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Electrical Engineering, Ph.D., Coordinated Control of DC Microgrids, Indian Institute of Technology Delhi
Award Date: 3 Nov 2018

Employment

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The Technical Faculty of IT and Design
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IEEE Joint IES/IAS/PELS Chapter
Denmark
1 Jan 2025 → present

Research outputs

A Unified Framework for System-Level Condition Monitoring of Power Electronic Converters

Ou, S., Sahoo, S., Sangwongwanich, A., Blaabjerg, F., Hassanifar, M., Votava, M., Langwasser, M. & Liserre, M., 29 Mar 2026, (E-pub ahead of print) In: IEEE Journal of Emerging and Selected Topics in Industrial Electronics.

Synapse-inspired energy networks: a neuromorphic approach to microgrid protection without communication links
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Advances in Reliability and Artificial Intelligence for Power Electronic Systems

Blaabjerg, F., Zhang, K., Song, Y., Zhang, Y., Yao, B., Novak, M., Zhao, S., Sahoo, S., Sangwongwanich, A. & Wang, H., Mar 2026, (E-pub ahead of print) In: *IEEE Transactions on Power Electronics*. 22 p., 11448102.

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Mulinka, P., Christou, I. T., Sahoo, S., Kalalas, C. & Nardell, P. H. J., Mar 2026, In: *IEEE Transactions on Dependable and Secure Computing*. 23, 2, p. 2387-2399 13 p.

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Comparative Evaluation of Damping Control Strategies in GFM Converters: Insights for Wideband Oscillation Mitigation

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An Efficient Long Prediction Horizon Design for Generalized Predictive Control of DC/DC Boost Converter

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The Energy Paradox of AI in Power Electronics: Innovation Driver or Unsustainable Burden?

Lin, F., Novak, M., Sahoo, S. & Wilson, P., Oct 2025, In: *IEEE Power Electronics Magazine*. 12, 4, 11324013.

A Structured Assessment of Energy Footprint and Sustainability of AI in Power Electronics

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Resilient-by-Design Control for in Situ Primary Controller of Grid-Following Inverter-Based Resources by A Novel State Augmentation to Tolerate False Data Injection Cyberattacks

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Semiconductor Devices Condition Monitoring Using Harmonics in Inverter Control Variables

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

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A Distributed Fixed-Time Secondary Controller for DC Microgrid Clusters

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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. (eds.). Springer, p. 67-75 9 p. (Smart Innovation, Systems and Technologies, Vol. 31).

Activities

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

Sahoo, S. (Lecturer)
6 Mar 2024

Massachusetts Institute of Technology

Sahoo, S. (Visiting researcher)
1 Oct 2023 → 29 Mar 2024

Towards More Reliable, Flexible and Secure Power Electronic Systems

Sahoo, S. (Lecturer), Yang, Y. (Lecturer) & Wang, H. (Lecturer)
18 Oct 2020

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

Sahoo, S. (Lecturer)
15 Mar 2020

Prizes

Innovative Students Projects Award 2019 - Doctoral Level

Sahoo, S. (Recipient), 2019

Awards

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

Sahoo, S. (PI), Moreno, A. (CoI) & Frøstrup, S. (Project Coordinator)
Lundbeck Foundation: DKK150,000.00
01/06/2025 → 31/05/2026

Projects

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

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

AI-Assisted Adaptive Control for Operation Optimization of Smart Inverters

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

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

Blaabjerg, F. (PI), Wang, H. (CoPI), Sahoo, S. (Project Participant), Zhao, S. (Project Participant), Zhang, Y. (Project Participant), Novak, M. (Project Participant) & Frøstrup, S. (Project Coordinator)
Innovation Fund Denmark
01/09/2022 → 31/08/2027

Condition Monitoring for Smart Power Electronic Converter Systems for Distributed Generation

Ou, S. (PI), 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), 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), Jensen, K. S. (Project Participant) & Frøstrup, S. (Project Coordinator)
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), Blaabjerg, F. (Supervisor) & Sahoo, S. (Supervisor)
01/03/2023 → 28/02/2026

SiC4GRID: Next generation modular sic-based advanced power electronics converters for enhanced renewables integration into the grid

Davari, P. (PI), Blaabjerg, F. (Project Manager), Sahoo, S. (Project Participant), Song, C. (Project Participant), Frøstrup, S. (Project Coordinator) & Xue, P. (Project Participant)
European Commission
01/10/2022 → 30/09/2026

CyberPE: Power Sentinel - Safeguarding Future Power Grids

Sahoo, S. (PI), Stegmann, L. (Project Participant), Damsgaard, S. B. (Project Participant) & Frøstrup, S. (Project Coordinator)
Innovation Fund Denmark
01/05/2024 → 30/04/2025

Power Sentinel - Safeguarding Future Power Grids

Song, Y. (PI) & Sahoo, S. (Project Participant)
Villum Foundation
01/10/2024 → 14/11/2025

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

Sahoo, S. (PI), Moreno, A. (Col) & Frøstrup, S. (Project Coordinator)
Lundbeck Foundation
01/06/2025 → 31/05/2026

SMARTGYsum: SMART Green energy Systems and bUiness Models

Blaabjerg, F. (PI), Sahoo, S. (Project Participant), Sangwongwanich, A. (Project Participant), Ou, S. (Project Participant) & Frøstrup, S. (Project Coordinator)
European Commission
01/10/2021 → 01/07/2026

STABILITY AND RELIABILITY VALIDATION OF A MICROGRID SYSTEM

Song, Y. (PI), 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), Sahoo, S. (Col) & Frøstrup, S. (Project Coordinator)
HORIZON-ERC-SYG
01/04/2025 → 31/03/2031