

# Mir Hadi Athari

(804) 269-6059 | atharih@vcu.edu | people.vcu.edu/~atharih

## EDUCATION

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**Virginia Commonwealth University**, Richmond, VA, USA, fall 2015 – present

**Ph.D. Candidate**, Electrical Engineering

*Research area:* Grid vulnerability analysis, renewable energy integration, power system modeling

*Advisor:* Dr. Zhifang Wang

GPA: 4.0

**Amirkabir University of Technology (Tehran Polytechnic)**, Tehran, Iran, 2014

**M.Sc.** in Electrical Engineering (Energy management)

*Thesis:* Optimal Fuzzy Control of On-grid Hybrid Renewable Energy System

*Advisor:* Dr. Morteza Mohammadi Ardehali

GPA: 3.91

**University of Tabriz**, Tabriz, Iran, 2012

**B.Sc.** in Electrical Engineering

*Thesis:* Installation and implementation of Schering Bridge in High Voltage Laboratory of University of Tabriz

*Advisor:* Dr. Heresh Seyyedi

GPA: 3.60

## RELEVANT COURSEWORK

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- Power system analysis
- Energy storage
- Substation design
- Sustainable and eff. energy systems
- Power system operation and control
- Economy and energy management
- Renewable energy resources
- Micro-grids and smart grids
- VAR control in power systems

## ACADEMIC PROJECTS

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- Modeling cascading overload failure in power grids considering uncertainty from renewable generation, fall 2016
- Statistical analysis on power system transmission network for synthetic grid modeling validation, fall 2016
- Photovoltaic distributed generation impacts on distribution network, summer 2016.
- Renewable generation and smart grid loads modeling for grid vulnerability studies, fall 2015.
- Optimal sizing of an on-grid PV system and a solar thermal (ST) system for a residential load, summer 2013.
- Developing a MATLAB graphical user interface (GUI) for optimal design of PV and ST systems, summer 2013.
- Study of effects of market pricing in the optimal sizing of grid-connected PV system, summer 2013.
- Energy auditing and performance evaluation of a cement factory, winter 2012.
- Design of a 230/132 kV substation as the senior project for Substation design course, spring 2012
- Installation of a *Schering Bridge* in high voltage laboratory of University of Tabriz, summer 2012.

## SKILLS

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- **Computer:** Programming Languages: MATLAB, C++, Python  
Engineering Software Expertise: PSCAD/RSCAD, PowerWorld, PSS/E, GAMS, MATLAB Simulink, MATLAB Control and Optimization Toolboxes, PASHA  
Text editors: MS Office, Latex  
General software: MS Excel, Photoshop
- **Data Analysis and Interpretation**

## WORK EXPERIENCE

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- **Graduate Research Assistant**, Virginia Commonwealth University, Richmond, VA Aug. 2015 - Present
- **Academic Projects Consultant**, Amirkabir University of Technology, Tehran, Iran Sep. 2012 - Jun. 2015
- **Graduate Research Assistant**, Amirkabir University of Technology, Tehran, Iran Sep. 2012 - Aug. 2014
- **Intern**, Tabriz Electricity Distribution Company, Tabriz, Iran Jul. 2012. - Sep. 2012

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## RESEARCH INTERESTS

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- Power system vulnerability analysis
- Electricity markets and economics
- Integration of renewable energy resources
- Intelligent energy management and control of micro-grids
- Application of intelligent methods in power systems
- Statistical modeling of renewable generation and smart grid loads

## PUBLICATIONS

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### Journal Publications:

- **M.H. Athari** and Z. Wang, "Study on the Voltage Level Dependence of Grid Parameters and Variables," *IEEE Tran. On Power Systems*, Jul. 2017, (to be submitted).
- **M.H. Athari** and Z. Wang, "Impacts of Wind Power Uncertainty on Grid Vulnerability to Cascading Overload Failures," *IEEE Tran. On Sustainable Energy*, Jun. 2017, PP(99):1-1.
- A.B. Birchfield, E. Schweitzer, **M.H. Athari**, T. Xu, T.J. Overbye, A. Scaglione, and Z. Wang, "Validation Metrics to Assess the Realism of Synthetic Power Grids," *IEEE Tran. On Power Systems*, Mar. 2017, (under review).
- **M.H. Athari** and M.M. Ardehali, "Operational performance of energy storage as function of electricity prices for on-grid hybrid renewable energy system by optimized fuzzy logic controller," *Renewable Energy, Elsevier*, Jan. 2016, 85:892-902.

### Peer-reviewed Conference Papers:

- **M.H. Athari**, C. Yang, and Z. Wang, "Sequential Optimal Placement of Distributed Photovoltaics using Downstream Power Index," *49th North American Power Symposium (NAPS)*, Sep. 2017, Morgantown, WV (Accepted, to appear).
- **M.H. Athari** and Z. Wang, "Statistically Characterizing the Electrical Parameters of the Grid Transformers and Transmission Lines," *10th Bulk Power Systems Dynamics and Control Symposium, IREP2017*, Sep. 2017, Espinho, Portugal, (Accepted, to appear).
- **M.H. Athari** and Z. Wang, "Studying Cascading Overload Failures under High Penetration of Wind Generation," *IEEE Power & Energy Society General Meeting, PESGM2017*, Jul. 2017, Chicago, IL, (Accepted, to appear).
- H. Sadeghian, **M.H. Athari**, and Z. Wang, "Optimized Solar Photovoltaic Generation in a Real Local Distribution Network," *IEEE Innovative Smart Grid Technologies, ISGT2017*, Apr. 2017, Arlington, VA.
- **M.H. Athari** and Z. Wang, "Time-Series Analysis of Photovoltaic Distributed Generation Impacts on a Local Distributed Network," *IEEE PowerTech2017*, Jun. 2017, Manchester, UK.
- **M.H. Athari** and Z. Wang, "Modeling the Uncertainties in Renewable Generation and Smart Grid Loads for the Study of the Grid Vulnerability," *IEEE Innovative Smart Grid Technologies, ISGT2016*, Sep. 2016, Minneapolis, MN.
- **M.H. Athari**, G.B. Gharehpetian, and H. Sadeghian, "Optimized Fuzzy Controller for Charging Algorithms of Plug-in Hybrid Electric Vehicles" *23rd Iranian Conference on Electrical Engineering (ICEE 2015)*, Sharif University of Technology, Tehran, Iran, Feb. 2015.
- H. Sadeghian, G.B. Gharehpetian, and **M.H. Athari** "Improved Multi-agent System for Intelligent Energy Management of Microgrids in Presence of PHEVs," *23rd Iranian Conference on Electrical Engineering (ICEE 2015)*, Sharif University of Technology, Tehran, Iran, Feb. 2015.
- **M.H. Athari** and M.M. Ardehali, "Performance Evaluation of a Renewable Energy System in Grid-connected Mode and Optimal FLC Using Particle Swarm Optimization Algorithm," *22nd Iranian Conference on Electrical Engineering (ICEE 2014)*, Shahid Beheshti University, Tehran, Iran, Mar. 2014.

## PROFESSIONAL/EXTRACURRICULAR ACTIVITIES

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- Treasurer, VCU Engineering Graduate Student Association (EGSA), Apr. 2017 – Present
- Mentor, VCU Dean's Early Research Initiative (DERI) program, Jul. 2016 – Present
- Webmaster, EPES lab website, Aug. 2016 – Present
- EPES lab tour guide for high school students, Sep. 2015 - Present
- Invited seminar in VCU department of Electrical Engineering Graduate Seminar, Feb. 2017
- Invited research presentation for Virginia Dominion Power experts, Apr. 2016

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- Reviewer for journals and conferences including *IEEE PES General Meeting*, *Journal of Renewable Energy*, *Journal of Energy Conversion & Management*, *Renewable & Sustainable Energy Reviews*, *International Transactions on Electrical Energy Systems*, since Aug. 2015
- IEEE Power and Energy Society student membership, since Sep. 2014
- Member, Graduate Student Association in ECE dept. of Tehran Polytechnic University, Sep. 2012 - Jul. 2014

## HONORS & AWARDS

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- VCU ECE department Outstanding Graduate Research Assistant, Jun. 2017
- VCU Dean's Early Research Initiative (DERI) program award, Sep. 2016
- VCU Graduate School travel award, Sep. 2016 & Jun. 2017
- VCU ECE department travel award, Sep. 2016 & Jun. 2017
- Ranked 1<sup>st</sup> in 2014 class of Energy Management students, Amirkabir University of Technology, Apr. 2014
- Ranked 142<sup>nd</sup> in Nationwide University Entrance Exam (MSc) among more than 230,000 participants, Sep. 2012
- Ranked 1<sup>st</sup> in 2012 class of Power Engineering students, University of Tabriz, May 2012