

# NILOUFAR YOUSEFI

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## EDUCATION

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### University of Toronto, Canada

September 2023- 2027 (expected)

Ph.D. Candidate, Electrical Engineering- Systems Control

GPA: 3.74/ 4.00

Thesis: Estimator-based Performance Enhancement for Feedback-based Optimization

Supervisor: Prof. John W. Simpson Porco

### Queen's University, Canada

September 2021- 2023

M.Sc. of Electrical Engineering- Power Electronics

GPA: 4.23/4.3

Thesis Title: Neural Network-based Model Predictive Controller for Modular Multilevel Converter

Supervisor: Prof. Alireza Bakhshai

### Isfahan University of Technology, Iran

September 2017- 2021

B.Sc. of Electrical and Computer Engineering- Control Engineering

GPA: 3.97/4

Thesis Title: Classification with Deep Learning and Its Implementation on Raspberry Pi

Supervisor: Prof. Iman Izadi

## RESEARCH INTERESTS

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**Optimization**

**Nonlinear Control**

**Power Systems**

**Machine Learning**

**Model Predictive Control**

## PUBLICATIONS

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**Niloufar Yousefi**, Javad Ebrahimi, Alireza Bakhshai, "Auto-tuned Model Predictive Control-based Neural Network Controller for Modular Multilevel Converter", *IECON 2023-49th Annual Conference of the IEEE Industrial Electronics Society*, DOI: 10.1109/IECON51785.2023.10312231

**Niloufar Yousefi**, Javad Ebrahimi, Alireza Bakhshai, "Neural Network Controller Based on Direct and Indirect Model Predictive for Modular Multilevel Converters," *2023 25th European Conference on Power Electronics and Applications (EPE'23 ECCE Europe)*, DOI: 10.23919/EPE23ECCEurope58414.2023.10264657

**Niloufar Yousefi**, Javad Ebrahimi, Alireza Bakhshai, "Artificial Intelligence Applications in the Control and Performance Improvement of Modular Multilevel Converters: A Review", *IECON 2023-49th Annual Conference of the IEEE Industrial Electronics Society*, DOI:10.1109/PEDS57185.2023.10246700

## VOLUNTEERING

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**IEEE Student Branch Chair**, Queen's University

February 2022- 2023

**GECE MASC Representative**, Queen's University

September 2022- 2023

## SCHOLARSHIPS

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**Recipient of 2023 Parya scholarship**, Queen's University

**Recipient of the grant for undergraduate studies**, Isfahan University of Technology

## SKILLS

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## Languages & Frameworks

C, Python, MATLAB, Verilog, Ladder Logic, Assembly, TensorFlow, Keras, NumPy

## Applications & Tools

PSIM, PSCAD, Simulink, CodeVisionAVR, Proteus, OrCAD, STEP 7,  $\LaTeX$

## SELECTED COURSES AND CERTIFICATES

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**Electric Energy Systems Analysis** (19.3/20)

**Microgrids** (A+)

**Convex Optimization** (B+)

**Linear Control Theory** (A+)

**Advanced Control Systems** (18.5/20)

**Digital Control Systems** (19.5/20)

**High Power Electronics** (A+) **Deep Learning Specialization by DeepLearning.AI** (Coursera Certificate)

**Machine Learning by Stanford University** (Coursera Certificate)

## EXPERIENCE

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**Undergraduate Mentor**, University of Toronto

Had the opportunity to mentor undergraduate students with their thesis: Jonathan Milner, Katerina Vovk

**Teaching Assistant**, University of Toronto

ECE 216 - Signals and Systems

*Winter 2024, 2025*

ECE 311 - Introduction to Control Systems

*Winter 2024, 2025*

ECE 356 - Introduction to Control Theory

*Winter 2025*

ECE 349 - Introduction to Energy Systems

*Fall 2024*

ECE 557 - Linear Control Theory

*Fall 2024*

**Course Development Assistant**, Queen's University

*Summer 2023*

MREN 348 - Introduction to Robotics - Preparing lab and project material for the course

**Teaching Assistant**, Queen's University

ELEC 333 - Electric machines lab and tutorial TA

*Winter 2022 and 2023*

ELEC 221 - Electric circuits marking TA

*Fall 2022*

**Math and Science Tutor**, Paper Company

*June 2022- August 2024*

Helping students with their mathematics and physics problems

## PROFESSIONAL AFFILIATIONS

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**Student Member**, Institute for Electrical and Electronics Engineers (IEEE)

**Student Member**, IEEE Control Systems Society (IEEE CSS)