Dr. Njoud O. Al-Maaitah

Assistant Professor of Computer Science | Mutah University, Jordan

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ACADEMIC PROFILE

Assistant Professor of Computer Science specializing in data science and high-performance computing (HPC), with research interests in I/O performance modeling, interference-aware job scheduling, malleable applications, and trace-driven simulation. Research experience includes simulation-based performance analysis using ElastiSim and I/O trace analysis. Engaged in undergraduate teaching, research development, and academic service.

RESEARCH INTERESTS

High-Performance Computing (HPC) • Parallel I/O and Storage Performance • I/O Interference-Aware Scheduling • Malleable Jobs • Performance Modeling and Simulation

EDUCATION

Ph.D. in Computer Science — Universidad Carlos III de Madrid (UC3M), Spain | 2023 | Excellent

M.Sc. in Computer Science — The University of Jordan, Jordan | 2014 | Excellent

B.Sc. in Computer Science — Mutah University, Jordan | 2011 | Excellent; ranked first in graduating cohort

ACADEMIC APPOINTMENTS

Assistant Professor, Department of Computer Science, Mutah University, Jordan | 2025–Present

Assistant Dean for Laboratory Affairs, Mutah University, Jordan | 2025–2026

Assistant Director, International Relations Office, Mutah University, Jordan | 2017–2022

Lecturer, Department of Computer Science, Mutah University, Jordan | 2014–2025

IT Internal Auditor, Central Bank of Jordan, Jordan | 2012–2014

Research and Teaching Assistant, The University of Jordan, Jordan | 2012–2013

HONORS AND SCHOLARSHIPS

Merit Scholarship for Outstanding Students, Ministry of Higher Education and Scientific Research, Jordan — M.Sc. studies.

Ranked first in B.Sc. graduating cohort, Mutah University (2011).

Graduated with Excellent distinction in B.Sc. (2011), M.Sc. (2014), and Ph.D. (2023).

FUNDED INTERNATIONAL RESEARCH PROJECTS

ADMIRE — Adaptive Multi-tier Intelligent Data Manager for Exascale | Researcher, Universidad Carlos III de Madrid (UC3M), Spain. European Union Horizon 2020 / EuroHPC Joint Undertaking | Grant Agreement No. 956748 | Project duration: April 2021–June 2024. Conducted doctoral research on performance-driven scheduling for malleable HPC workloads, developing and evaluating scheduling algorithms using the ElastiSim simulation framework. Listed among UC3M researchers on the EU-funded ADMIRE project. Official references: https://researchportal.uc3m.es/display/act544737 | https://cordis.europa.eu/project/id/956748

JOB-JO — Promoting Youth Employment in Remote Areas in Jordan | Project Team Member, Mutah University, Jordan. Erasmus+ Capacity Building in Higher Education (CBHE) | Project No. 598428-EPP-1-2018-1-JO-EPPKA2-CBHE-JP | Project period: 2018–2022. Participated in the EU-funded JOB-JO initiative, coordinated by Mutah University, to strengthen graduate employability in remote areas of Jordan through training, entrepreneurship support, and university-based business bureaus. Specific individual responsibilities to be confirmed. Official project information: https://www.mutah.edu.jo/job-jo/index.aspx

SELECTED RESEARCH EXPERIENCE

- HPC I/O behavior modeling and simulation: investigated application I/O behavior using trace-based characterization and simulation, including work with Darshan traces and ElastiSim.
- I/O interference-aware scheduling: developing and evaluating scheduling strategies that account for parallel file system congestion, performance prediction, and job deferral constraints.
- Malleability-based congestion mitigation: studying how flexible resource allocation can influence scheduling decisions and I/O contention.

PUBLICATIONS AND MANUSCRIPTS

PEER-REVIEWED JOURNAL ARTICLES

2026 | Alnawafleh, A., Al-maaitah, D. A., Almomani, T. M., Alkawaja, M., AL Hawamdeh, H. M., Al-badaineh, G., **Almaaitah, N. O.,** & Qatawneh, N. "The impact of business intelligence on business project development and sustainability: The mediating role of electronic leadership." International Journal of Data and Network Science, 10 (2026). https://doi.org/10.5267/j.ijdns.2025.12.010

2025 | Al-Maaitah, N. O., García-Blas, J., Sanchez-Gallegos, G., Carretero, J., Vef, M.-A., & Brinkmann, A. "A comparative study of ad-hoc file systems for extreme scale computing." Future Generation Computer Systems, 170, 107815. https://doi.org/10.1016/j.future.2025.107815.

2024 | Almaaitah, N. O., Singh, D. E., Özden, T., & Carretero, J. "Performance-driven scheduling for malleable workloads." The Journal of Supercomputing, 80, 11556–11584. https://doi.org/10.1007/s11227-023-05882-0

2024 | **Almaaitah, N. O.**, Singh, D. E., Özden, T., Raffaelle, M., & Carretero, J. "Malleable I/O applications modeling with ElastiSim." Avances en Arquitectura y Tecnología de Computadores, Jornadas SARTECO 2024 (JP2024), A Coruña, Spain.

2022 | **Almaaitah, N. O.,** & Almaaitah, G. "The impact of online learning during the COVID 19 pandemic on computer science students' programming skills." Science International (Lahore), 34(2), 175–182.

2022 | Almaaitah, N. O. "User-level file systems deployment in HPC between improvements and limitations." Science International, 34(6), 487–491.

2019 | Al-Maaitah, N. O. "TCP AT-ER: TCP adaptive timeout based-on early retransmission over MANET." Journal of Theoretical and Applied Information Technology, 97(24).

2014 | Almobaideen, W. A., & **Al-maitah, N. O**. "TTAF: TCP timeout adaptivity based on fast retransmit over MANET." Journal of Networks, 9(12), 3321–3326. https://doi.org/10.4304/jnw.9.12.3321-3326

2014 | Almobaideen, W. A., & **Al-maitah, N. O.** "TCP Karak: A new TCP AIMD algorithm based on duplicated acknowledgements for MANET." International Journal of Communications, Network and System Sciences, 7(9), 396–407. https://doi.org/10.4236/ijcns.2014.79041

PEER-REVIEWED CONFERENCE PAPERS

2025 | Al-Maaitah, T. A., Al-Maaitah, D. A., Bait Kamuna, B. M. R., Alraqqad, R. M. R., Qawasmeh, E. F., & **Almaaitah, N. O.** "Electronic Commerce in the ERA of Generative Artificial Intelligence." 2025 3rd International

Conference on Cyber Resilience (ICCR), Dubai, United Arab Emirates, pp. 1–8. https://doi.org/10.1109/ICCR67387.2025.11292232

PREPRINTS

2026 | Almaaitah, N. O., Singh, D. E., Özden, T., Carretero, J., & Montella, R. "Characterizing the I/O behavior of HPC applications through modeling and simulation." arXiv:2608.27642. https://arxiv.org/abs/2608.27642 (Preprint; journal/conference publication not verified).

TEACHING EXPERIENCE

Undergraduate courses taught: Data Structures; Object-Oriented Programming (C++); Introduction to Programming (C++); Discrete math; Computer and Network Security, Special topics in computer science, Computing theory, Computer Networks.

ACADEMIC SERVICE AND LEADERSHIP

- Member, Course Equivalency Committee, Department of Computer Science, Mutah University.
- Leader, Committee for Development of the International Affairs Office Website, Mutah University.
- Member, Curriculum Development Committee, Department of Computer Science, Mutah University.

TECHNICAL SKILLS

Programming: Python, C++ | Research tools: ElastiSim, Darshan, simulation and trace analysis, traces repository| Systems: Linux and Windows| Scientific writing: LaTeX.

CERTIFICATIONS

PCEP™ – Certified Entry-Level Python Programmer | May 2026.

PROFESSIONAL DEVELOPMENT & SPECIALIZED TRAINING

International and Academic Development

- High-Level Event on Horizon Europe | Participated in a high-level event on Horizon Europe, focusing on European research funding opportunities and international research collaboration| Amman, Jordan | October 28, 2026.
- INVENT — Promotion of Innovation Culture in Higher Education | Porto, Portugal | January 2018
- Promoting Youth Employment — JOB-JO Erasmus+ Project | Leipzig University of Applied Sciences (HTWK), Germany | August 2019

Technical and Professional Training

- Oracle Applications R12.x: System Administrator Fundamentals | ITCC Training Center, Central Bank of Jordan | April 2014
- Oracle Database 11g: Security Release 2 | ITCC Training Center, Central Bank of Jordan
- Computer Security | Central Bank of Jordan
- Mobile Payment Systems (JoMoPay) | Central Bank of Jordan
- Preparing Internal Audit Reports in Accordance with International Standards | Central Bank of Jordan

UNDERGRADUATE GRADUATION PROJECT SUPERVISION

Mutah University, Department of Computer Science | Academic Year 2025/2026 (First Semester)

- **Smart IT faculty —** Bachelor's graduation project (Project 2); supervised a team of five students.
- **AI-Enhanced Web-Based School Management System for Student Performance Analytics —** Bachelor's graduation project (Project 2); supervised a team of five students.

- **SIEM With AI —** Bachelor's graduation project (Project 2); supervised a team of five students.
- **Quiz AI —** Bachelor's graduation project (Project 2); supervised a team of six students.