Naser Padar

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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
Advisor: Professor Gevork Gharehpetian
2016 – 2019
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
Supervisor: Professor Daryoush Nazarpour
2010 – 2016
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 after my graduation in 2019 until 2023. *Calculus*, *probability*, and *statistics* were among the subjects I taught.

2017 – 2023
Tehran, Iran
Urmia, Iran

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

I tutored *electrical circuits* during my BSc. years.

2014 – 2015
Urmia, Iran

Test Scores and Languages

TOEFL Test Date: Dec. 06, 2023
GRE Test Date: Mar. 13, 2024

GRE

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

Publications (Sorted by Year)

NOTE: I decided to continue doing research and writing papers after TOEFL and GRE to stay prepared for potential PhD positions. (2 published papers in 2024 and 3 in progress)

Papers

- Fast finite-time control for tracking problem of perturbed nonlinear systems based on super-twisting disturbance observer — In Progress
  Naser Padar
- Robust fixed-time sliding-mode current controller for LC-filtered grid-forming inverters with disturbances — Submitted
  Naser Padar, Mohammad Javad Mirzaei, Amir Abolfazl Suratgar
  2024 10th International Conference on Control, Instrumentation and Automation (ICCIA 2024)
- 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
- 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)
- 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)
- 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
- 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)

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

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

Software and Practical Skills

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

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 Short-Circuit Modeling and Protective Relay Coordination Studies — IEEE Smart Grid Webinar — 2017

References

Dr. Amir Abolfazl Suratgar
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Electrical Engineering Deptartment
Amirkabir University of Technology
Tehran, Iran

Dr. Mohamed Assaad Hamida
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Ecole Centrale de Nantes
Nantes Université
Nantes, France

Dr. Daryoush Nazarpour
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Electrical Engineering Deptartment
Urmia University
Urmia, Iran