

Mojtaba Sadafi

PERSONAL DETAILS

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Scholar: <https://scholar.google.com/citations?user=3Brv6xMAAAAJhl=en>

ResearchGate: <https://www.researchgate.net/profile/Mojtaba-Sadafi>

GitHub: <https://github.com/mojjss>

EDUCATION BACKGROUND

B.Sc. in Computer Engineering 09.2021 – 08.2026

Esfarayen University of Technology, Iran (tuition-free admission)

(One of the leading engineering education centers in northeast Iran)

GPA: 3.00/4.00 (16.00/20.00)

Last-year GPA: 3.46/4.00 (18.22/20.00)

High School in Math & Physics 09.2018 – 06.2021

Doctor Shariati High School, Iran

Graded 18.37/20 (Among top 5 graduated)

RESEARCH INTERESTS

- Algorithms & optimization for networked/cyber-physical systems & power grids
- Foundation models & LLMs
- Practical AI systems
- ML for systems & cybersecurity
- Computer vision & scientific imaging

CONFERENCE PROCEEDINGS

- **M. Sadafi**, M. Bagheri Hashkavayi, S. M. Barakati, F. Padidarani Moghaddam, A. Hassannia: New Evaluation of Genetic Algorithm (GA) for Optimized Phasor Measurement Unit (PMU) Allocation in Power Networks and Comparative Performance Analysis with Dynamic Programming (DP) for Cybersecurity Enhancement . *IEEE | 29th International Electrical Power Distribution Conference (EPDC)*, Tehran, Iran; 10/2025.
<https://doi.org/10.1109/EPDC67173.2025.11278270>
- M. Bagheri Hashkavayi; S. M. Barakati; S. S. Mohtavipour; **M. Sadafi**: Disparate Scenarios for Reduction of Voltage and Current Sensors in Nested Neutral Point Clamped (NNPC) Converter. *IEEE | The 16th Power Electronics, Drives Systems and Technologies Conference (PEDSTC)*, Tabriz, Iran; 03/2025.
<https://doi.org/10.1109/PEDSTC65486.2025.10911941>
- M. Bagheri Hashkavayi; S. M. Barakati; S. S. Mohtavipour; **M. Sadafi**: Different Schemes for Reducing the Number of Measurement Components in Alternate Arm Multilevel Converter (AAMC). *IEEE | The 16th Power Electronics, Drives Systems and Technologies Conference (PEDSTC)*, Tabriz, Iran; 03/2025.
<https://doi.org/10.1109/PEDSTC65486.2025.10911990>

RESEARCH EXPERIENCE

- **Algorithms for PMU placement and grid cybersecurity — review in progress** (2024–present)
Surveying 100+ papers across graph-theoretic, MILP, and metaheuristic approaches (DP, GA, greedy hybrids), with treatment of zero-injection buses, N-1 contingencies, and dynamic PMU relocation. Building a comparative framework and benchmarks on IEEE 14/57/118-bus systems; manuscript in preparation.
- **Comparison of Optimization algorithms such as DP vs. GA for PMU placement** (2024)
Authored a study contrasting Dynamic Programming and Genetic Algorithms for PMU allocation with a cybersecurity lens (observability under contingencies, attack resilience); defined metrics and experimental protocol; prepared results and writing.
- **Sensor reduction in multilevel converters (NNPC, AAMC)** (09/2024–03/2025)
Co-authored two papers proposing sensing schemes that reduce voltage/current sensors by **50–70%** while maintaining capacitor-voltage balance and enabling fast fault detection. Roles: modeling and algorithm prototyping (MATLAB/Python), simulation studies, and paper preparation.
- **LLM-assisted research tooling** (2024–present)
Built prompts and scripts for literature triage/summarization, code skeleton generation for simulations, and citation management; integrated with version-controlled workflows to improve iteration speed and reproducibility.
- **Reproducible simulation pipelines** (2023–2024)
Version-controlled MATLAB studies; documented parameters, seeds, and run scripts; organized results for consistent figure/table generation.

SKILLS

Programming:	Python, C/C++, MATLAB, Assembly, R
ML/AI:	Regression & classification, anomaly detection; interest: LLM fine-tuning & evaluation
Software Engineering:	Git/GitHub, Linux shell, testing/packaging, reproducible pipelines
Systems:	Operating systems (labs), computer networks (theory & lab), microcontrollers (AVR/ARM)
Tools:	L ^A T _E X, VS Code, Jupyter, StarUML, Zotero; Simulink, Proteus, PSpice
Operating Systems:	Windows (XP–11), Linux (Ubuntu, Kali), macOS
Languages:	English (Fluent), Persian (Native), Arabic (Basic), German (Basic)

NOTABLE COURSES

Undergraduate:

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| • Advanced (Python) Programming Workshop, 20/20 | • Discrete Mathematics, 18.5/20 |
| • Advanced Programming, 19/20 | • Fundamentals of Programming, 19/20 |
| • Compiler Design, 20/20 | • Microcontroller & Assembly Lab, 19.75/20 |
| • Computer Architecture Lab, 18/20 | • Operating Systems Lab, 20/20 |
| • Computer Networks, 18/20 | • Research & Presentation Methods, 20/20 |
| • Computer Networks Lab, 18/20 | • Software Engineering I, 19.5/20 |
| • Programming Workshop, 19/20 | • Special Topics: Event Log & Data Analysis, 20/20 |

TEACHING EXPERIENCE

Teaching Assistant 09.2025 – Present
Esfarayen University of Technology, Iran
Selected Courses

- Operating Systems; Logic Circuits; Computer System Architecture (Dr. Farhang Padidaran)
- Software Engineering I; Technical English for Computer Engineering (Dr. Mohsen Mohammadi)

Conducted weekly practical sessions to solve course-related problems and develop hands-on technical skills.

HONORS AND AWARDS

- Ranked 2nd GPA among B.Sc. students of Computer Engineering, Esfarayen University of Technology, North Khorasan, Iran, 2020.
- Tuition-free admission, Esfarayen University of Technology (B.Sc.).

LICENSES & CERTIFICATIONS

- *PEDSTC 2025* — Presentation certificate (Feb 2025).
- Introduction to Git and GitHub — Google (Jun 2024).
- Linux Commands & Shell Scripting — IBM/Coursera (Mar 2023).
- Programming for Everybody (Python) — Michigan/Coursera (Feb 2023).
- Supervised ML — Stanford Online (Oct 2022).