushik, **Faheem Ullah**, and Muhammad Imran Taj. ”Mapping Industry Demands for Digital Forensics: A Study of Penetration Tester Requirements.” In 2025 12th IFIP International Conference on New Technologies, Mobility and Security (NTMS), pp. 8-16. IEEE, 2025.

C13. Luca Canala, Muhammad Uzair, **Faheem Ullah**, Babar Shah. Enhancing Mobile AI: Feature-Based Knowledge Distillation for Efficient Image Classification. 19th International Conference on Information Technology and Applications (ICITA 2025)

C12. Shouq Alseieri, Hoor Alkathieri, **Faheem Ullah**, Muhammad Imran Taj, From Air to Water: Harnessing Artificial Intelligence to Tackle UAE’s Water Scarcity, Student Research Conference on Applied Computing, UAE, 2025.

C11. **Faheem Ullah**, Liwei Wang, Uswa Fatima, and Muhammad Imran Taj. ”Data Breaches: What Happened over the Last 20 Years?.” *International Conference on Data Science, Technology and Applications (DATA)*(2025).

C10. Samuel Beahan, **Faheem Ullah**, Lachlan Chalmers, Uswa Fatima, Mojtaba Shahin, “Characterizing Vulnerabilities in Microservices: Source, Age and Severity”, International Conference on Software Architecture (ICSA), Odense Denmark, 2025.

C9. Tyllis, Nikolas, **Faheem Ullah**, and Muhammad Uzair. ”An Exploratory Study of Vulnerabilities in Big Data Systems.” In 2023 IEEE International Conference on Big Data (BigData), pp. 1360-1367. IEEE, 2023.

C8. Dharmadasa, Isuru, and **Faheem Ullah**. ”Co-Tuning of Cloud Infrastructure and Distributed Data Processing Platforms.” In 2023 IEEE International Conference on Big Data (BigData), pp. 207-214. IEEE, 2023.

C7. **Faheem Ullah**, and Muhammad Ali Babar. ”Guidance Models for Designing Big Data Cyber Security Analytics Systems.” In European Conference on Software Architecture, pp. 70-80. Cham: Springer Nature Switzerland, 2023.

C6. Rana Aurangzaib, Waheed Iqbal, Muhammad Abdullah, Faisal Bukhari, **Faheem Ullah**, Abdelkarim Earradi. Scalable Containerized Pipeline for Real-time Big Data Analytics. International Conference on Cloud Computing Technology and Science (CloudCom), Perth, Australia.

C5. Xuanyu Duan, Mengmeng Ge, Triet HM Le, **Faheem Ullah**, Shang Gao, Xuequan Lu, M Ali Babar. Automated Security Assessment for the Internet of Things. International Symposium on Dependable Computing (PRDC), Perth, Australia

C4. **Faheem Ullah** and M. Ali Babar, Quantifying the Impact of Design Strategies for Big Data Cyber Security Analytics Systems: An Empirical Investigation, In Proceedings of the 20th International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT), Gold Coast, Australia, 2019

C3. **Faheem Ullah** and M. Ali Babar, QuickAdapt: Scalable Adaptation for Big Data Cyber Security Analytics, In Proceedings of the 24th International Conference on Engineering of Complex Computer Systems (ICECCS), Guangzhou, China, 2019

C2. **Faheem Ullah** and M. Ali Babar, An Architecture-driven Adaptation Approach for Big Data Cyber Security Analytics, In Proceedings of the International Conference on Software Architecture (ICSA), Hamburg, Germany, 2019

C1. **Faheem Ullah**, Adam Johannes Raft, Mojtaba Shahin, Mansooreh Zahedi, and M. Ali Babar, Security Support in Continuous Deployment Pipeline, In Proceedings of 12th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE), Pages: 57-68, Porto, Portugal, 2017

PhD Thesis

T1. **Faheem Ullah**, Towards Quality-centric Design and Evaluation of Big Data Cyber Security Analytics Systems, PhD Thesis, The University of Adelaide, Australia, June 2020.

SCHOLARSHIPS

Fully funded PhD Scholarship *Year 2016*

Offered by: School of Computer Science, The University of Adelaide, Australia

Higher Secondary School Scholarship *Year 2009*

Offered by: Hamdard Foundation

Higher Secondary School Scholarship *Year 2007*

Offered by: Hamdard Foundation

STUDENT SUPERVISION

PhD Students

Yongzheng Xie 2020 - 2024
Topic: AI-based Failure Detection and Root Cause Analysis
Affiliation: The University of Adelaide, Australia

Hussain Ahmad 2021 - 2022
Topic: Engineering Secure ML based Cybersecurity Systems
Affiliation: The University of Adelaide, Australia

Master Students

Mohideen Abdul Jan 2023 - Sept 2023
Topic: Machine Learning for Detecting Data Exfiltration Attacks
Affiliation: The University of Adelaide, Australia

Kaiyun Yu Oct 2022 - May 2023
Topic: Comparative Security Analysis of Microservice and Monolithic Architectures
Affiliation: The University of Adelaide, Australia

Che-Fu Oct 2022 - May 2023
Topic: Security Analysis of Microservice Architecture based on Stack Overflow Posts
Affiliation: The University of Adelaide, Australia

Jianwei He May 2022 - Dec 2022
Topic: Identifying Security Issues Based on Mobile App Reviews
Affiliation: The University of Adelaide, Australia

Yuen Yuen May 2022 - Dec 2022
Topic: Identifying Security Issues Based on Mobile App Reviews
Affiliation: The University of Adelaide, Australia

Xiaohan Ye May 2022 - Dec 2022
Topic: Topic: What Expertise Security Professionals Need
Affiliation: The University of Adelaide, Australia

Yuxi Wu May 2022 - Dec 2022
Topic: Machine Learning Skills for Cyber Security Professionals
Affiliation: The University of Adelaide, Australia

Imaduddin Mohammed Feb 2021 - Oct 2021
Topic: Energy-aware Task-offloading for Big Data Platforms in Edge-Cloud Environment
Affiliation: The University of Adelaide, Australia

The Trung Le Feb 2021 - Oct 2021

Topic: The Impact of Node Failure and Node Addition on the Performance of Big Data Platforms

Affiliation: The University of Adelaide, Australia

Shagun Dhingra

Sept 2020 - May 2021

Topic: Performance Evaluation of Hadoop, Spark, and Flink in Hybrid Clouds

Affiliation: The University of Adelaide, Australia

Atukoralage Kusala Rajakaruna

Sept 2020 - May 2021

Topic: Co-tuning of Cloud and Big Data System

Affiliation: The University of Adelaide, Australia

Sharon Khate Damaso

Sept 2020 - May 2021

Topic: Co-tuning of Cloud and Big Data System

Affiliation: The University of Adelaide, Australia

Trung Ky Moc

Feb 2020 - Oct 2020

Topic: IoT Edge Processing for Smart Parking System

Affiliation: The University of Adelaide, Australia

Anying Xiang

Feb 2019 - Oct 2019

Topic: Scalable and Reliable Big Data Cyber Security Analytics with Spark

Affiliation: The University of Adelaide, Australia

PROFESSIONAL AND SCIENTIFIC SERVICES

- Reviewer for several conferences (e.g., ICSE and ICSE) and journals (e.g., ACM Computing Surveys and Empirical Software Engineering Journal)
- Session chair for security and privacy at International Conference on Software Architecture (ICSA), 2021
- Web chair for Australasian Software Engineering Conference (ASWEC), Adelaide, 2018
- Coordinated activities of Software Engineering Lab as lab In-charge at Faculty of Computer Science & Engineering (FCSE), GIKI
- Prepared a report of 115 pages for the Self-Assessment of Computer Science Program at FCSE, GIKI
- Supervised 15th SOFTCOM Student's Society Gaming Competition at GIKI
- Supervised Final Year Project's exhibition 2015 at Department of Computer Science at GIKI

THESIS EXAMINER

PhD Thesis Examined

Candidate: Ahmad Abubakar Mustapha

Year 2025

Thesis Title: Improving Homeland Security and Safeguarding Critical Infrastructure through Machine Learning Techniques

VIT-AP University, India

Candidate: Nectarios Costadopoulos

Year 2023

Thesis Title: Detection of Emotional Stress from Physiological Data using Wearables

University: Charles Sturt University, Australia

Master by Research Thesis Examined

Candidate: Osama Al Haddad

Year 2025

Thesis Title: Evaluating the Performance of Large Language Model and Prompting Technique Combinations for Vulnerability Prioritisation

University: Macquarie University, Australia

Candidate: Md Mahbub Islam Bhuiyan

Year 2024

Thesis Title: Membership Inference Via Backdooring in Image-Based Malware Classification

University: Macquarie University, Australia

Candidate: T Piyumi Wathsala Seneviratne

Year 2024

Thesis Title: Analysis of Users' Engagement with Conspiracy Content on YouTube

University: Macquarie University, Australia

REFERENCES

To be provided on request.