

**Artificial intelligence driven approaches for fault prognostics of electrical machines using vibration spectrum analysis =
Tehisintellektil põhinevad lähenemisviisid elektrimasinate rikete prognoosimiseks vibratsioonispektri analüüsi abil**

Kudelina, Karolina 2024 https://www.ester.ee/record=b5685285*est <https://doi.org/10.23658/taltech.28/2024>
<https://digikogu.taltech.ee/et/Item/229f1bbb-6178-414a-9e2e-2c98a30a783c>

Condition monitoring and diagnostic of electrical machines using IoT and machine learning

Raja, Hadi Ashraf 21st International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Pärnu, Estonia, June 15-18, 2022 2022 / p. 31-32 : ill https://www.ester.ee/record=b5504019*est

Condition monitoring and fault detection for electrical machines using IOT

Raja, Hadi Ashraf; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants Proceedings of the Future Technologies Conference (FTC) 2022. Volume 2 2023 / p. 162-173 https://doi.org/10.1007/978-3-031-18458-1_12 [Conference proceedings at Scopus](#) [Article at Scopus](#)

Cost-efficient real-time condition monitoring and fault diagnostics system for BLDC motor using IoT and Machine learning

Raja, Hadi Ashraf; Raval, Hardik; Vaimann, Toomas; Kallaste, Ants; Rassõlkin, Anton; Belahcen, Anouar Diagnostika '22 : 2022 International Conference on Diagnostics in Electrical Engineering : conference proceedings 2022 / 4 p.
<https://doi.org/10.1109/Diagnostika55131.2022.9905102>

A current spectrum-based algorithm for fault detection of electrical machines using low-power data acquisition devices

Asad, Bilal; Raja, Hadi Ashraf; Vaimann, Toomas; Kallaste, Ants; Pomarnacki, Raimondas; Hyunh, Van Khang Electronics 2023 / art. 1746 <https://doi.org/10.3390/electronics12071746> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Custom simplified machine learning algorithms for fault diagnosis in electrical machines

Raja, Hadi Ashraf; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Rassõlkin, Anton; Belahcen, Anouar Diagnostika '22 : 2022 International Conference on Diagnostics in Electrical Engineering : Conference proceedings 2022 / 4 p.
<https://doi.org/10.1109/Diagnostika55131.2022.9905174>

Development and utilization of synthetic signals for fault diagnostics of electrical machines

Raja, Hadi Ashraf; Kudelina, Karolina; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants IEEE journal of emerging and selected topics in industrial electronics 2024 / 9 p <https://doi.org/10.1109/JESTIE.2024.3395650>

Digital twin of wind generator for modelling various turbine characteristics

Raja, Hadi Ashraf; Autsoo, Siarhei; Kudelina, Karolina; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants; Pomarnacki, Raimondas; Hyunh, Van Khang 2023 International Conference on Electrical Drives and Power Electronics (EDPE) 2023 / p. 1-5
<https://doi.org/10.1109/EDPE58625.2023.10274050>

Digital twin of wind generator to simulate different turbine characteristics using IoT

Raja, Hadi Ashraf; Kudelina, Karolina; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants; Pomarnacki, Raimondas; Hyunh, Van Khang Proceedings of the Future Technologies Conference (FTC) 2023. Vol. 1 2023 / p. 123-132 https://doi.org/10.1007/978-3-031-47454-5_9 [Conference proceedings at Scopus](#) [Article at Scopus](#)

Enhancing transmission line reliability : an AI-driven approach to fault identification and classification

Shabbir, Noman; Kamran, Daniel; Raja, Hadi Ashraf Electronics 2024

Establishing visualization-to-hardware communication through middleware for digital twin with ROS-compatible microcontrollers latency tests

Belolipetskaja, Diana; Rassõlkin, Anton; Raja, Hadi Ashraf; Stupans, Andrejs; Maksimkins, Pavels Proceeding of EAI International Conference of Robotic Sensor Networks (ROSENET) 2024 2025

An EV-traction inverter data-driven modelling for digital twin development

Ibrahim, Akram Abdalla Mohammed; Raja, Hadi Ashraf; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants 2023 23rd International Scientific Conference on Electric Power Engineering (EPE) 2023 / 5 p. : ill
<https://doi.org/10.1109/EPE58302.2023.10149230>

Fault detection and predictive maintenance of electrical machines : perspective chapter

Raja, Hadi Ashraf; Kudelina, Karolina; Asad, Bilal; Vaimann, Toomas New Trends in Electric Machines - Technology and Applications 2022 <https://doi.org/10.5772/intechopen.107167>

Feasibility investigation for residential battery sizing considering EV charging demand

Shabbir, Noman; Kütt, Lauri; Daniel, Kamran; Astapov, Victor; Raja, Hadi Ashraf; Iqbal, Muhammad Naveed; Husev, Oleksandr Sustainability 2022 / art. 1079 <https://doi.org/10.3390/su14031079> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

The impact of control environments on global parameters of electrical machines in case of broken rotor bars

Kudelina, Karolina; Raja, Hadi Ashraf; Autsou, Siarhei; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants

Diagnostika '22 : 2022 International Conference on Diagnostics in Electrical Engineering : Conference proceedings 2022 / 4 p.

<https://doi.org/10.1109/Diagnostika55131.2022.9905149>

The impact of load on global parameters of electrical machines in case of healthy and broken rotor bars

Kudelina, Karolina; Raja, Hadi Ashraf; Autsou, Siarhei; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants;

Shabbir, Noman 2022 18th Biennial Baltic Electronics Conference (BEC) 2022 / 5 l. <https://doi.org/10.1109/BEC56180.2022.9935614>

IoT based tools and methods for electrical machine diagnostics

Raja, Hadi Ashraf 19th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school

of energy and geotechnology. III" : Tartu, Estonia, January 14-17, 2020 2020 / p. 115-116 : ill https://www.eester.ee/record=b5291755*est

IoT based tools and methods for electrical machine diagnostics = Asjade interneti põhised tööriistad ja meetodid elektrimasinate diagnostikaks

Raja, Hadi Ashraf 2023 <https://doi.org/10.23658/taltech.20/2023> <https://digikogu.taltech.ee/et/Item/3015334f-c32b-43ae-ba2d-bfcd536aba5>

https://www.eester.ee/record=b5558656*est

IoT based tools for data acquisition and monitoring of electrical machines

Raja, Hadi Ashraf 20th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school

of energy and geotechnology. III" : Tallinn, Estonia, September 8-10, 2021 2021 / p. 85-86 : ill https://www.eester.ee/record=b5457278*est

IoT based tools for data acquisition in electrical machines and robotics

Raja, Hadi Ashraf; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Belahcen, Anouar 2021 IEEE 19th International

Power Electronics and Motion Control Conference, The Silesian University of Technology Gliwice, Poland, 25 - 29 April, 2021

(PEMC) : proceedings 2021 / p. 737-742 : ill <https://doi.org/10.1109/PEMC48073.2021.9432553>

Machine learning and deep learning techniques for residential load forecasting : a comparative analysis

Shabbir, Noman; Kütt, Lauri; Raja, Hadi Ashraf; Ahmadiyahangar, Roya; Rosin, Argo; Husev, Oleksandr 2021 IEEE 62nd

International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCon): conference

proceedings 2021 / p. 1-5 <https://doi.org/10.1109/RTUCon53541.2021.9711741>

MWFA model based synthetic data creation and utilization for the training of XGBoost based fault diagnostic algorithm of a squirrel cage induction motor

Asad, Bilal; Khan, Muhammad Amir; Raja, Hadi Ashraf; Vaimann, Toomas; Kallaste, Ants; Naseer, Muhammad Usman 2024

International Conference on Electrical Machines (ICEM) 2024 / 7 p <https://doi.org/10.1109/ICEM60801.2024.10700453>

Neuro-fuzzy approach for fault prediction of mechanical bearing faults using vibration analysis

Shirokova, Veroonika; Kudelina, Karolina; Raja, Hadi Ashraf; Rjabtšikov, Viktor; Baraškova, Tatjana; Nutonen, Karle

IECON Proceedings (Industrial Electronics Conference) IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics

Society 2024 / p. 1-6 <https://doi.org/10.1109/IECON55916.2024.10905990> [Conference proceedings at Scopus](#) [Article at Scopus](#)

Neuro-fuzzy framework for fault prediction in electrical machines via vibration analysis

Kudelina, Karolina; Raja, Hadi Ashraf Energies 2024 / art. 2818 <https://doi.org/10.3390/en17122818> [Journal metrics at Scopus](#)

[Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Preliminary analysis of bearing current faults for predictive maintenance

Kudelina, Karolina; Raja, Hadi Ashraf; Vaimann, Toomas; Kallaste, Ants; Pomarnacki, Raimondas; Hyunh, Van Khang 2023

IEEE International Conference on Electric Machines and Drives (IEMDC) 2023 / 5 p. : ill

<https://doi.org/10.1109/IEMDC55163.2023.10238934>

Preliminary analysis of global parameters of induction machine for fault prediction in rotor bars

Kudelina, Karolina; Raja, Hadi Ashraf; Autsou, Siarhei; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants

2022 IEEE 20th International Power Electronics and Motion Control Conference (PEMC) : Brasov, Romania, 25-28 Sept. 2022 :

proceedings 2022 / p. 243-248 : ill <https://doi.org/10.1109/PEMC51159.2022.9962922>

Preliminary analysis of mechanical bearing faults for predictive maintenance of electrical machines

Kudelina, Karolina; Raja, Hadi Ashraf; Autsou, Siarhei; Naseer, Muhammad Usman; Vaimann, Toomas; Kallaste, Ants;

Pomarnacki, Raimondas; Hyunh, Van Khang 2023 IEEE 14th International Symposium on Diagnostics for Electrical Machines, Power

Electronics and Drives (SDEMPED) 2023 / p. 430-435 : ill <https://doi.org/10.1109/SDEMPED54949.2023.10271451>

Residential load forecasting using recurrent neural networks

Shabbir, Noman; Ahmadiyahangar, Roya; Raja, Hadi Ashraf; Kütt, Lauri; Rosin, Argo 2020 IEEE 14th International Conference

on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) : proceedings 2020 / p. 478-481 : ill

<https://doi.org/10.1109/CPE-POWERENG48600.2020.9161565>

A review of harmonic detection, suppression, aggregation and estimation techniques

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Raja, Hadi Ashraf; Sardar, Muhammad Usman
Applied sciences 2024 / art. 10966 <https://doi.org/10.3390/app142310966> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Signal processing and machine learning techniques for predictive maintenance of rotor bars in induction machine
Kudelina, Karolina; Raja, Hadi Ashraf; Rjabtšikov, Viktor; Naseer, Muhammad Usman; Vaimann, Toomas; Kallaste, Ants
2023 International Conference on Electrical Drives and Power Electronics (EDPE) 2023 / 7 p. : ill
<https://doi.org/10.1109/EDPE58625.2023.10274030>

Signal spectrum-based machine learning approach for fault prediction and maintenance of electrical machines
Raja, Hadi Ashraf; Kudelina, Karolina; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Rassõlkin, Anton; Khang, Huynh Van
Energies 2022 / art. 9507 <https://doi.org/10.3390/en15249507> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Study of bearing currents in induction machine : diagnostic possibilities, fault detection, and prediction
Kudelina, Karolina; Raja, Hadi Ashraf; Naseer, Muhammad Usman; Autso, Siarhei; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants
Electrical engineering 2024 / 14 p. : ill <https://doi.org/10.1007/s00202-024-02411-x> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Techno-economic analysis and energy forecasting study of domestic and commercial photovoltaic system installations in Estonia
Shabbir, Noman; Kütt, Lauri; Raja, Hadi Ashraf; Jawad, Muhammad; Allik, Alo; Husev, Oleksandr
Energy 2022 / art. 124156
<https://doi.org/10.1016/j.energy.2022.124156> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)