Naser Padar

✉ padar.naser@gmail.com   ✆ +98 935 937 2244   iD ◆ in R^G

Education

M.Sc.   **Industrial Automation Engineering**   **Amirkabir University of Technology**
Ranked **127** in engineering by US News University Rankings

Thesis: Modeling and Fuzzy Predictive Voltage Control of VSC-Based Microgrids (GPA: 3.72/4)
Supervisors: Dr. Amir Abolfazl Suratgar and Professor Mohammad Bagher Menhaj   📅 2016 – 2019
Advisor: Professor Gevork Gharehpetian   📍 Tehran, Iran

B.Sc.   **Electrical Power Engineering**   **Urmia University**
Ranked **619** in engineering by US News University Rankings

Thesis: Harmonic Distortion Reduction of Cascaded Multilevel Inverters Using Genetic Algorithm   📅 2010 – 2016
Supervisor: Professor Daryoush Nazarpour   📍 Urmia, Iran

Working Experiences

Teaching   **Mathematics**   **Self Employed Private Tutor**

I provided math tutoring to undergraduate and high school students since 2017. I continued this   📅 2017 – 2023
after my graduation in 2019 until 2023. *Calculus*, *probability*, and *statistics* were among the subjects   📍 Tehran, Iran
I taught.   📍 Urmia, Iran

Teaching   **Electrical Circuits**   **Self Employed Private Tutor**

I tutored *electrical circuits* during my BSc. years.   📅 2014 – 2015
📍 Urmia, Iran

Research Interests

Control Theory
- **Nonlinear control:** sliding-mode control, super-twisting algorithm, higher-order SMC
- **Stability analysis:** finite-time and fixed-time stability
- **Model predictive control:** Traditional and Laguerre function based MPC
- **Fuzzy control**

Systems
- **Microgrids:** dynamical modeling, primary control, secondary control
- **Distributed generation (DG):** inverter interfaced DG units, droop control, virtual inertia
- **Inverters:** controller design for grid-forming inverters

Publications

📄 Journal Papers

- Robust super-twisting current controller for LC-filtered grid-forming inverters with actuator faults and disturbances   Minor Revision
  Naser Padar, Iman Talebian, Mohammad Javad Mirzaei, Mohamed Assaad Hamida, Amir Abolfazl Suratgar
  Electric Power Components and Systems

- Continuous robust controller with fixed convergence time for synchronization of perturbed nonlinear transducers   2024
  Naser Padar, Mostafa Asadollahi, Mohammad Javad Mirzaei and Amir Abolfazl Suratgar
  Journal of Vibration and Control

- Fixed-time terminal sliding mode control with arbitrary convergence time for a class of chaotic systems applied to a nonlinear finance model   2023
  Mostafa Asadollahi, **Naser Padar**, Amin Fathollahzadeh, Mohammad Javad Mirzaei, Ehsan Aslmostafa
  International Journal of Dynamics and Control

- [Fast fixed-time sliding mode control of a bistable dual-stage vibration isolator with disturbances](#) — 2023
  Shitong Fang, **Naser Padar**, Mohammad Javad Mirzaei, Keyu Chen, Zhihui Lai
  Nonlinear Dynamics

- [Disturbance rejection and performance enhancement of perturbed tri-stable energy harvesters by adaptive finite-time disturbance observer](#) — 2022
  Shitong Fang, **Naser Padar**, Mohammad Javad Mirzaei, Shengxi Zhou, Wei-Hsin Liao
  Acta Mechanica Sinica

- [Fast fixed-time sliding mode control for synchronization of chaotic systems with unmodeled dynamics and disturbance; applied to memristor-based oscillator](#) — 2022
  Mohammad Javad Mirzaei, Ehsan Aslmostafa, Mostafa Asadollahi, **Naser Padar**
  Journal of Vibration and Control

- Fast finite-time control for tracking problem of perturbed nonlinear systems based on super-twisting disturbance observer — In Progress
  Naser Padar

👥 Conference Papers

- [Decentralized Robust Fixed-Time Secondary Voltage Control of AC Microgrids](#) — 2023
  Naser Padar, Amin Fathollahzadeh, Mohammad Javad Mirzaei
  2023 13th Smart Grid Conference (SGC 2023)

- [Adaptive TSK Fuzzy Terminal Sliding-Mode Control of Two Coupled Cart-Mounted Inverted Pendulums](#) — 2022
  Naser Padar, Mohammad Javad Mirzaei, Amir Abolfazl Suratgar
  2022 9th Iranian Joint Congress on Fuzzy and Intelligent Systems (CFIS 2022)

- [Modeling and Fuzzy Predictive Voltage Control of VSC-Based Microgrids](#) — 2021
  Naser Padar, Amir Abolfazl Suratgar, Mohammad Bagher Menhaj
  2021 11th Smart Grid Conference (SGC 2021)

- [Study of a Reliable Buck Topology for High Step-down DC-DC Conversion](#) — 2024
  Iman Talebian, **Naser Padar**, Ebrahim Babaei, Vafa Marzang
  2024 15th Annual Power Electronics, Drive Systems and Technologies Conference (PEDSTC 2024)

- Robust fixed-time sliding-mode current controller for LC-filtered grid-forming inverters with disturbances — To be Submitted
  Naser Padar

🖥 Conducted Workshops

- Voltage and Frequency Control of Islanded AC Microgrids: Fundamental Theories Toward Simulation using MATLAB/Simulink — 2021
  Naser Padar
  Organized by Distributed Intelligent Optimization Research Lab of Amirkabir University of Technology

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Software and Practical Skills

</>	Softwares & Programming Languages	MATLAB/Simulink, Proteus, DIgSILENT, Altium Designer, DIALux, LaTeX, C/C++, Git
🖫	Hardware	AVR, Arduino

Test Scores and Languages

GRE

X_1	Quantitative:	159/170
📖	Verbal:	147/170
	Total:	**306**/340

TOEFL

📖	Reading:	26/30
🎧	Listening:	28/30
🎤	Speaking:	26/30
🖊	Writing:	24/30
	Total:	**104**/120

English   Azerbaijani   Farsi   Turkish

Experimental Projects

- DC-DC buck converter control using Arduino Duo
- DC motor speed control using AVR
- Temperature control using Arduino Mega

Honors

- Ranked 179th in the national university entrance exam (among 25'000 participants)   2016

Attended MOOCs and Workshops

- Why an Active Grid Demands Greater Collaboration   IEEE Smart Grid Webinar   2017
- NERC PRC-027 Compliance: Impact on Utilities   IEEE Smart Grid Webinar   2017
  Short-Circuit Modeling and Protective Relay Coordination
  Studies

References

Dr. Amir Abolfazl Suratgar
a-suratgar@aut.ac.ir
Electrical Engineering Deptartment
Amirkabir University of Technology
Tehran, Iran

Dr. Mohamed Assaad Hamida
mohamed.hamida@ec-nantes.fr
Ecole Centrale de Nantes
Nantes Université
Nantes, France

Dr. Daryoush Nazarpour
d.nazarpour@urmia.ac.ir
Electrical Engineering Deptartment
Urmia University
Urmia, Iran