

# Curriculum Vitae

## (October 2020)

### PERSONAL INFORMATION

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- **Surname** Hosseini
- **Name** Seyed Mohsen
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### EDUCATION

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- **PhD** in Electrical and Information Engineering, November 2017- Current, Department of Electrical and Information Engineering (DEI), Polytechnic University of Bari, Italy.  
**Thesis Title:** “Robust Optimal Demand-side Management in Smart Grids”.  
**Supervisor:** Prof. Mariagrazia Dotoli.
- **Visiting scholar**, September 2019- March 2020, Department of Electrical and Electronic Engineering, The University of Manchester, Manchester, U.K.  
**Supervisor:** Dr. Alessandra Parisio.
- **Master of science** in Electrical Engineering- Power, September 2010- February 2013, Faculty of Electrical and Computer Engineering, Semnan University, Semnan, Iran.
  - **Thesis Title (Subject I):** “Multi-Objective Optimization of Parameters for Z-source Inverter (ZSI) Hybrid Power Filters in Power Systems”.
  - **Thesis Title (Subject II – in a collaboration with Shahed University, Iran):** “Design and Implementation of a New Active Power Factor Correction Method Using a Dual-purpose Inverter in Flyback Converters”.**Score:** 19.50 out of 20.  
**Supervisor:** Dr. Yousef Alinejad Beromi.
- **Bachelor of science** in Electrical Engineering- Power, September 2005- September 2010, Faculty of Engineering, Shahed University, Tehran, Iran.
  - **Thesis Title:** “Design and Hardware Implementation of a Switching AC/DC Converter for LED Light Drivers”.**Score:** 19.25 out of 20.  
**Supervisor:** Dr. Mahdi Akhbari.

## RESEARCH INTEREST

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- Smart Grids
- Automation systems
- Demand-side management
- Robust control
- Decentralized and distributed control
- Model predictive control
- Switching converters, inverters and rectifiers

## PUBLICATIONS

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- [1] **S. M. Hosseini**, R. Carli and M. Dotoli, “Robust Optimal Energy Management of a Residential Microgrid Under Uncertainties on Demand and Renewable Power Generation,” in *IEEE Transactions on Automation Science and Engineering*, 2020; doi: 10.1109/TASE.2020.2986269.
- [2] **S.M. Hosseini**, R. Carli, G. Cavone, M. Dotoli, “Distributed Control of Electric Vehicle Fleets Considering Grid Congestion and Battery Degradation”, in *Internet Technology Letters*, vol. 3, no. 3, pp. 1-6, 2020; doi: 10.1002/itl2.161.
- [3] **S. M. Hosseini**, A. Parisio, R. Carli and M. Dotoli, “Decision and control approaches for demand-side management in smart grids: A survey”, in *IEEE Transactions on Control Systems Technology*, 2020 – under submission.
- [4] **S. M. Hosseini**, R. Carli, A. Parisio and M. Dotoli, “Robust Decentralized Control of Large-scale Plug-in Electric Vehicle Fleets Under Uncertainty”, in *IEEE Transactions on Control Systems Technology*, 2020 – under submission.
- [5] **S. M. Hosseini**, R. Carli, A. Parisio and M. Dotoli, “Robust Decentralized Charge Control of Electric Vehicles under Uncertainty on Inelastic Demand and Energy Pricing”, *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 11-14 October 2020, Toronto, Canada.
- [6] **S.M. Hosseini**, R. Carli, M. Dotoli, “Robust Energy Scheduling of Interconnected Smart Homes with Shared Energy Storage under Quadratic Pricing”, *IEEE International Conference on Automation Science and Engineering (CASE)*, 22-26 August 2019, Vancouver, Canada.
- [7] **S.M. Hosseini**, R. Carli, M. Dotoli, “Robust Day-ahead Energy Scheduling of a Smart Residential User under Uncertainty”, *IEEE European Control Conference (ECC)*, 25-28 June 2019, Naples, Italy.
- [8] **S.M. Hosseini**, R. Carli, M. Dotoli, “A Residential Demand-Side Management Strategy under Nonlinear Pricing Based on Robust Model Predictive Control”, *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 6-9 October 2019, Bari, Italy.
- [9] **S.M. Hosseini**, R. Carli, G. Cavone, M. Dotoli, “Distributed Control of Electric Vehicles Charging Considering Grid Congestion and Battery Degradation”, *International Workshop on Smart Mobility in Future Cities (SMFC)*, 06 October 2019, Bari, Italy.

- [10] **S.M. Hosseini**, R. Carli, M. Dotoli, “Model Predictive Control for Real-Time Residential Energy Scheduling under Uncertainties”, *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 7-10 Oct., 2018, Miazaki, Japan.
- [11] **S.M. Hosseini**, R. Carli, M. Dotoli, “A Model Predictive Control Based Scheduling of Energy Systems with Shared Energy Generation and Storage”, Extended Research Abstract, *The 1st Poliba PhDays*, 11-12 Dec., 2017, Bari, Italy
- [12] **S.M. Hosseini**, Y. Alinejad Beromi, “A Multi-objective Optimization for Performance Improvement of the Z-source Active Power Filter”, *Journal of Electrical Engineering*, vol. 67, no. 5, pp. 358-364, 2016; doi: 10.1515/jee-2016-0051.
- [13] **S.M. Hosseini**, S.M. Sadeghzadeh, Y. Alinejad Beromi, “A New Method for Active Power Factor Correction Using a Dual-purpose Inverter in Flyback Converters”, *Turkish Journal of Electrical Engineering and Computer Sciences*, vol. 24, No. 6, pp. 4736-4750, 2016; doi: 10.3906/elk-1502-213.
- [14] **S.M. Hosseini**, Y. Alinejad Beromi, S.M. Sadeghzadeh, “Implementation and Comparison of Two Common Power Factor Correction Techniques in AC/DC Switching Converters”, *The 5th International Power Electronics Drive Systems and Technologies Conference (PEDSTC)*, 5-6 Feb. 2014, Tehran, Iran.
- [15] **S.M. Hosseini**, Y. Alinejad Beromi, “The Effect of Reference Current Generation Method on Compensation Characteristics of Active Power Filter in Electrical Power System”, (in persian), *Iranian journal of Energy*, vol. 15, no. 4, pp. 1-20, 2013.
- [16] **S.M. Hosseini**, Y. Alinejad Beromi, M. Khanzade, M. Akhbari, “Design of a Hybrid Power Filter with Optimized Passive Parameters in Shipboard Power Systems”, (in persian), *The 1st International Congress on Electric Industry Automation*, 13-14 Feb. 2013, Mashhad, Iran.

## RESEARCH EXPERIENCE

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- Extensive use of simulation tools to investigate a **robust decentralized control strategy** for optimal charging of **electric vehicle fleets** under uncertainties on base load and energy price, The University of Manchester, Manchester, U.K.
- A major participation in the design and implementation of a 230 KW **industrial cheese-puffs-making machine** by **programming PLCs** and **designing HMI interfaces**, Electro Mehrvarzan Corporation, Tehran, Iran.
- Prototyping of a lab-scale **power factor correction (PFC) converter** with a dual-purpose inverter and backup power supply capability, Shahed University & Semnan University, Tehran & Semnan, Iran.
- A practical teamwork experience as a **team leader** (an 8-member research team) in the design and hardware implementation of lab-scale **power electronic circuits**, Shahed University, Tehran, Iran.
- Simulation and prototyping of average current mode control (ACMC) and critical conduction mode control (CRMC) in AC/DC **PFC flyback converters**, Shahed University, Tehran, Iran.
- Programming, simulation and prototyping of a multi-objective optimization technique for **ZSI hybrid power filters**, Semnan University & Shahed University, Semnan & Tehran, Iran.
- Simulation and prototyping of an analog **air conditioner control circuit** with sensitivity to light and temperature, Shahed University, Tehran, Iran.

- Simulation and prototyping of a **switching AC/DC converter** for **LED light drivers**, Shahed University, Tehran, Iran.
- Simulation and prototyping of a **bidirectional full bridge DC/DC converter** with a smart clamp for circuit protection and loss reduction, Shahed University, Tehran, Iran.
- Extensive use of MATLAB and VISUAL C++ to investigate **active and passive power filters** in power systems.

## WORK AND TEACHING EXPERIENCE

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- Researcher, PLC and WinCC programmer and a member of the executive team in automation systems at Electro-Mehrvarzan Corporation (Private Sector), (Address: Unit 5, No 11, Karimi alley, Laleh Zar St, Enghelab Ave, Tehran, Iran), December 2014- July 2017.
- Researcher and technical trainee at Power Distribution Company of Tehran, (Address: Sattarkhan St, Bargh Alstom, Tehran, Iran), June- September 2010.
- Teaching Assistant of Power System Analysis I, Shahed University, (Address: Persian Gulf Freeway, Tehran, Iran), Spring 2009.
- Presenting a workshop on ETAP Software learning in Shahed University, Tehran, Iran, May 2009.
- Purchasing Coordinator in Electro-Mehrvarzan Corporation, October 2016- May 2017.

## EDITORIAL ACTIVITY

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- A reviewer for the following international journals and conferences:
  - IEEE Transactions on Automation Science and Engineering
  - IEEE Transactions On SMC: Systems
  - MDPI Journals including: Applied Sciences/ Energies/ Processes/ Sustainability
  - Journal of Electric Power Components & Systems - Taylor and Francis
  - International Journal of Electronics - Taylor and Francis
  - Journal of Power Electronics (JPE)
  - IEEE European Control Conference
  - IEEE International Conference on Emerging Technologies and Factory Automation
  - IEEE International Conference on Systems, Man, and Cybernetics
  - IEEE International Conference on Automation Science and Engineering
  - IEEE Conference on Control Technology and Applications
- A member of the editorial board for *the 15th International Conference on Systems and Networks Communications (ICSNC)*, 2020, Porto, Portugal.

## LANGUAGE

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- **English**           Fluent,  
 - IELTS Score: **6.5** (Listening: B2 (6.5), Reading: C1 (7) Writing: B2 (5.5) Speaking: B2 (6.5)); (Exam Date: November 26, 2016).
- **German/Italian**   Fair (Level A2)

- **Persian** Native

## COMPUTER SKILLS

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- Skillful in programming: Matlab, Visual C/C++, Simatic Step7, CPLEX.
- Skillful in engineering software: PSIM, Matlab/Simulink, Protel, Proteus, ETAP, Maxwell, Simatic WinCC Explorer.
- Skillful in general software: Word, Excel, PowerPoint, MS project, Microsoft Visio.

## HONORS AND AWARDS

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- Ranked in the top 1% of the participants in the National University Entrance Exam for B.Sc. degree.
- Ranked in the top 3% of the participants in the National University Entrance Exam for M.Sc. degree.
- Winner of the European Embedded Control Institute (EECI) grant, 2018, 2019, 2020.
- Ranked 1<sup>st</sup> among 80 students in pre-university school (GPA: 18.95 out of 20).
- A registered patent entitled “An active power factor correction circuit with dual-purpose inverter and backup power supply capability in switching converters”, Declaration number 13915014000310259.
- Achieving the top scores in three main courses related to Power Electronics (Power Electronics I: 19.25 out of 20 / Power Electronics II: 20 out of 20 / Industrial Electronics: 17.5 out of 20).

## HOBBIES

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- Photography
- Travelling
- Books, Movies and Music
- Computer and Internet
- Sports (Swimming and Jogging)

## REFERENCES

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- **Prof. Mariagrazia Dotoli** Professor, Department of Electrical and Information Engineering (DEI), Polytechnic of Bari, Bari, Italy, mariagrazia.dotoli@poliba.it.
- **Dr. Alessandra Parisio** Lecturer, Department of Electrical and Electronic Engineering, The University of Manchester, Manchester, U.K., alessandra.parisio@manchester.ac.uk.
- **Dr. Raffaele Carli** Adjunct Professor, Department of Electrical and Information Engineering (DEI), Polytechnic of Bari, Bari, Italy, raffaele.carli@poliba.it.