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## Research profile

Saeed Peyghami received the B.Sc., M.Sc. and Ph.D. all in electrical power engineering from Sharif University of Technology, Tehran, Iran in 2011, 2013 and 2017 respectively. From 2017 to 2021, he was a Postdoctoral researcher at Aalborg University, where he is currenlty an Associate Professor. His research intrest includes reliability and risk assessment in modern power systems, control and stability of power electronics based power systems, and Quantum computing applications in power systems.

## Qualifications

Electrical Engineering, PhD, Sharif University of Technology
2013 → 2017
Award Date: 20 Jun 2017

## Employment

## Research outputs

**RelyPES: A Tool for Power and Energy System Reliability and Risk Assessment**
Peyghami, S., Hosseini, S. A. & Blaaberg, F., 26 Jun 2024, *2024 18th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS).* IEEE (Institute of Electrical and Electronics Engineers), p. 1-6 6 p. 10667128. (International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)).

**Power Routing: Active Asset Management in Power Electronics Systems**
Peyghami, S. & Blaabjerg, F., Oct 2022, In: I E E E Transactions on Industry Applications. 58, 5, p. 6418-6427 10 p., 9822975.

**Model-based Reliability-Centered Design of Power Electronics Dominated Microgrids**
Peyghami, S., Blaabjerg, F. & Fotuhi-Firuzabad, M., Jun 2022, *Proceedings of the 2022 17th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS).* Manchester, United Kingdom: IEEE (Institute of Electrical and Electronics Engineers), p. 1-6 6 p. 9810597. (International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)).

**Reliability Modeling and Assessment of De-rated Redundant Power Converters**
Peyghami, S., Abarzadeh, M. & Blaabjerg, F., May 2022, *Proceedings of the 2022 International Power Electronics Conference (IPEC-Himeji 2022- ECCE Asia).* Himeji, Japan: IEEE (Institute of Electrical and Electronics Engineers), p. 2544-2551 8 p. 9806972

**The Role of Power Electronics in Modern Energy System Integration**
Peyghami, S., Sahoo, S., Wang, H., Wang, X. & Blaabjerg, F., 2022, 1 ed. Now Publishers. 74 p. (Foundations and Trends in Electric Energy Systems; No. 1, Vol. 5).

**Intelligent long-term performance analysis in power electronics systems**
Peyghami, S., Dragicevic, T. & Blaabjerg, F., 6 Apr 2021, In: Scientific Reports. 11, 1, 18 p., 7557.

**Incorporating Power Electronic Converters Reliability into Modern Power System Reliability Analysis**
Peyghami, S., Blaabjerg, F. & Palensky, P., Apr 2021, In: I E E E Journal of Emerging and Selected Topics in Power Electronics. 9, 2, p. 1668 - 1681 14 p., 8962198.

**Reliability/Cost-based Power Routing in Power Electronic-based Power Systems**
Peyghami, S. & Blaabjerg, F., 2021, *2021 IEEE Energy Conversion Congress and Exposition (ECCE).* IEEE (Institute of Electrical and Electronics Engineers), p. 789-795 (IEEE Energy Conversion Congress and Exposition).

**Smart Grid Challenges and Barriers**
Peyghami, S. & Blaabjerg, F., 2021, *Smart Grid and Enabling Technologies.* Wiley, p. 449-467

**Availability Modeling in Power Converters Considering Components Aging**
Peyghami, S. & Blaabjerg, F., Dec 2020, In: I E E E Transactions on Energy Conversion. 35, 4, p. 1981-1984 4 p., 9173721.

**A Decentralized Frequency Regulation Scheme in AC Microgrids**
Peyghami, S., Zarei, S. F., Ghasemi, M. A., Palensky, P. & Blaabjerg, F., Nov 2020, *2020 IEEE 21st Workshop on Control and Modeling for Power Electronics, COMPEL 2020.* IEEE Signal Processing Society, p. 1-5 9265766. (IEEE Workshop on Control and Modeling for Power Electronics (COMPEL) ).

**Demands for Bridging Power Electronics and Power System Engineering Concepts**
Peyghami, S. & Blaabjerg, F., Nov 2020, *Proceedings of the 2020 5th IEEE Workshop on the Electronic Grid (eGRID).* IEEE Press, p. 1-8 8 p. 9330663

**A Guideline for Reliability Prediction in Power Electronic Converters**
Peyghami, S., Wang, Z. & Blaabjerg, F., Oct 2020, In: I E E E Transactions on Power Electronics. 35, 10, p. 10958-10968 11 p., 9042353.

**System-level Design for Reliability and Maintenance Scheduling in Modern Power Electronic-based Power Systems**
Peyghami, S., Palensky, P., Fotuhi-Firuzabad, M. & Blaabjerg, F., Oct 2020, In: IEEE Open Access Journal of Power and Energy. 7, p. 414 - 429 16 p., 9214842.

**Maintenance Scheduling in Power Electronic Converters Considering Wear-out Failures**
Peyghami, S., Blaabjerg, F., Torres, J. R. & Palensky, P., Sept 2020, *2020 22nd European Conference on Power Electronics and Applications, EPE 2020 ECCE Europe.* IEEE (Institute of Electrical and Electronics Engineers), p. 1-10 10 p. 9215657. (2020 22nd European Conference on Power Electronics and Applications, EPE 2020 ECCE Europe).

**Reliability Evaluation in Microgrids with Non-exponential Failure Rates of Power Units**
Peyghami, S., Fotuhi-Firuzabad, M. & Blaabjerg, F., Jun 2020, In: I E E E Systems Journal. 14, 2, p. 2861-2872 12 p., 8892731.

**An overview on the Reliability of Modern Power Electronic Based Power Systems**
Peyghami, S., Palensky, P. & Blaabjerg, F., Feb 2020, In: IEEE Open Journal of Power Electronics. 1, p. 34-50 17 p.

**Standard Test Systems for Modern Power System Analysis: An Overview**
Peyghami, S., Davari, P., Fotuhi-Firuzabad, M. & Blaabjerg, F., Dec 2019, In: I E E E Industrial Electronics Magazine. 13, 4, p. 86 - 105 20 p., 8939187.

**Decentralized Droop Control in DC Microgrids Based on a Frequency Injection Approach**
Peyghami, S., Davari, P., Mokhtari, H. & Blaabjerg, F., Nov 2019, In: I E E E Transactions on Smart Grid. 10, 6, p. 6782 - 6791 10 p., 8691623.

**Mission-Profile-Based System-Level Reliability Analysis in DC Microgrids**
Peyghami, S., Wang, H., Davari, P. & Blaabjerg, F., 1 Sept 2019, In: I E E E Transactions on Industry Applications. 55, 5, p. 5055 - 5067 13 p., 8727971.

### System-Level Reliability-Oriented Power Sharing Strategy for DC Power Systems
Peyghami, S., Davari, P. & Blaabjerg, F., 1 Sept 2019, In: I E E E Transactions on Industry Applications. 55, 5, p. 4865 - 4875 11 p., 8718555.

### Failure Mode, Effects and Criticality Analysis (FMECA) in Power Electronic based Power Systems
Peyghami, S., Davari, P., Firuzabad, M. F. & Blaabjerg, F., Sept 2019, *Proceedings of 2019 21st European Conference on Power Electronics and Applications (EPE '19 ECCE Europe).* IEEE Press, p. 1-9 9 p. 8915061

### Wear-Out Failure of a Power Electronic Converter Under Inversion and Rectification Modes
Peyghami, S., Davari, P., Zhou, D., Fotuhi-Firuzabad, M. & Blaabjerg, F., Sept 2019, *Proceedings of 2019 IEEE Energy Conversion Congress and Exposition (ECCE).* IEEE Press, p. 1598-1604 7 p. 8913144. (IEEE Energy Conversion Congress and Exposition).

### Power Electronics-Microgrid Interfacing
Peyghami, S., Alhasheem, M. A. M. Z. Y. & Blaabjerg, F., Jul 2019, *Variability, Scalability and Stability of Microgrids.* Muyeen, S. M., Islam, S. M. & Blaabjerg, F. (eds.). Institution of Engineering and Technology (IET)

### Reliability Modeling of Power Electronic Converters: A General Approach
Peyghami, S., Wang, Z. & Blaabjerg, F., Jun 2019, *Proceedings of 2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL).* IEEE Press, 7 p. 8769685. (IEEE Workshop on Control and Modeling for Power Electronics (COMPEL) ).

### Reliability Assessment of Single-phase PV Inverters
Peyghami, S., Davari, P., Blaabjerg, F. & Abdelhakim, A., May 2019, *Proceedings of 2019 10th International Conference on Power Electronics and ECCE Asia (ICPE 2019 - ECCE Asia).* Korea: IEEE Press, p. 3077-3083 7 p. 8796895. (International Conference on Power Electronics).

### Autonomous Operation of a Hybrid AC/DC Microgrid with Multiple Interlinking Converters
Peyghami, S., Mokhtari, H. & Blaabjerg, F., Nov 2018, In: IEEE Transactions on Smart Grid. 9, 6, p. 6480 - 6488 9 p., 7944699.

### Active Damping of Torsional Vibrations due to the Sub-harmonic Instability on a Synchronous Generator
Peyghami, S., Azizi, A., Mokhtari, H. & Blaabjerg, F., 30 Oct 2018, *Proceedings of 2018 20th European Conference on Power Electronics and Applications (EPE'18 ECCE Europe).* Latvia: IEEE (Institute of Electrical and Electronics Engineers), p. 1-8 8 p. 8515662

### Distributed and decentralized control of dc microgrids
Peyghami, S., Mokhtari, H. & Blaabjerg, F., Oct 2018, *DC Distribution Systems and Microgrids.* Dragicevic, T., Wheeler, P. & Blaabjerg, F. (eds.). 1 ed. Institution of Engineering and Technology (IET), Vol. 1. p. 23-42 20 p.

### System-level Reliability Enhancement of DC/DC Stage in a Single-Phase PV Inverter
Peyghami, S., Davari, P., Wang, H. & Blaabjerg, F., 1 Sept 2018, In: Microelectronics Reliability. 88-90, p. 1030-1035 6 p.

### Mission Profile Based Power Converter Reliability Analysis in a DC Power Electronic Based Power System
Peyghami, S., Wang, H., Davari, P. & Blaabjerg, F., Sept 2018, *Proceedings of the IEEE Energy Conversion Congress and Exposition (ECCE 2018).* USA: IEEE Press, p. 4122 - 4128 7 p. (IEEE Energy Conversion Congress and Exposition).

### Reliability and Risk Assessment in a Power Electronic Based Power System (PEPS): Using Non-Constant Failure Rates of Converters
Peyghami, S., Davari, P., Wang, H. & Blaabjerg, F., Sept 2018, *Proceedings of 2018 20th European Conference on Power Electronics and Applications (EPE'18 ECCE Europe).* Latvia: IEEE Press, p. 1-10 10 p. 8515430

### Autonomous Power Management in LVDC Microgrids based on a Superimposed Frequency Droop
Peyghami, S., Mokhtari, H. & Blaabjerg, F., Jun 2018, In: I E E E Transactions on Power Electronics. 33, 6, p. 5341-5350 10 p.

### The Impact of Topology and Mission Profile on the Reliability of Boost-type Converters in PV Applications
Peyghami, S., Davari, P., Wang, H. & Blaabjerg, F., Jun 2018, *Proceedings of the 19th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL).* Italy: IEEE Press, p. 1-8 8 p. 8460177. (IEEE Workshop on Control and Modeling for Power Electronics (COMPEL) ).

### Distributed Primary and Secondary Power Sharing in a Droop-Controlled LVDC Microgrid with Merged AC and DC Characteristics
Peyghami, S., Mokhtari, H., Loh, P. C., Davari, P. & Blaabjerg, F., May 2018, In: IEEE Transactions on Smart Grid. 9, 3, p. 2284 - 2294 11 p.

### System-Level Lifetime-Oriented Power Sharing Control of Paralleled DC/DC Converters
Peyghami, S., Davari, P. & Blaabjerg, F., Mar 2018, *APEC 2018 - 33rd Annual IEEE Applied Power Electronics Conference and Exposition.* IEEE Press, p. 1890-1895 6 p. (IEEE Applied Power Electronics Conference and Exposition (APEC)).

### Enhanced Frequency Droop Method for Load Sharing in LVDC Power Systems
Peyghami, S., Davari, P. & Blaabjerg, F., 2018, *9th Annual International Power Electronics, Drive Systems, and Technologies Conference, PEDSTC 2018.* IEEE Press, p. 358-362 5 p.

### Synchronverter-Enabled DC Power Sharing Approach for LVDC Microgrids
Peyghami, S., Davari, P., Mokhtari, H., Loh, P. C. & Blaabjerg, F., Oct 2017, In: I E E E Transactions on Power Electronics. 32, 10, p. 8089 - 8099 11 p.

### Decentralized Load Sharing in a Low-Voltage Direct Current Microgrid With an Adaptive Droop Approach Based on a Superimposed Frequency
Peyghami, S., Mokhtari, H. & Blaabjerg, F., Sept 2017, In: IEEE Journal of Emerging and Selected Topics in Power Electronics. 5, 3, p. 1205-1215 11 p., 7862742.

### On Secondary Control Approaches for Voltage Regulation in DC Microgrids
Peyghami, S., Mokhtari, H., Davari, P., Loh, P. C. & Blaabjerg, F., Sept 2017, In: I E E E Transactions on Industry Applications. 53, 5, p. 4855 - 4862 8 p.

### Grid Synchronization for Distributed Generations
Peyghami, S., Mokhtari, H., Blaabjerg, F. & Yang, Y., Jul 2017, *Encyclopedia of Sustainable Technologies: Reference Module in Earth Systems and Environmental Sciences.* Elsevier, Vol. 2017. p. 179-194 16 p.

### Hierarchical Power Sharing Control in DC Microgrids
Peyghami, S., Mokhtari, H. & Blaabjerg, F., Oct 2016, *Microgrid: Advanced Control Methods and Renewable Energy System Integration.* Mahmoud, M. (ed.). Butterworth-Heinemann, p. 63–100

### A New Secondary Control Approach for Voltage Regulation in DC Microgrids
Peyghami, S., Mokhtari, H., Davari, P., Loh, P. C. & Blaabjerg, F., Sept 2016, *Proceedings of IEEE Energy Conversion Congress and Exposition (ECCE), 2016.* IEEE Press, 6 p.

### Smart Power Management of DC Microgrids in Future Milligrids
Peyghami, S., Mokhtari, H., Davari, P., Loh, P. C. & Blaabjerg, F., Sept 2016, *Proceedings of 18th European Conference on Power Electronics and Applications (EPE'16 ECCE Europe), 2016.* IEEE Press, 10 p.

## Awards

### Pro-Risk: Pro-Risk: mathematical methods for Probabilistic Risk modeling of green electric power systems
Peyghami, S. (PI), Hosseini, S. A. (Project Participant) & Frøstrup, S. (Project Coordinator)
Independent Research Fund Denmark: DKK2,880,000.00
01/04/2023 → 31/03/2026

## Projects

**Electromagnetic Interference Analysis and Mitigation of Highly Integrated Power Electronics in Motor Drives**
Babu, P. (PI), Davari, P. (Supervisor), Blaabjerg, F. (Supervisor) & Peyghami, S. (Supervisor)
01/10/2023 → 30/09/2026

**Integrated Design for Reliability of Motor Drives in High-Power High-Speed Machines**
Ahooye Atashin, S. (PI), Blaabjerg, F. (Supervisor), Peyghami, S. (Supervisor) & Davari, P. (Supervisor)
01/01/2024 → 31/12/2026

**Integrated Design of Microgrids Considering Reliability and Stability**
Azizi, A. (PI), Blaabjerg, F. (Supervisor) & Peyghami, S. (Supervisor)
01/11/2021 → 31/10/2024

**HIPO: Integrated High-speed Power Systems for Industry and Mobile Applications**
Davari, P. (PI), Peyghami, S. (Project Participant), Blaabjerg, F. (Project Manager) & Frøstrup, S. (Project Coordinator)
European Commission
01/09/2022 → 31/08/2026

**HydroHeat: Intelligent Hydrogen Software for High-Efficiency Renewable Heat Integration**
Golmohamadi, H. (PI), Peyghami, S. (CoPI) & Golestan, S. (Project Participant)
01/01/2026 → 31/08/2026

**Optimal Allocation of Hybrid Energy Storage Systems for Stackable Applications in Distribution Grid**
Zhang, Y. (PI), Blaabjerg, F. (Supervisor), Peyghami, S. (Supervisor), Dragicevic, T. (Supervisor) & Anvari-Moghaddam, A. (Supervisor)
01/05/2021 → 30/04/2024

**Pro-Risk: Pro-Risk: mathematical methods for Probabilistic Risk modeling of green electric power systems**
Peyghami, S. (PI), Hosseini, S. A. (Project Participant) & Frøstrup, S. (Project Coordinator)
Independent Research Fund Denmark
01/04/2023 → 30/09/2026

**RAWFaEL: Reliability Assessment of Wind Farm Electrical System**
Peyghami, S. (PI), Hosseini, S. A. (Project Participant) & Frøstrup, S. (Project Coordinator)
01/06/2023 → 31/07/2024

**RELIABILITY-ORIENTED DESIGN OF A MICROGRID SYSTEM**
Sandelic, M. (PI), Blaabjerg, F. (Supervisor), Sangwongwanich, A. (Supervisor) & Peyghami, S. (Supervisor)
01/10/2020 → 30/09/2023

**RelyPES: RelyPES: A Reliability and Risk Assessment Software Tool for Power and Energy Systems**
Peyghami, S. (PI) & Frøstrup, S. (Project Coordinator)
Innovation Fund Denmark
01/01/2023 → 31/03/2024

**SOLARIS: SOLARIS**
Peyghami, S. (PI), Davari, P. (CoI), Hosseini, S. A. (Project Participant), Tahir, M. U. (Project Participant) & Frøstrup, S. (Project Coordinator)
Horizon Europe
01/07/2024 → 30/06/2028

**System-Level Reliability Modelling and Evaluation in Power Electronic Based Generation Systems**
Davoodi, A. (PI), Blaabjerg, F. (Supervisor), Yang, Y. (Supervisor) & Peyghami, S. (Supervisor)
01/09/2019 → 31/08/2022