

Hussein Sharadga

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Education

Texas A&M University, College Station, Texas | Jan. 2019 – Aug. 2022

Ph.D. in Mechanical Engineering

Advisor: Prof. [Bryan Rasmussen](#)

Jordan University of Science & Technology, Irbid, Jordan | Sep. 2015 – July 2017

M.Sc. in Mechanical Engineering

Advisor: Prof. [Moh'd Al-Nimr](#)

Al-Balqa' Applied University, Irbid, Jordan | Aug. 2011– June 2015

B.Sc. in Mechanical Engineering

Academic Positions

Research Affiliate | Aug. 2024 – Present

University of Texas at Austin

Assistant Professor | Aug. 2024 – Present

School of Engineering, Texas A&M University- International

Postdoc Researcher | Dec. 2022 – Aug. 2024

University of Texas at Austin

Advisor: Prof. [Javad Mohammadi](#)

Visiting Assistant Professor | Sep 2023 – May 2024

University of Texas Permian Basin

Research Focus

Artificial Intelligence (AI): Machine Learning, Deep Learning

Optimization: Convex/Non-convex, Mixed Integer Programming, Heuristic

Energy: Power Grid, Photovoltaic Technology

Scheduling, Decision-Making under Uncertainty, Stochastic Programming

National Awards

ARPA-E Grid Optimization Competition Challenge 3 Prize Winner | 2023

University of Texas at Austin

Trail 1: ranked 2nd in the total score

Trail 2: ranked 1st

Trail 3: ranked 2nd | **\$115,000 prize** | [Link](#)

Grant

ERI: Probability-Informed Deep Learning and Probabilistic-Adversarial Networks for Time Series Forecasting (Pending Review)

PI: **Hussein Sharadga**, Co-PIs: None

Budget: \$200,000

Submitted to: NSF

AI Research Fellowship

Handshake AI Fellow | *Handshake / Confidential AI Labs* | Remote | Oct. 2025 – Present

- Participating in a selective AI fellowship aimed at improving the robustness of large language models (LLMs) by designing challenging prompts that expose their weaknesses.
 - Contributions support retraining and advancement of state-of-the-art LLMs.
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Publications

h-index: 8, Citations: 700 (as of Dec. 2025)

Google Scholar Profile: [Google Scholar](#)

Selected Manuscripts:

A. Optimization and Smart Power Grid

- 1) Hussein Sharadga, Javad Mohammadi, Constance Crozier, Kyri Baker, “Scalable Solutions for Security-Constrained Optimal Power Flow with Multiple Time Steps”, **IEEE Transactions on Industry Applications**.
- 2) Maureen S Golan, Hussein Sharadga, Javad Mohammadi, “Power grid resilience: insights from sensitivity analysis using a comprehensive AC optimal power flow model”, **Environment Systems and Decisions Journal**.
- 3) Hussein 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 (TPEC)**.

B. GPU-Accelerated Optimization for Power Systems

- 1) Hussein Sharadga, Javad Mohammadi, “A **GPU-based** Solver for Scalable Unit Commitment in Large Power Grids”, Under review, **Applied Energy**.
- 2) Hussein Sharadga, Javad Mohammadi, “Scalable Unit Commitment for Large Power Grids: Relaxation, Tightening, and **GPU-Based** Solvers Evaluation”, **IEEE North American Power Symposium (NAPS)**.

C. Artificial Intelligence and Machine Learning

- 1) Hussein Sharadga, Yuhang Du, Javad Mohammadi, “Probabilistic-Adversarial Networks (PANs): A Probability-Informed Deep Learning Approach for Electrical Demand Forecasting”, Under review, **IEEE Transactions on Smart Grid**.
- 2) Hussein Sharadga, Abdullah Hayajneh, Erchin Serpedin, “Evaluating AI-based Image Inpainting Techniques for Facial Components Restoration Using Semantic Masks”, Under review, **Image and Vision Computing**.
- 3) Hussein Sharadga, Ahmad Dawahdeh, “Novel MPPT Controller Augmented with Neural Network for Use with Photovoltaic Systems Experiencing Rapid Solar Radiation Changes”, **Sustainability Journal**.
- 4) Shima Hajimirza, Hussein Sharadga, “Learning Thermal Radiative Properties of Porous Media from Engineered Geometric Features”, **Int. J. Heat Mass Transf.**
- 5) Hussein Sharadga, Shima Hajimirza, Robert S Balog, “Time Series Forecasting of Solar Power Generation for Large-Scale Photovoltaic Plants”, **Renewable Energy**.
- 6) Ali Akbar Shafi, Hussein Sharadga, Shima Hajimirza, “Design of Optimal Power Point Tracking Controller Using Forecasted Photovoltaic Power and Demand”, **IEEE Transactions on Sustainable Energy**.

Teaching Experiences

Texas A&M International University

Aug. 2024 – Present

Assistant Professor

- Teaching courses in Statistics, Eng. Modeling & Design, Computer-Aided Design, and Smart Grid Optimization.
- Student Evaluations (*Average: 4.75 out of 5*)

University of Texas Permian Basin

Sep. 2023 – May 2024

Visiting Assistant Professor

- Instructed undergraduate courses in Intro to Thermodynamic, Thermodynamic II, Fluid Mechanics II, Heat Transfer, Engineering Graphic, Computer-Aided Mechanical Design, Dynamics, Advanced Engineering Analysis, and Thermo-fluid & Mech Sys Lab.
- Student Evaluations [Link](#) (*Range: 4.0–4.47, Average: 4.23 out of 5*)

University of Texas at Austin- Guest Lecturer

Jan. 2023 - May 2023

- Course: Energy Systems Operation / Optimization.

Texas A&M University- College Station

Sep. 2020 - June 2022

Teaching Assistant

- Assisted in Courses: Mechanical Measurement Lab (MEEN 260), Dynamic System & Control Lab (MEEN 364), and Principles of Building Energy Analysis (MEEN 437).

Binghamton University

Aug. 2018 - Dec. 2018

Teaching Assistant

- Course: Thermodynamic (ME 331).

Jordan University of Science & Technology

Sep. 2015 - July. 2017

Teaching Assistant

- Courses: Heat Transfer, Fluid Dynamic, Engineering Drawing Lab.
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Professional Activities:

1. Invited Talks

Co-speaker with Javad Mohammadi, 'Electric-Stampede's Approach: Fast and Robust Strategies for Large-scale mixed-integer SCOPF', **ARPA-E** Grid Software Annual Review. [Link](#)

2. Mentoring

Maureen S Golan, Ph.D. Student, 2023, The University of Texas at Austin.

Arash Khojaste, Ph.D. Student, 2022, University of Massachusetts Amherst.

3. Poster Presentations

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

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

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

4. Code Repository

Scheduling Battery Systems Under Uncertainty Using Markov Decision Process, (2023). [Link](#)

Sizing and Scheduling Solar Photovoltaic-Battery System using Convex Optimization, Machine Learning, and Stochastic Programming, (2022). [Link](#)

Application of Artificial Intelligence for Thermal Radiation in Porous Media, (2020). [Link](#)

5. University Service

Session Chair| Fall 2025

North American Power Symposium (NAPS 2025)

Search Committee Member| Fall 2024

Texas A&M International University

ABET Committee Member| Fall 2024

Texas A&M International University

ABET Committee Member| Fall 2023

University of Texas Permian Basin

Programming Expertise

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

AI Python Libraries: Keras, PyTorch, Scikit-learn.

Optimization Solvers: Gurobi, MOSEK, IPOPT, Cardinal Optimizer (COPT), HiGHS.

High-Performance Computing: **GPU** acceleration for deep learning and large-scale optimization; parallel computing.

Last updated: Dec. 2025