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Applied Power Electronic Systems
Applied Power Electronic Systems
Power Electronic Control, Reliability and System Optimization
Reliability of Power Electronic Converters



AI for the People

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Kvalifikationer

Electrical Engineering, Ph.D., Coordinated Control of DC Microgrids, Indian Institute of Technology Delhi

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Ansættelse

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AAU Energi

Det Ingeniør- og Naturvidenskabelige Fakultet

Aalborg Øst, Danmark

1 maj 2019 → 31 dec. 4712

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Det Ingeniør- og Naturvidenskabelige Fakultet

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Applied Power Electronic Systems

Det Ingeniør- og Naturvidenskabelige Fakultet

Aalborg Øst, Danmark

1 jan. 2021 → present

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Det Ingeniør- og Naturvidenskabelige Fakultet

Aalborg Øst, Danmark

1 maj 2019 → 31 dec. 4712

Power Electronic Control, Reliability and System Optimization

Det Ingeniør- og Naturvidenskabelige Fakultet

Aalborg Øst, Danmark

1 jan. 2021 → present

Reliability of Power Electronic Converters

Det Ingeniør- og Naturvidenskabelige Fakultet

Aalborg Øst, Danmark

1 jan. 2021 → present

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Det Tekniske Fakultet for IT og Design

Aalborg, Danmark

1 okt. 2024 → present

Chair

IEEE Joint IES/IAS/PELS Chapter

Danmark

1 jan. 2025 → present

Publikationer

Spike Talk: Genesis and Neural Coding Scheme Translations

Sahoo, S., maj 2025, I: IEEE Transactions on Smart Grid. 16, 3, s. 2659-2670 12 s., 10909727.

Uncertainty-Aware Artificial Intelligence for Gear Fault Diagnosis in Motor Drives

Sahoo, S., Wang, H. & Blaabjerg, F., 2025, *2025 IEEE Applied Power Electronics Conference and Exposition (APEC)*. Atlanta, Georgie, US: IEEE (Institute of Electrical and Electronics Engineers), s. 912-918 7 s. 10977491. (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition - APEC).

Did you know energy possibly speaks?

Sahoo, S., 21 mar. 2024, I: ScienceNordic.

Vidste du, at energi muligvis kan tale?

Sahoo, S., 20 mar. 2024, I: Videnskab.dk [online].

Physics-informed neural network-based control of power electronic converters

Sahoo, S., 1 mar. 2024, *Control of Power Electronic Converters and Systems: Volume 4*. Blaabjerg, F. (red.). Academic Press, Bind 4. s. 309-331 23 s.

Data-Driven Controllability of Power Electronics Under Boundary Conditions: A Physics-Informed Neural Network Based Approach

Sahoo, S. & Blaabjerg, F., mar. 2023, *Proceedings of the 2023 IEEE Applied Power Electronics Conference and Exposition (APEC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 2801-2806 6 s. 10131654. (IEEE Applied Power Electronics Conference and Exposition. Conference Proceedings).

Cyber Security for Microgrids

Sahoo, S. (Redaktør), Blaabjerg, F. (Redaktør) & Dragicevic, T. (Redaktør), sep. 2022, United Kingdom: Institution of Engineering and Technology (IET). 327 s. (IET Energy Engineering Series, Bind 196).

Cybersecurity in future energy systems: outlooks and recommendations

Sahoo, S., Mantooth, H. A. & Blaabjerg, F., 1 jan. 2022, *Cyber Security for Microgrids*. Institution of Engineering and Technology, s. 297-304 8 s.

Event-driven resiliency of microgrids against cyber attacks

Sahoo, S. & Blaabjerg, F., 1 jan. 2022, *Cyber Security for Microgrids*. Institution of Engineering and Technology, s. 269-295 27 s.

Stealth cyber attacks in microgrids: detectability and observability

Sahoo, S., Dragicevic, T. & Blaabjerg, F., 1 jan. 2022, *Cyber Security for Microgrids*. Institution of Engineering and Technology, s. 203-225 23 s.

On the Explainability of Black Box Data-Driven Controllers for Power Electronic Converters

Sahoo, S., Wang, H. & Blaabjerg, F., 16 nov. 2021, *2021 IEEE Energy Conversion Congress and Exposition (ECCE)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1366-1372 (IEEE Energy Conversion Congress and Exposition).

Cyber Security in Control of Grid-Tied Power Electronic Converters - Challenges and Vulnerabilities

Sahoo, S., Dragicevic, T. & Blaabjerg, F., okt. 2021, I: I E E E Journal of Emerging and Selected Topics in Power Electronics. 9, 5, s. 5326 - 5340 15 s., 8901166.

A Model-Free Predictive Controller for Networked Microgrids with Random Communication Delays

Sahoo, S. & Blaabjerg, F., 21 jul. 2021, *2021 IEEE Applied Power Electronics Conference and Exposition (APEC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 2667-2672 6 s. (IEEE Applied Power Electronics Conference and Exposition (APEC)).

A Localized Event Driven Resilient Mechanism for Cooperative Microgrid Against Data Integrity Attacks

Sahoo, S. & Chih-Hsien Peng, J., jul. 2021, I: I E E E Transactions on Systems, Man and Cybernetics, Part B: Cybernetics. 51, 7, s. 3687-3698 12 s., 9098896.

Multi-Layer Resilience Paradigm Against Cyber Attacks in DC Microgrids

Sahoo, S., Dragicevic, T. & Blaabjerg, F., mar. 2021, I: I E E E Transactions on Power Electronics. 36, 3, s. 2522-2532 11 s., 9158562.

Resilient Synchronization Strategy for AC Microgrids Under Cyber Attacks

Sahoo, S., Yang, Y. & Blaabjerg, F., jan. 2021, I: I E E E Transactions on Power Electronics. 36, 1, s. 73-77 5 s., 9127110.

Cyber security in power electronic systems

Sahoo, S., 2021, *Control of Power Electronic Converters and Systems*. Blaabjerg, F. (red.). Academic Press, Bind 3. s. 199-220 22 s.

An Event-Driven Resilient Control Strategy for DC Microgrids

Sahoo, S., Dragicevic, T. & Blaabjerg, F., dec. 2020, I: I E E E Transactions on Power Electronics. 35, 12, s. 13714-13724 11 s., 9095427.

Resilient Operation of Heterogeneous Sources in Cooperative DC Microgrids

Sahoo, S., Dragicevic, T. & Blaabjerg, F., dec. 2020, I: I E E E Transactions on Power Electronics. 35, 12, s. 12601-12605 5 s., 9082009.

A Linear Regression Based Resilient Optimal Operation of AC Microgrids

Sahoo, S., Rana, R., Molinas, M., Blaabjerg, F., Dragicevic, T. & Mishra, S., 9 nov. 2020, *2020 IEEE 11th International Symposium on Power Electronics for Distributed Generation Systems (PEDG)*. IEEE (Institute of Electrical and Electronics Engineers), s. 260-265 6 s. 9244379. (2020 IEEE 11th International Symposium on Power Electronics for Distributed Generation Systems, PEDG 2020).

An Adaptive Backstepping Based Virtual Inertial Control Framework for DC Microgrids

Sahoo, S., Blaabjerg, F. & Dragicevic, T., nov. 2020, *2020 IEEE 11th International Symposium on Power Electronics for Distributed Generation Systems (PEDG)*. IEEE (Institute of Electrical and Electronics Engineers), s. 85-90 6 s. 9244327. (IEEE International Symposium on Power Electronics for Distributed Generation Systems (PEDG)).

Adaptive Resilient Operation of Cooperative Grid-Forming Converters under Cyber Attacks

Sahoo, S., Dragicevic, T., Yang, Y. & Blaabjerg, F., 13 okt. 2020, *2020 IEEE CyberPELS (CyberPELS)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1-5 5 s. 9311543

On Detection of False Data in Cooperative DC Microgrids—A Discordant Element Approach

Sahoo, S., Chih-Hsien Peng, J., Devakumar, A., Mishra, S. & Dragicevic, T., aug. 2020, I: I E E E Transactions on Industrial Electronics. 67, 8, s. 6562-6571 10 s., 8825989.

Distributed Screening of Hijacking Attacks in DC Microgrids

Sahoo, S., Chih-Hsien Peng, J., Mishra, S. & Dragicevic, T., jul. 2020, I: I E E E Transactions on Power Electronics. 35, 7, s. 7574-7582 9 s., 8918297.

A Local Voting Protocol Based Cooperative DC Community Microgrids

Sahoo, S., Chih-Hsien Peng, J., Mishra, S. & Dragicevic, T., 2020, *Proceedings of the 3rd International Conference on DC Microgrids 2019*. Matsue, Japan: IEEE (Institute of Electrical and Electronics Engineers), s. 1-5 5 s. 9232822

A Distributed Fixed-Time Secondary Controller for DC Microgrid Clusters

Sahoo, S., Mishra, S., Fazeli, S., Li, F. & Dragicevic, T., dec. 2019, I: I E E E Transactions on Energy Conversion. 34, 4, s. 1997-2007 11 s., 8794747.

A Stealth Cyber Attack Detection Strategy for DC Microgrids

Sahoo, S., Mishra, S., Chih-Hsien Peng, J. & Dragicevic, T., aug. 2019, I: I E E E Transactions on Power Electronics. 34, 8, s. 8162 - 8174 13 s., 8526328.

A Distributed Finite-Time Secondary Average Voltage Regulation and Current Sharing Controller for DC Microgrids

Sahoo, S. & Mishra, S., jan. 2019, I: IEEE Transactions on Smart Grid. 10, 1, s. 282-292 11 s., 8006291.

Improved mean variance mapping optimization for the travelling salesman problem

Sahoo, S. & Erlich, I., 2015, *Computational Intelligence in Data Mining - Proceedings of the International Conference on CIDM 2014*. Behera, H. S., Mandal, J. K., Jain, L. C., Mohapatra, D. P. & Jain, L. C. (red.). Springer, s. 67-75 9 s. (Smart Innovation, Systems and Technologies, Bind 31).

Aktiviteter

Neurons in our Brains vs ANN - How different are they?

Sahoo, S. (Foredragsholder)
6 mar. 2024

Massachusetts Institute of Technology

Sahoo, S. (Gæsteforsker)
1 okt. 2023 → 29 mar. 2024

Towards More Reliable, Flexible and Secure Power Electronic Systems

Sahoo, S. (Foredragsholder), Yang, Y. (Foredragsholder) & Wang, H. (Foredragsholder)
18 okt. 2020

DC Microgrids for Transportation Electrification: Applications, Design & Control and Cyber-Security

Sahoo, S. (Foredragsholder)
15 mar. 2020

Priser

Innovative Students Projects Award 2019 - Doctoral Level

Sahoo, S. (Modtager), 2019

Bevillinger

PRISM: Probabilistic bio-plausible machine learning for deciphering hidden footprints in electrophysiology

Sahoo, S. (PI (principal investigator)), Moreno, A. (Col (co-investigator)) & Frøstrup, S. (Projektkoordinator)
Lundbeckfonden: 150.000,00 kr.
01/06/2025 → 31/05/2026

Projekter

ActRes: Agency for resilience – Making people and energy systems fit for climate change and crises

Hellwig, R. T. (PI (principal investigator)), dos Santos, L. F. (Projektdeltager), Berger, C. (Projektdeltager), Horvath, A.-S. (Projektdeltager), Horsbøl, A. (Projektdeltager), Vasquez, J. C. (Projektdeltager), Raftopoulos, M. (Projektdeltager), Yuan, M. (Projektdeltager), Rüdiger, M. (Projektdeltager), Sahoo, S. (Projektdeltager) & Guan, Y. (Projektdeltager)
01/09/2023 → 31/12/2025

AI-Assisted Adaptive Control for Operation Optimization of Smart Inverters

He, Y. (PI (principal investigator)), Wang, H. (Supervisor) & Sahoo, S. (Supervisor)
01/03/2023 → 28/02/2026

AI-Power: Artificial Intelligence for Next-Generation Power Electronics

Blaabjerg, F. (PI (principal investigator)), Wang, H. (CoPI), Sahoo, S. (Projektdeltager), Zhao, S. (Projektdeltager), Zhang, Y. (Projektdeltager), Novak, M. (Projektdeltager) & Frøstrup, S. (Projektkoordinator)
Innovationsfonden
01/09/2022 → 31/08/2027

Condition Monitoring for Smart Power Electronic Converter Systems for Distributed Generation

Ou, S. (PI (principal investigator)), Blaabjerg, F. (Supervisor), Sangwongwanich, A. (Supervisor) & Sahoo, S. (Supervisor)
01/08/2022 → 31/07/2025

Dynamic Stabilization of DC Microgrids Based on Model Predictive Control of Point-of-Load Converters

Li, Y. (PI (principal investigator)), Blaabjerg, F. (Supervisor), Sahoo, S. (Supervisor) & Dragicevic, T. (Supervisor)
01/03/2021 → 29/02/2024

Next-uGrid: Guidelines for Next Generation Buildings as Future Scalable Virtual Management of MicroGrids

Sahoo, S. (PI (principal investigator)), Jensen, K. S. (Projektdeltager) & Frøstrup, S. (Projektkoordinator)
Nordic Energy Research
18/01/2022 → 17/01/2024

Modeling, Analysis and Suppression of Wide band Instability in Large Scale Power Systems with Single Phase and Three Phase VSCs

Kong, R. (PI (principal investigator)), Blaabjerg, F. (Supervisor) & Sahoo, S. (Supervisor)
01/03/2023 → 28/02/2026

CyberPE: Power Sentinel - Safeguarding Future Power Grids

Sahoo, S. (PI (principal investigator)), Stegmann, L. (Projektdeltager), Damsgaard, S. B. (Projektdeltager) & Frøstrup, S. (Projektkoordinator)
Innovationsfonden
01/05/2024 → 30/04/2025

Power Sentinel - Safeguarding Future Power Grids

Song, Y. (PI (principal investigator)) & Sahoo, S. (Projektdeltager)
Villum Fonden
01/10/2024 → 14/11/2025

PRISM: Probabilistic bio-plausible machine learning for deciphering hidden footprints in electrophysiology

Sahoo, S. (PI (principal investigator)), Moreno, A. (Col (co-investigator)) & Frøstrup, S. (Projektkoordinator)
Lundbeckfonden
01/06/2025 → 31/05/2026

SMARTGYsum: SMART Green energy Systems and bUbusiness Models

Blaabjerg, F. (PI (principal investigator)), Sahoo, S. (Projektdeltager), Sangwongwanich, A. (Projektdeltager), Ou, S. (Projektdeltager) & Frøstrup, S. (Projektkoordinator)
European Commission
01/10/2021 → 01/07/2026

STABILITY AND RELIABILITY VALIDATION OF A MICROGRID SYSTEM

Song, Y. (PI (principal investigator)), Blaabjerg, F. (Supervisor), Yang, Y. (Supervisor) & Sahoo, S. (Supervisor)
01/06/2020 → 31/05/2023

SAFEr Grid: Store-And-Forward Energy Grid

Blaabjerg, F. (PI (principal investigator)), Sahoo, S. (CoI (co-investigator)) & Frøstrup, S. (Projektkoordinator)
HORIZON-ERC-SYG
01/04/2025 → 31/03/2031