

Syed Mafooq UI Hassan

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Profile

PhD student and Research Associate specializing in intelligent resource management across the cloud-edge-IoT continuum. Currently, working at DICL (Cyprus University of Technology) on Kubernetes-based simulation, multi-agent reinforcement learning, and scheduling for hyper-distributed systems.

Education

- 2024–Present **PhD in Computer Science**, *Cyprus University of Technology (DICL)*, Limassol, Cyprus
Research: Intelligent Resource Management in IoT–Edge–Cloud Continuum.
- 10/2024–01/2025 **Blended Intensive Program (Internet of Things)**, *Technological University Dublin*, Dublin, Ireland
BIP Theme: Internet of Things (IoT), Communication Protocols, Data Management.
- 2022–05/2024 **M.Sc. in Intelligent Critical Infrastructure Systems**, *University of Cyprus*, Nicosia, Cyprus
GPA: 7.49/10.
Thesis: *Generating Synthetic Images using Generative Adversarial Networks for Deep Learning Algorithm Training in Emergency Response*.
Scholarship: Tuition Scholarship (50%) from KIOS Center of Excellence.
- 2017–07/2021 **B.Sc. in Electrical Engineering**, *National University of Computer & Emerging Sciences (FAST-NUCES)*, Peshawar, Pakistan
GPA: 3.77/4.00.
Thesis: *Grid Automation and Monitoring using Internet of Things (IoT)*.

Experience

- 08/2024–Present **Research Associate**, *Data Intensive Computing Laboratory (DICL)*, *Cyprus University of Technology*, Limassol, Cyprus
- Conduct research on *Resource Management in the IoT, Edge, and Cloud Continuum* (Hyper-AI).
 - Lead development of a Kubernetes-based workload simulator for MARL scheduling across the cloud-edge-IoT continuum.
 - Collaborate with interdisciplinary teams to analyze complex continuum problems and maintain reproducible pipelines and documentation.
- 09/2025–12/2025 **Teaching Assistant (Apprenticeship)**, *European University of Technology*, Cyprus (Hybrid)
- Supported the delivery of the Blendid Intensive Program (BIP) by assisting in labs and guiding students through hands-on IoT and application pipeline exercises.
 - Provided technical mentorship during both online and on-site sessions; contributed to project supervision, troubleshooting, and smooth delivery for an international cohort.
 - Tools/skills: Data Visualisation, Node-RED, IoT application pipelines.
- 06/2023–05/2024 **Teaching Assistant**, *University of Cyprus*, Nicosia, Cyprus
- TA to Prof. Stavros Iezekiel for *Electronic Devices and Circuits*; conducted tutorials and exam invigilation.
 - Managed grading and assisted with instructional materials aligned to course objectives.

- 01/2022– **Research Engineer I**, *KIOS Center of Excellence*, Nicosia, Cyprus
- 06/2024
- Developed *QSU2*, a QGIS plugin for generating .su2 files (PathoCERT, EU-funded).
 - Worked on the PathoCERT Water project; performed CFD simulations of water surface level for contamination evolution.
 - Contributed to Oceanos-xlsx QGIS plugin and studied interdependencies across Critical Infrastructures.
- 08/2018– **Teaching Assistant**, *National University of Computer & Emerging Sciences*, Peshawar, Pakistan
- 12/2020
- Supported courses: Microprocessor Interfacing & Programming, Electronic Devices & Circuits, Programming Fundamentals, Applied Calculus.
 - Mentored students, ran labs, and improved student outcomes via one-on-one support.
- 08/2020– **General Secretary**, *IEEE FAST Peshawar Student Branch*, Peshawar, Pakistan
- 05/2021
- Managed events and voluntary reporting; organized *NUTECH 2021*.
- 08/2020– **Vice President**, *FAST HOPE Society*, Peshawar, Pakistan
- 05/2021
- Organized a blood donation camp for Shaukat Khanum Memorial Hospital and a Kids-Skill program for basic computer literacy.

Publications

- 2026 **S. M. UI Hassan**, M. Touloupou, J. Castellini, P. Strasser, A. Kalousis, and H. Herodotou. “DARO: An Auction-Based Multi-Agent Reinforcement Learning Framework for Task Scheduling in the Cloud Continuum.” In *Proceedings of the 16th International Conference on Cloud Computing and Services Science (CLOSER 2026)*, pp. 293–300.
- 2026 M. Touloupou, **S. M. UI Hassan**, J. Castellini, P. Strasser, A. Kalousis, and H. Herodotou. “A Modular Kubernetes Workload Simulator for Evaluating Learning-Based Scheduling Policies.” Demo paper in *Proceedings of the 17th International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING 2026)*, pp. 1–2.
- 2026 M. Loukeris, N. Deligiannakis, V. Papataxiarhis, P. Kechriniotis, S. Hadjiefthymiades, **S. M. UI Hassan**, H. Herodotou, and N. Louca. “Hypertool: A Resource Abstraction and Lifecycle Management Framework for Heterogeneous Cloud Environments.” In *Proceedings of the 17th International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING 2026)*, pp. 9–12.
- 2026 N. Deligiannakis, V. Papataxiarhis, M. Loukeris, S. Hadjiefthymiades, M. Touloupou, **S. M. UI Hassan**, et al. “DACCA: Distributed Adaptive Cloud Continuum Architecture.” *Future Internet*, vol. 18, no. 2, article 74, 2026.

Projects

- KWEST Open-source Kubernetes Workload Evaluation and Scheduling Testbed for the Cloud-Edge-IoT Continuum.
Repo: <https://gitlab.eclipse.org/eclipse-research-labs/hyper-ai-project/k8s-workload-simulator/-/tree/main>
- Integration of PV & Battery Systems Designed and developed a controllable grid-tied inverter to integrate PV and battery systems with the electrical grid.
- San Francisco MFD via SUMO Derived Macroscopic Fundamental Diagrams from SUMO simulations across peak-hour scenarios; analyzed flow–density and speed–density characteristics.
- RSA with Dedicated Protection Explored routing & spectrum allocation in static optical networks using Dijkstra + first-fit; compared disjoint protection strategies and blocking rates.
- Hydraulic/Water-Quality EPANET Toolkit Modeled pressures, inflows, chlorine dynamics; developed contamination detection logic (e.g., arsenic) and sensor-placement analysis.

Mesh IoT with LoRa + Blynk Built a mesh IoT temperature monitoring system with LoRa comms and Blynk dashboard integration.

Grid Automation using IoT Implemented substation automation & monitoring to improve operational efficiency and visibility in smart-grid contexts.

Skills

Programming Python, C++, MATLAB/Simulink, Bash

Platforms Kubernetes (medium), Docker, Linux

Data/ML Pandas, NumPy, Jupyter; Machine Learning, Optimization, Estimation; Prompt Engineering

Electrical Power systems analysis, Control systems, Grid modeling; PSCAD; SIMULINK

Tools QGIS, EPANET, Proteus, Arduino IDE, SUMO, Git

Languages

English C1 (Advanced)

Greek A2 (Elementary)

Hindko C2 (Proficient)

Urdu C2 (Proficient)

Awards & Honors

2022–2024 Tuition Scholarship (50%) from KIOS Center of Excellence (M.Sc.)

2017–2021 Full scholarship (B.Sc.) based on academic excellence

Service & Leadership

Mentor/Tutor for undergraduate labs; documentation maintainer; student support and outreach activities.