Hussein Sharadga

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Education

Texas A&M University, College Station, Texas | 2019 – 2022
Ph.D. in Mechanical Engineering

Jordan University of Science & Technology, Irbid, Jordan | 2015 – 2017
M.Sc. in Mechanical Engineering

Al-Balqa' Applied University, Irbid, Jordan | 2011 – 2015
B.Sc. in Mechanical Engineering

Academic Positions

Assistant Professor | 2026 – Present
Prairie View A&M University, Mechanical Engineering

Research Affiliate | 2024 – Present
University of Texas at Austin

Assistant Professor | 2024 – 2026
School of Engineering, Texas A&M University- International

Postdoc Researcher | 2022 – 2024
University of Texas at Austin

Research Focus

Artificial Intelligence (**AI**): Machine Learning, Deep Learning
Optimization: Convex/Non-convex Optimization, Mixed-Integer Programming, Heuristics
High-Performance Computing: **GPU**-Accelerated Optimization, Parallel Computing
Applications: Large-Scale **Power Grid** Optimization

Awards

ARPA-E Grid Optimization Competition- Challenge 3 Prize Winner | 2023
University of Texas at Austin
Trial 1: ranked 2nd in the total score
Trial 2: **ranked 1st**
Trial 3: ranked 2nd **|$115,000 prize|**

Publications

Google Scholar: **h-index 9; 829 citations** (Sep. 2026)

1) **H. Sharadga**, Javad Mohammadi, "A GPU-based Solver for Scalable Unit Commitment in Large Power Grids", *IEEE Transactions on Industry Applications*, 2026.

2) **H. Sharadga**, Y Du, J Mohammadi, "Rapid Concurrent GPU-CPU Solvers for Scalable Unit Commitment in Large Power Grids", *IEEE SmartGridComm*, 2026.

3) **H. Sharadga**, Yuhan Du, Javad Mohammadi, "Probabilistic-Adversarial Networks (PANs): A Probability-Informed Deep Learning Approach for Electrical Demand Forecasting", *IEEE Open Access Journal of Power and Energy*, 2026.

4) **H. Sharadga**, Javad Mohammadi, "GPU-Accelerated Optimization Solver for Unit Commitment in Large-Scale Power Grids", *IEEE Texas Power and Energy Conference*, 2026

5) **H. Sharadga**, Abdullah Hayajneh, Erchin Serpedin, "Evaluating AI-based Image Inpainting Techniques for Facial Components Restoration Using Semantic Masks", *AI Journal*, 2026.

6) A Dawahdeh, **H. Sharadga**, G Zakeri, A Hayajneh, G Pritchard, "Real-time building energy storage scheduling under electrical load uncertainty: A Markov decision process approach with comprehensive analysis of different pricing policies", *Energy Reports*, 2026.

7) **H. Sharadga**, Javad Mohammadi, "Scalable Unit Commitment for Large Power Grids: Relaxation, Tightening, and GPU-Based Solvers Evaluation", *IEEE North American Power Symposium*, 2025.

8) Maureen S Golan, **H. Sharadga**, Javad Mohammadi, "Power grid resilience: insights from sensitivity analysis using a comprehensive AC optimal power flow model", *Environment Systems and Decisions Journal*, 2025.

9) **H. Sharadga**, Javad Mohammadi, Constance Crozier, Kyri Baker, "Scalable Solutions for Security-Constrained Optimal Power Flow with Multiple Time Steps", *IEEE Transactions on Industry Applications*, 2025.

10) **H. Sharadga**, Javad Mohammadi, Constance Crozier, Kyri Baker, "Optimizing Multi-Timestep Security-Constrained Optimal Power Flow for Large Power Grids", *IEEE Texas Power and Energy Conference*, 2024.

11) **H. Sharadga**, Ahmad Dawahdeh, "Novel MPPT Controller Augmented with Neural Network for Use with Photovoltaic Systems Experiencing Rapid Solar Radiation Changes", *Sustainability Journal*, 2024.

12) Shima Hajimirza, **H. Sharadga**, "Learning Thermal Radiative Properties of Porous Media from Engineered Geometric Features", *Int. J. Heat Mass Transf*, 2021.

13) **H. Sharadga**, Shima Hajimirza, Robert S Balog, "Time Series Forecasting of Solar Power Generation for Large-Scale Photovoltaic Plants", *Renewable Energy*, 2020.

14) Ali Akbar Shafi, **H. Sharadga**, Shima Hajimirza, "Design of Optimal Power Point Tracking Controller Using Forecasted Photovoltaic Power and Demand", *IEEE Transactions on Sustainable Energy*, 2019.

15) **H. Sharadga**, A Dawahdeh, MA Al-Nimr, "A hybrid PV/T and Kalina cycle for power generation", *International Journal of Energy Research*, 2018.

16) M Al-Nimr, S Kiwan, **H. Sharadga**, "A hybrid TEG/wind system using concentrated solar energy and chimney effect", *International Journal of Energy Research*, 2018.

17) MA Al-Nimr, S Kiwan, **H. Sharadga**, "Simulation of a novel hybrid solar photovoltaic/wind system to maintain the cell surface temperature and to generate electricity", *International Journal of Energy Research*, 2018.

Teaching Experience

Prairie View A&M University | 2026 – Present
Assistant Professor
- Dynamics, Computer-Aided Design, and Measurement & Instrumentation Lab.

Texas A&M International University | 2024 – 2026
Assistant Professor
- Statistics, Eng. Modeling & Design, CAD, and Smart Grid Optimization.
- Student Evaluations: 4.75/5 (Average)

University of Texas Permian Basin | 2023 – 2024
Visiting Assistant Professor
- Thermodynamics, Fluid Mechanics, Heat Transfer, Engineering Graphics, Computer-Aided Mechanical Design, Dynamics, and Thermo-fluid & Mech Sys Lab.
- Student Evaluations: 4.23/5 (Average) **[Evaluation Report]**

Professional Activities & Service

1. Invited Talks

ARPA-E Grid Software Annual Review, Electric-Stampede's Approach: Fast and Robust Strategies for Large-scale mixed-integer SCOPF.

2. Mentoring

1. Karol Gonzalez, B.Sc. Student, 2026, Texas A&M International University.
2. Maureen S. Golan, Ph.D. Student, 2023, The University of Texas at Austin.
3. Arash Khojaste, Ph.D. Student, 2022, University of Massachusetts Amherst.

3. Poster Presentations

1. Electric Stampede: A Robust Solution to The Challenging Task of Us Power Grid Optimization, INFORMS Annual Meeting, Phoenix (2023).

2. Time Series Forecasting of Solar Power Generation for Large-Scale Photovoltaic Plants, Texas A&M Conference on Energy (2019).

3. A Fast and Accurate Single Diode Model for Photovoltaic Design, IMECE, Utah (2019).

4. University Service

Search Committee, TAMIU (2024); ABET Committee, TAMIU (2024); ABET Committee, UTPB (2023).

5. Conference Service

Session Chair, IEEE TPEC 2026; Session Chair, NAPS 2025.

Programming Skills

Languages: Python, MATLAB, Julia, C/C++.

AI/ML: Keras, PyTorch, Scikit-learn.

Optimization: Gurobi, MOSEK, IPOPT, COPT, HiGHS.

HPC: **GPU**-accelerated computing for large-scale optimization; parallel computing.