

**Hasan Mehrjerdi, Ph.D., ing**  
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## EDUCATION

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- **Ph.D., Electrical Engineering** 2007-2010  
Quebec University (ETS), Montreal, Canada
- **M.S., Electrical Engineering (Power Engineering)** 1999-2002  
Tarbiat Modares University, Tehran, Iran
- **B.S., Electrical Engineering (Control Engineering)** 1994-1998  
Ferdowsi University, Mashhad, Iran

## SUMMARY OF QUALIFICATIONS

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- Research skills, analysis and decision making in the following areas with high aptitude in working with team:
  - *Power Systems*
  - *Renewable Energy Integration in Power System, Smart Grid*
  - *Control System (Linear, Non-Linear, Intelligent)*
  - *Power Electronics*
- **Professional and Scientific Societies:** IEEE, Quebec Engineering Order
- **Languages Skills:** English, French, Persian (native)
- **Computer Skills :** Matlab, Matpower, DigSilent, PSS@E, OpenDSS
- **Citizenship:** Canadian

## EMPLOYMENT

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- **Assistant Professor** Jan 2015- now  
Electrical Engineering Department, Qatar University, Doha, Qatar
- **Senior Power System/Energy Researcher** 2014- 2015  
Abengoa Research (Innovative technology solutions for sustainability), Sevilla, Spain

### Projects:

- Study and analyses of renewable energy integration in power systems

- **Power System Researcher** Dec 2010- 2013  
Hydro-Quebec Research Institute (IREQ), Varennes (Quebec), Canada

### Projects:

- Impact of renewable energy integration in power systems
- Voltage Regulation based on Decentralized Control
- Power Systems Control, Coordination and Stabilization

- **Visitor Researcher** Nov-Dec 2013  
Polytechnic University of Catalonia, Barcelona, Spain

- The renewable energy and power system group

- **Research Assistant** 2007- 2010  
Quebec University (ETS) and Concordia University, Montreal, Canada  
Power Electronics and Industrial Control Research Group (GREPCI)

Projects:

- Coordination and control of multi agent systems (Nonlinear Control, Intelligent control)

- **Engineer** 2003- 2005  
Power Research Institute, Tehran, Iran

- Power System Analysis
- Design of insulation systems and fault diagnosis of electrical machines (with on and off- line tests)

- **Engineer** 2000- 2002  
Scientific Research and Technological Centre, Tehran, Iran

- Power Electronics and Drives (indirect vector control for induction motors using DSP)

## Teaching Experience

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- Assistant Professor, Qatar University, Doha, Qatar 2015-now

- Selected topics in power system (B.Sc)
- Electrical Machines (B.Sc)
- Electrical Circuit II (B.Sc)
- Advanced distribution energy system (M.Sc and PhD)
- Advanced Topics in Electrical Power System Engineering (M.Sc and PhD)

Full time member of the Academic Staff ( Azad University, Iran) 2003–2005

- Lectured courses for Bachelors Degree Students in Electrical Engineering including:

- Electric circuits Analysis
- Power Systems
- Electrical Mchines
- Linear Control
- Digital Circuits

## Funding

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- 1) Proposed and accepted with Prof. Serge Lefebvre and Prof. Maarouf Saad a grant from the NSERC for project titled "Impact of integration of distributed renewable energy in Canadian power distribution system", 2014-2016.
- 2) Proposed and accepted with Prof. Serge Lefebvre and Prof. Maarouf Saad a grant from the NSERC for project titled "Coordinated control strategy of voltage regulation in power system based on multi-agent system", 2011-2013.

## Grants and Awards

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- Industrial Postdoctoral Award, NSERC and IREQ, Montreal, Canada, 2011
- Mobility Scholarship (External Research Activities), Carnegie Mellon University, USA, 2010
- Intern Scholarship, Québec University (École de technologie supérieure), 2010
- Groupe Compass Scholarship, Québec University (École de technologie supérieure), 2010
- PhD thesis grant in association with Quebec Government(SRT and AUTO21), Quebec, Canada, 2007-2009
- Research Bursary for Fuel Cell Electrical Vehicle, Ministry of Education, Recreation and Sport (MELS), Program for academic cooperation in higher education and Research, Quebec/New Brunswick, 2006

## PUBLICATIONS

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### Book Chapter:

**H. Mehrjerdi.**, S. Lefebvre, M. Saad, "STATCOM Application for Decentralized Secondary Voltage Control of Transmission Networks," in Static Compensators (STATCOMs) in Power Systems, *Springer*, 2014.

### Journal Articles:

1. N. Al-Emadi , A. Ghorbani., **H. Mehrjerdi.** « Synchrophasor-Based Distance Protection of Multi-Terminal Transmission Lines ». *IET Generation, Transmission & Distribution*, Submitted, 2015
2. A. Ghorbani., **H. Mehrjerdi.** « New Algorithm for Estimation of Impedance in Digital Distance Relay ». *Electric Power Systems Research*, Submitted, 2015.
3. A. Ghorbani., **H. Mehrjerdi.**, N. Al-Emadi. « A PMU based distance protection in the presence of SSSC and SCC ». *IEEE Transactions on Smart Grid*, Submitted, 2015.
4. N. Al-Emadi., M. Mehra, E. Pouresmaeil, **H. Mehrjerdi.** « Stability Analysis for the Operation of Modular Multilevel Converters (MMCs) in Power System ». *Energy*, Submitted, 2015.
5. H. Mortazavi., **H. Mehrjerdi.**, M. Saad, S. Lefebvre, and D. Asber. « An Impedance Based Power Factor Management ». *IEEE Transactions on Power Delivery*, Submitted, 2015.
6. H. Mortazavi., **H. Mehrjerdi.**, M. Saad, S. Lefebvre, and D. Asber. « An Impedance Based Method for Distribution System Monitoring ». *IEEE Transactions on Smart Grid*, Accepted, 2015.
7. M. Mehra, E. Pouresmaeil, **H. Mehrjerdi**, BN Jørgensen, JPS Catalão. « Control technique for enhancing the stable operation of distributed generation units within a microgrid ». *Energy Conversion and Management*, vol. 97, pp. 362-373, 2015.

8. H. Mortazavi., **H. Mehrjerdi.**, M. Saad, S. Lefebvre, and D. Asber. « A Monitoring Technique for Reversed Power Flow Detection with High PV Penetration Level ». *IEEE Transactions on Smart Grid*, vol. 6, no.5, pp. 2221-2232, Sep 2015.
9. J. Mezquita., **H. Mehrjerdi.**, S. Lefebvre, M. Saad, P. J. Lagacé, and D. Asber. « A secondary voltage regulation approach for Hydro-Québec in transmission level ». *Electric Power Systems Research*, vol. 121, pp. 183-191, 2015.
10. M. D., Amadou, **H. Mehrjerdi**, S, Lefebvre, M.Saad, and D. Asber. « Area Voltage Control Analysis using Clustering Sensitivity based Technique in Transmission System». *IET Generation, Transmission & Distribution*, vol. 8, no.12, pp. 2134-2143, 2014.
11. **H. Mehrjerdi.**, S. Lefebvre., M.Saad, and D. Asber. « Coordinated Control Strategy Considering Effect of Neighbourhood Compensation for Voltage Improvement in Transmission Systems ». *IEEE Trans. Power Syst.*, vol. 28, no.4, pp. 4507-4515, Nov 2013.
12. **H. Mehrjerdi**, S. Lefebvre., M.Saad, and D. Asber. « A Decentralized Control of Partitioned Power Networks for Voltage Regulation and Prevent Disturbance Propagation ». *IEEE Trans. Power Syst.*, vol. 28, no.2, pp. 1461-1469, May 2013.
13. **H. Mehrjerdi**, E. Ghahremani, S. Lefebvre, and M.Saad. « An Authenticated Voltage Control of Partitioned Power Networks with Optimal Allocation of STATCOM Using Heuristic Algorithm ». *IET Generation, Transmission & Distribution*, vol. 7, no.9, pp. 1037-1045, 2013.
14. J. Ghommam, **H. Mehrjerdi**, and M. Saad « Robust Formation Control without Velocity Measurement of the Leader Robot ». *Control Engineering Practice*, vol. 21, no 8, p. 1143-1156, 2013.
15. **H., Mehrjerdi**, M. Saad, and J. Ghommam. « Hierarchical Fuzzy Cooperative Control and Path Following for a Team of Mobile Robots ». *IEEE/ASME Transactions on Mechatronics*, vol. 16, no 5, p. 907-917, 2011.
16. **H. Mehrjerdi**, J. Ghommam, and M. Saad. « Nonlinear Coordination Control for a Group of Mobile Robots Using a Virtual Structure ». *Mechatronics*, vol. 21, p. 1147-1155, 2011.
17. **H. Mehrjerdi**, and M. Saad. «Chattering Reduction on Dynamic Tracking Control of a Nonholonomic Mobile Robot using Exponential Sliding Mode ». *Journal of Systems and Control Engineering*, vol. 225, no 7, p. 875-886, 2011.
18. J. Ghommam, **H. Mehrjerdi**, M. Saad, and F. Mnif. « Adaptive Coordinated Path Following Control of Nonholonomic Mobile Robots with Quantized Communication ». *IET Control Theory & Applications*, vol. 5, no 17, p. 1990-2004, 2011.
19. J. Ghommam, **H. Mehrjerdi**, and M. Saad. « Cascade Design for Formation Control of Nonholonomic Systems in Chained Form ». *Journal of the Franklin Institute, Engineering and Applied Mathematics*, vol. 348, no 6, p. 973-998, 2011.
20. **H. Mehrjerdi**, J. Ghommam, M. Saad, and A. Zerigui « Optimized Neuro-Fuzzy Coordination for multiple four wheeled mobile robots». *Information Technology Journal*, vol. 9, no. 8, p. 1557-1570, 2010.
21. J. Ghommam, **H. Mehrjerdi**, and M. Saad. « Group Coordination Control of Multiple Mobile Robots with Communication Delay». *Transactions on Systems, Signals & Devices*, vol. 5, No. 1, p.1-20, 2010.
22. J. Ghommam, **H. Mehrjerdi**, M. Saad, and F. Mnif. « Formation path following control of unicycle-type mobile robots ». *Robotics and Autonomous Systems*, vol. 58, no 5, p. 727-736, 2010.
23. J. Ghommam, **H. Mehrjerdi**, and M. Saad. « Coordinated path following control for a group of mobile robots with velocity recovery ». *Journal of Systems and Control Engineering*, vol. 224, no 8, p. 995-1006, 2010.

## Conference Presentations:

24. **H. Mehrjerdi.**, N. Al Emadi, P. Rodriguez. « Power System Frequency and Voltage Partitioning in Presence of Renewable Energy Resources (Example: North Chile Power Network)». *IEEE Power & Energy Society General Meeting (17-21 July), Boston, USA, 2016.*
25. A. Ghorbani, **H. Mehrjerdi.**, N. Al Emadi, P. Rodriguez. « The 48-pulse VSC-based generalized interline power flow controller (GIPFC) ». *IEEE Power & Energy Society General Meeting (17-21 July), Boston, USA, 2016.*
26. H. Mortazavi., **H. Mehrjerdi.**, M. Saad, S. Lefebvre, and D. Asber. « Application of Distance Relay for Reverse Power Flow Detection». *IEEE Power & Energy Society General Meeting (26-30 July), Denver, USA, 2015.*
27. **H. Mehrjerdi**, D. Asber, S. Lefebvre et M.Saad. 2013. « Wind Power Plant Effect and Control in Hydro-Quebec Electrical Network ». *International Conference on Modeling, Identification and Control (1-2 Sept), Cairo, Egypt, 2013.*
28. **H. Mehrjerdi**, S. Lefebvre et M.Saad. « Eliminating Voltage Violations in Power Systems Using Secondary Voltage Control and Decentralized Neural Network ». *IEEE Power & Energy Society General Meeting (21-25 July), Vancouver, Canada, 2013.*
29. M. D. Amadou, **H. Mehrjerdi**, S. Lefebvre, et M.Saad. « Secondary Voltage Control based on Estimation of Reactive Power Deficit ». *IEEE Power & Energy Society General Meeting (21-25 July), Vancouver, Canada, 2013.*
30. **H. Mehrjerdi**, S. Lefebvre., M. Saad et D. Asber. « Graph Partitioning of Power Network for Emergency Voltage Control ». *9<sup>th</sup> Asian Control Conference (23-26 June), Istanbul, Turkey, 2013.*
31. Y. Zhang, **H. Mehrjerdi** « A Survey on Multiple Unmanned Vehicle Formation Control and Coordination: Normal and Fault Situations ». *International Conference on Unmanned Aircraft Systems (ICUAS), p. 1087–1096, 2013.*
32. **H. Mehrjerdi**, S. Lefebvre., M. Saad et D. Asber. « Use of Graph Theory for Secondary Voltage Control». *CIGRÉ Canada Conference on Power Systems: Technology and Innovation for the Evolving Power Grid (24-26 Sept), Montreal, Canada, 2012.*
33. **H. Mehrjerdi**, H., S. Lefebvre., M. Saad et D. Asber. « Intelligent Voltage Regulation and Pilot Bus Selection for Power Systems». *The International Symposium on Smart Grid Operation and Control (17-18 Oct), Kurdistan, Iran, 2012.*
34. **H. Mehrjerdi**, H., M. Saad et J. Ghommam. « Multi Mobile Robots Coordination in Presence of Obstacles ». *IEEE International Conference on Mechatronics (13-15 Apr), Istanbul, Turkey, 2011.*
35. J. Ghommam, **H. Mehrjerdi**, M. Saad. « Leader-Follower Formation Control of Nonholonomic Robots with Fuzzy Logic Based Approach for Obstacle Avoidance ». *IEEE International Conference on Intelligent Robots and Systems (20-30 Sep), San Francisco, USA, 2011.*
36. **H. Mehrjerdi**, M. Saad, J. Ghommam et A. Zerigui. « Cooperation Control for a Team of Mobile Robots Based on Fuzzy Logic ». *In IEEE/ASME International Conference on Advanced Intelligent Mechatronics (6-9 July) Montreal, Canada, 2010.*
37. **H. Mehrjerdi**, et M. Saad. « Dynamic Tracking Control of Mobile Robot using Exponential Sliding Mode ». *In 36th Annual Conference of the IEEE Industrial Electronics (7- 10 Nov) AZ, USA, 2010.*
38. **H. Mehrjerdi**, M. Saad et J. Ghommam. « Fuzzy Crash Avoidance and Coordination between Mobile Robots ». *In 18th Mediterranean Conference on Control and Automation. p. 592-597 Marrakech, Morocco, 2010.*
39. **H. Mehrjerdi**, M. Saad et J. Ghommam. « Formation and path following for multiple mobile robots ». *In IEEE International Symposium on Industrial Electronics (4-7 July). Bari, Italy, 2010.*

40. **H. Mehrjerdi**, et J. Ghouili. « Strategies comparison for Optimization of Multi Objective Function in a Fuel Cell Electrical Vehicle ». *Canadian Conference on Electrical and Computer Engineering*. p. 1337 - 1341 Ottawa, Canada, 2006.
41. M. Mirzayee, **H. Mehrjerdi** et I. Tsurkerman. « Analysis of a High-Speed Solid Rotor Induction Motor Using Coupled Analytical method and Reluctance Networks ». In *IEEE/ACES International Conference on Wireless Communications and Applied Computational Electromagnetics (3-7 April)* p. 537-540. Hawaii, USA, 2005.

## Co-Advisor

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## Doctoral and Master Students

- H. Mortazavi**, “Impact of high penetration of PV on distribution systems (voltage control),” started Sep, 2012.  
**J. Rahman**, “Impact of high penetration of PV on distribution systems (frequency control),” started Jan, 2014

## INVITED TALK

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**H. Mehrjerdi**, “Trends in Power Systems Control and Renewable Energy Integration,”

Qatar University, *Doha, Qatar, May 2014.*

Abengoa Research, *Sevilla, Spain, Dec 2013.*

The Polytechnic University of Catalonia, *Barcelona, Spain, Nov 2013.*

Nanyang Technological University (NTU), *Singapore, Sep 2013.*

Clarkson University, *NY, USA, Mar 2013.*

Michigan-Dearborn University, *MI, USA, Feb 2013.*

Carleton University, *Ottawa, Canada, Jan 2012.*

## REFERENCES

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