

# Ehsan Farmahini Farahani

## Education

2015–2021 **Amirkabir University of Technology (Tehran Polytechnic)**,  
Electrical Engineering/Electrical Machines and Power Electronics, Doctor of Philosophy.  
GPA : 18.25/20 (3.7/4.0)

**Ph.D. Dissertation title:** “Design, simulation, optimization, and prototyping of an innovative switched reluctance motor for an in-wheel EV application.”; 8 chapters; supervisor: Prof. Mojtaba Mirsalim;

2012–2014 **Sharif University of Technology**,  
Electrical Engineering, Master of Science .  
GPA : 17.5/20 (3.5/4.0)

**M.Sc. Thesis title:** “Maintenance planning in restructured power system by Genco & ISO.”; supervisor: Prof. Mehdi Ehsan;

2008–2012 **University of Tehran**,  
*Electrical Engineering*, Bachelor of Science.  
GPA : 16.28/20 (3.2/4.0)

**B.Sc. Project:** “Planning of a new 7 layers, back to back, full bridge inverter.”

2004–2008 **Molasadra high school**,  
*Mathematics and Physics*, High School Diploma.  
GPA : 4.0/4.0

## Fields of Interest

- Design, Modeling, Finite Element Analysis, Optimization, Prototyping, and Drive of Electrical Machines.
- Electric Vehicles.

## Honours and Awards

2012 **Ranked top 0.05% (6/44000 participants)**, in M.Sc. Nationwide Entrance Exam.

2008 **Ranked top 0.3% (262/100000 participants)**, in B.Sc. Nationwide Entrance Exam.

2014 **Ranked top 0.4% (31/10000 participants)**, in Ph.D Nationwide Entrance Exam.

## Publications

### • Journal Papers

1. **E. F. Farahani**, M. A. J. Kondelaji, and M. Mirsalim, “An Innovative Hybrid-Excited Multi-Tooth Switched Reluctance Motor for Torque Enhancement,” *IEEE Transactions on Industrial Electronics*, vol. 68, no. 2, pp. 982-992, Feb 2021. (<https://ieeexplore.ieee.org/document/8974605>)
2. **E. F. Farahani** and M. Mirsalim, “Comprehensive study on divided-teeth and permanent magnet assisted outer-rotor switched reluctance motors,” *IET Electric Power Applications*, vol. 14, no. 12, pp. 2293-2300, December 2020. (<https://digital-library.theiet.org/content/journals/10.1049/iet-epa.2020.0189>)

3. **E. F. Farahani**, M. A. J. Kondelaji, and M. Mirsalim, "A New Exterior-Rotor Multiple Teeth Switched Reluctance Motor with Embedded Permanent Magnets for Torque Enhancement," *IEEE Transactions on Magnetics*, vol. 56, no. 2, pp. 1-5, Feb 2020. (<https://ieeexplore.ieee.org/document/8957413>)
4. M. A. J. Kondelaji, **E. F. Farahani**, and M. Mirsalim, "Performance Analysis of a New Switched Reluctance Motor with Two Sets of Embedded Permanent Magnets," *IEEE Transactions on Energy Conversion*, vol. 35, no. 2, pp. 818-827, June 2020. (<https://ieeexplore.ieee.org/document/8954625>)
5. M. A. J. Kondelaji, **E. F. Farahani**, and M. Mirsalim, "Teethed-Pole Switched Reluctance Motors Assisted with Permanent Magnets: Analysis and Evaluation," *IEEE Transactions on Energy Conversion*, 2021. (<https://ieeexplore.ieee.org/document/9340545>)

## • Conference Papers

1. **E. F. Farahani**, M. A. J. Kondelaji, and M. Mirsalim, "Divided Teeth Switched Reluctance Motor with Different Tooth Combinations," in *2020 11th International Power Electronics, Drive Systems and Technologies Conference (PEDSTC)*, 2020: IEEE. (<https://ieeexplore.ieee.org/document/9088436>)
2. **E. F. Farahani**, M. Masoumi, M. Amirkhani, M. A. J. Kondelaji, and M. Mirsalim, "A Comprehensive Analysis of an Axial Flux Switched Reluctance Motor with Different Number of Rotor Poles," in *2020 11th International Power Electronics, Drive Systems and Technologies Conference (PEDSTC)*, 2020: IEEE. (<https://ieeexplore.ieee.org/document/9088507>)
3. M. A. J. Kondelaji, M. Z. Tazehkand, **E. F. Farahani**, M. Mirsalim, and A. Khorsandi, "A Preliminary Study on Flux-Boosted Enhanced-Torque Switched Reluctance Motors: Teethed-Pole and PM-Inserted Structures," in *2020 11th International Power Electronics, Drive Systems and Technologies Conference (PEDSTC)*, 2020: IEEE. (<https://ieeexplore.ieee.org/document/9088418>)
4. H. Radmanesh and **E. F. Farahani**, "Analysis of a Permanent Magnet Switched Reluctance Motor with New Arrangements for Permanent Magnets," in *2022 13th International Power Electronics, Drive Systems and Technologies Conference (PEDSTC)*, 2022: IEEE.

## Teaching Experience

- Aug. **Lecturer**, POWER ELECTRONIC GROUP OF UNIVERSITY OF TEHRAN.  
2021–Sep 2021
  - Electromagnetic Simulation with Ansys Maxwell
- Oct. **Lecturer**, AMIRKABIR UNIVERSITY OF TECHNOLOGY.  
2021–Jan 2022
  - Introduction to Electric and Hybrid Vehicles
- Nov. **Lecturer**, POWER ELECTRONIC GROUP OF UNIVERSITY OF TEHRAN.  
2021–Jan 2022
  - Electromagnetic Simulation of Electric Machines with Ansys Maxwell
- Spring 2022 **Lecturer**, AMIRKABIR UNIVERSITY OF TECHNOLOGY.
  - Basic Electrical Engineering
- Oct. **Teaching Assistant**, UNIVERSITY OF TEHRAN.  
2011–Jan 2012
  - Electrical Workshop
- Oct. **Teaching Assistant**, AMIRKABIR UNIVERSITY OF TECHNOLOGY.  
2016–Jan 2017
  - Electrical Machines II

- Oct. **Teaching Assistant**, AMIRKABIR UNIVERSITY OF TECHNOLOGY.  
2018–Jan 2019
  - o Electrical Machines II
- Feb. **Teaching Assistant**, AMIRKABIR UNIVERSITY OF TECHNOLOGY.  
2019–June 2019
  - o Electrical Machines I
- Oct. **Teaching Assistant**, AMIRKABIR UNIVERSITY OF TECHNOLOGY.  
2019–Jan 2020
  - o Electrical Machines I

## Research Experience

- 2017– present **Research Assistant**, at Electrical Machines and Transformers Research Laboratory (EMTRL), Amirkabir University of Technology at <http://emtrl.aut.ac.ir/>.
- Dec. 2018 **Experimental Project:**, Modeling, Design, and Prototyping of Four Novel Multi-Tooth Hybrid and Switched Reluctance Motors for High-Torque Applications at Electrical Machines and Transformer Research Laboratory (EMTRL), Electrical Eng. Dep., Amirkabir University of Technology, Tehran.
- Jan. 2019 **Experimental Project:**, Design and Fabrication of a Novel Exterior-Rotor Multiple Teeth Hybrid-Excited Switched Reluctance Motor for Electric Bicycle Application at Electrical Machines and Transformer Research Laboratory (EMTRL), Electrical Eng. Dep., Amirkabir University of Technology, Tehran.
- Feb. 2020 **Experimental Project:**, Simulation and Manufacturing of a New Doubly-Salient Permanent Magnet Synchronous Motor with New Methods of PM Insertion at Electrical Machines and Transformer Research Laboratory (EMTRL), Electrical Eng. Dep., Amirkabir University of Technology, Tehran.
- Oct. 2015 **Experimental Project:**, Design and Prototyping of a Faraday Flashlight at Electrical Machines and Transformer Research Laboratory (EMTRL), Electrical Eng. Dep., Amirkabir University of Technology, Tehran.

## Professional Activities

- 2019– present **Reviewer**, for IEEE Transactions on Industrial Electronics, IEEE Transactions on Energy Conversion, IET Electric Power Applications Journal, Energies, and Iranian Journal of Science and Technology, Transactions of Electrical Engineering, <https://publons.com/researcher/3097449/ehsan-farahani/>.

## Computer Skills

- General Microsoft Office, LaTeX, Microsoft Visio
- Engineering Software Ansys Maxwell, Matlab/Simulink, Altium Designer, ARM micro-controller.

## Languages

- Persian Native Proficiency (Mother language)
- English Fluent

## Academic Profiles

[Google Scholar Citations](#)

[Researchgate Profile](#)

[Profile on Publons](#)

[Profile on LinkedIn](#)

## ———— Hobbies and Interests

Mountain climbing, walking, gym, gardening, cooking, movie.

## ———— Contact Information

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## ———— References

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Department of Electrical Engineering, Amirkabir University of Technology,

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*Associate Professor,*

Department of Electrical Engineering, Amirkabir University of Technology,

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