


# Nima Taghipourbazargani

 Nima T.Bazargani

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## PROFESSIONAL PROFILE

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Experienced graduate research associate with 6+ years of research experience in power system planning, operation, security with focuses on: machine learning (ML) and data science application for real-time integration of Synchrophasor data, power system dynamics and stability, resiliency-oriented planning and operation of power system, battery energy storage systems and their integration to renewable energy sources in Microgrids, and optimization methods applied for power system optimal planning and operation.

## TECHNICAL SKILLS

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- **Programming Languages:** Python (Scikit learn, PyTorch, TensorFlow), SQL, MATLAB, GAMS, C++
- **Data Science Skill/Tools:** Machine learning (classification and regression), Big data, GitHub, Data management, Amazon web services (AWS)
- **Power System Software:** PSS<sup>®</sup>E, DSATools, PSLE, Digsilent, PowerWorld, PSCAD

## RELEVANT COURSEWORK

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Foundation of Statistical Machine Learning, Machine Learning in Smart Grids, Power System Dynamic, Power System Stability, Wide Area Monitoring Systems (WAMS) Application in Power Systems, Power System Reliability, Power System Planning, Power System Advanced Protection, Power System Transients, Flexible AC Transmission Systems (FACTS), Smart Grids.

## ACADEMIC WORKING EXPERIENCE

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### Arizona State University

Tempe, AZ

Graduate Research Associate

Aug. 2019 - present

- Project Title: “High-Dimensional Spatio-Temporal Data Science for a Resilient Power Grid: Towards Real-Time Integration of Synchrophasor Data”
- This project is supported by the National Science Foundation under Grant No. OAC-1934766.
- Project description: Real time identification of power system events using high-dimensional spatio-temporal PMU data by (i) characterizing events based on a set of features obtained from modal analysis, and (ii) applying machine learning techniques to produce a robust classifier from limited but feature-rich training data.

### Arizona State University

Tempe, AZ

Graduate Research Associate

Aug. 2019 - Aug. 2021

- Project Title: “Machine learning approaches for real-time integration of Synchrophasor data” (The Final Report is available online [here](#))
- This project is supported by the Power System Engineering Research Center (PSERC) under project S-87.

### Technical University of Darmstadt

Darmstadt, Germany

Research Assistant

Oct. 2018 - May 2019

- Collaborative research center 1053 MAKI- Multi-Mechanisms Adaptation for the Future Internet.
- Project description: Formulation of reliable virtual network embedding in stochastic contexts as a central mixed integer linear programming problem and its application in communication network for energy automation.

## INDUSTRIAL WORKING EXPERIENCE

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### Powerline (FKA gigElev)

San Francisco Bay Area, California

Data Scientist Intern

May. 2022 – Aug. 2022

- Powerline is a startup company which is focusing on transforming the electricity grid and eMobility. My role as an intern was to develop Application Programming Interface (API) to interact with data sources and databases and build production-level real-time machine learning models for forecasting different aspects of the electricity grid.

### Niroy Research Institute (NRI)

Tehran, Iran

Project advisor

Aug. 2017 – Jun 2018

- Project description: resiliency definition, evaluation and analysis of power system infrastructure in Iran

## EDUCATION

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### Arizona State University

Tempe, AZ

*Ph.D. in Electrical Engineering (GPA: 3.86/4)*

*Expected Graduation: April 2023*

Dissertation: “Real time identification of power system events using phasor measurement units (PMUs) data ” (Advisors: Dr. Lalitha Sankar, Dr. Oliver Kosut)

### K.N.Toosi University of Technology

Tehran, Iran

*M.Sc. in Electrical Engineering - Power System (GPA: 18.69/20)*

*Sep. 2015 - July 2018*

Thesis Title: “Optimal sizing and allocation of battery energy storage systems in order to enhance micro-grid resiliency”(Advisors: Dr. S.M.T Bathaee)

### Shahid Beheshti University

Tehran, Iran

*B.Sc. in Electrical Engineering - Transmission and Distribution Network*

*Sep. 2008 - Sep. 2014*

Thesis Title: “Design and construction of a static frequency converter for induced voltage test of transformers”

## PUBLICATIONS

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- **Nima T.Bazargani**, Gautam Dasarathy, Oliver Kosut, and Lalitha Sankar, “A Machine Learning Framework for Event Identification via Modal Analysis of PMU Data,” in the *IEEE Transactions on Power Systems*, 2022, doi: 10.1109/TPWRS.2022.3212323.
- Rajasekhar Anguluri, **Nima T.Bazargani**, Oliver Kosut, and Lalitha Sankar, “A Complex-LASSO Approach for Localizing Forced Oscillations in Power Systems,” presented at the *IEEE Power and Energy Society, General Meeting 2022*.
- **Nima T.Bazargani**, Gautam Dasarathy, Oliver Kosut, and Lalitha Sankar, “Event Identification Framework Based on Modal Analysis of Phasor Measurement Unit Data,” poster presented at the *IEEE Power and Energy Society, General Meeting, July 26-29, 2021*.
- **N.T. Bazargani**, S.M.T Bathaee, “A Novel Approach for Probabilistic Hurricane Resiliency Assessment of a Grid Connected Microgrid Using Point Estimated Method”, Submitted to the *IEEE region 8 paper contest*. Presented at the *19th IEEE Mediterranean Electrotechnical Conference, Melecon, Morocco, 2018*.
- Z. Afshar, **N.T. Bazargani** and S. M. T Bathaee, “Virtual Synchronous Generator for Frequency Response Improving and Power Damping in Microgrids using Adaptive Sliding Mode Control,” *International Conference and Exposition on Electrical And Power Engineering (EPE), Iasi, Romania, 2018*.
- **N.T. Bazargani** and S. M. T. Bathaee, “A General Framework for Resiliency Evaluation of Radial Distribution System Against Extreme Events,” *Iranian Conference on Electrical Engineering (ICEE), Mashhad, Iran, 2018*.
- **N.T. Bazargani**, S.M.T Bathaee, Majid Hosseina, “Optimal Sizing of Battery Energy Storage and penetration degree of wind turbines using NSGA-II”, *Iranian Conference on Electrical Engineering (ICEE), Tehran, Iran, Jul 2017*.

## ADDITIONAL

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### Membership and Professional Services:

- Vice-president of the Iranian Student Association (ISA) at ASU.
- Social chair of the IEEE Power and Energy Society (PES) student chapter committee at ASU.
- Guest Researcher in the largest DFG-funded interdisciplinary project, Collaborative Research Centre 1053: MAKI “Multi-Mechanisms Adaptation for the Future Internet” at Technische Universität Darmstadt.
- Paper reviewer of IEEE Transactions on Power Systems, International Journal of Electrical Power and Energy Systems, International Power System Conference (PSC)
- Former member of power systems studies department at Niroo Research Institute (NRI)

### Honours and Awards:

- Ranked 2<sup>nd</sup> at K.N.Toosi university of technology (M. Sc. degree)
- Ranked 240<sup>th</sup> in National Universities Entrance Exam for Master (among more than +30,000)
- My paper entitled “A Novel Approach for Probabilistic Hurricane Resiliency Assessment of a Grid Connected Microgrid Using Point Estimated Method” has been classified as one of the best five papers in the IEEE region 8 paper contest and presented at the 19th IEEE Mediterranean Electrotechnical Conference, Melecon, May 2018 in Marrakech, Morocco.