

An advanced diagnostic approach for broken rotor bar detection and classification in DTC controlled induction motors by leveraging dynamic SHAP interaction feature selection (DSHAP-IFS) GBDT methodology

Khan, Muhammad Amir; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants Machines 2024 / art. 495

<https://doi.org/10.3390/machines12070495> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Analysis of common mode and rapidly varying voltage profile on stator current harmonics of an inverter-fed induction motor

Sardar, Muhammad Usman; Vaimann, Toomas; Kütt, Lauri; Kallaste, Ants; Asad, Bilal; Kudelina, Karolina; Akbar, Siddique

2023 IEEE 64th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON),

Riga, Latvia, October 9-10, 2023 : conference proceedings 2023 / 6 p. : ill <https://doi.org/10.1109/RTUCON60080.2023.10413067>

Application of transfer learning for instrument transformer condition monitoring

Asefi, Sajjad; Kilter, Jako; Akroud, Nabil; Hurtado, Aritz; Gilbert, Ian; Orue, Inaki 2024 International Conference on Diagnostics in

Electrical Engineering (Diagnostika) 2024 / 4 p <https://doi.org/10.1109/Diagnostika61830.2024.10693903>

The bearing faults detection methods for electrical machines — the state of the art

Khan, Muhammad Amir; Asad, Bilal; Kudelina, Karolina; Vaimann, Toomas; Kallaste, Ants Energies 2023 / art. 296

<https://doi.org/10.3390/en16010296> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Broken rotor bar fault detection of the grid and inverter-fed induction motor by effective attenuation of the fundamental component

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Iqbal, Muhammad Naveed IET electric

power applications 2019 / p. 2005–2014 <https://doi.org/10.1049/iet-epa.2019.0350> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Capacitor coupled voltage transformer defect identification in the presence of tap changer

Asefi, Sajjad; Leinakse, Madis; Kilter, Jako; Landsberg, Mart IEEE PES Innovative Smart Grid Technologies Conference Europe

(ISGT Europe 2023) : proceedings 2023 / 5 p <https://doi.org/10.1109/isgteurope56780.2023.10408138>

Capacitor coupled voltage transformer inaccuracy effect on circuit breaker operation

Asefi, Sajjad; Andreessen, Guido; Kilter, Jako; Landsberg, Mart 2023 23rd International Scientific Conference on Electric Power

Engineering (EPE) 2023 / 5 p <https://doi.org/10.1109/EPE58302.2023.10149279>

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](#)

Condition monitoring of a Cartesian robot with a mechanically damaged gear to create a fuzzy logic control and diagnosis algorithm

Autsoo, Siarhei; Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants Applied sciences 2024 / art. 4241

<https://doi.org/10.3390/app14104241> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Condition monitoring of electrical machines and its relation to industrial internet

Belahcen, Anouar; Gytakis, Konstantinos N.; Martinez, Javier; Climente-Alarcon, Vicente; Vaimann, Toomas 2015 IEEE

Workshop on Electrical Machines Design, Control and Diagnosis (WEMDCD) : proceedings : Castello del Valentino, Torino, Italy, 26-27 March, 2015 2015 / p. 233-241 : ill <http://dx.doi.org/10.1109/WEMDCD.2015.7194535>

Co-simulations of induction machines coupled with a radial ball bearing for mechanical defects analysis

El Bouharrouti, Nada; Sitnikov, Maksim; Hemeida, Ahmed; Martin, Florian; Kudelina, Karolina; Naseer, Muhammad Usman;

Belahcen, Anouar IET Electric Power Applications 2025 / 13 p. : ill <http://dx.doi.org/10.1049/elp2.12529>

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>

Detection of induction motor broken bars in grid and frequency converter supply

Vaimann, Toomas; Belahcen, Anouar; Martinez, Javier; Kilk, Aleksander Przegląd elektrotechniczny 2014 / p. 90-94 : ill

<https://www.pe.org.pl/articles/2014/1/22.pdf> [Journal metrics at Scopus](#) [Article at Scopus](#)

A DFT-based approach for condition monitoring of switch-mode power converters

Kütt, Lauri; Tiivel, Tuuli; Parker, Martin; Valgur, Laur; Jarkovoi, Marek; Chub, Andrii 2024 IEEE 65th International Scientific

Conference on Power and Electrical Engineering of Riga Technical University (RTUCON) 2024 / 5 p

<https://doi.org/10.1109/RTUCON62997.2024.10830915>

Diagnostic possibilities of induction motor bearing currents

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Demidova, Galina; Karpovich, Dzmitry 2021 XVIII International Scientific Technical Conference Alternating Current Electric Drives (ACED) : proceedings 2021 / 5 p. : ill <https://doi.org/10.1109/ACED50605.2021.9462298>

Dynamic Time Warping Technique for Condition Monitoring of High Voltage Circuit Breakers

Asefi, Sajjad; Kilter, Jako 2025 15th International Conference on Power, Energy, and Electrical Engineering (CPEEE) 2025 / p. 38-42 <https://doi.org/10.1109/CPEEE64598.2025.10987408>

Fault detecting accuracy of mechanical damages in rolling bearings

Kudelina, Karolina; Baraškova, Tatjana; Shirokova, Veronika; Vaimann, Toomas; Rassõlkin, Anton Machines 2022 / art. 86 <https://doi.org/10.3390/machines10020086> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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>

Fault simulation and analysis of high-voltage circuit breaker's spring charging mechanism using a universal motor model

Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Kilter, Jako; Sardar, Muhammad Usman 2024 IEEE 65th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON) 2024 / 5 p <https://doi.org/10.1109/RTUCON62997.2024.10830846>

Generation of unmeasured loading levels data for condition monitoring of induction machine using machine learning

Billah, Md Masum; Saberi, Alireza Nemat; Hemeida, Ahmed; Martin, Floran; Kudelina, Karolina; Asad, Bilal; Naseer, Muhammad Usman; Mukherjee, Victor; Belahcen, Anouar IEEE transactions on magnetics 2024 / art. 8201104 <https://doi.org/10.1109/TMAG.2023.3312267> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

High voltage circuit breaker charging motor's condition monitoring - importance, possibilities, and challenges

Asad, Bilal; Sardar, Muhammad Usman; Vaimann, Toomas; Kallaste, Ants; Asefi, Sajjad; Kilter, Jako 2024 International Conference on Diagnostics in Electrical Engineering (Diagnostics) 2024 / 7 p <https://doi.org/10.1109/Diagnostika61830.2024.10693906>

High voltage circuit breaker health index Evaluation considering measurement accuracy

Asefi, Sajjad; Kilter, Jako; Shayesteh, Ebrahim; Hilber, Patrik; Lindquist, Tommie IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT Europe 2024) : proceedings 2024 / 5 p <https://doi.org/10.1109/ISGTEUROPE62998.2024.10863019>

Identification and location of PD defects in medium voltage underground power cables using high frequency current transformer

Shafiq, Muhammad; Kiitam, Ivar; Taklaja, Paul; Kütt, Lauri; Kauhaniemi, Kimmo; **Palu, Ivo** IEEE Access 2019 / art. 8771171, p. 103608 - 103618 : ill <https://doi.org/10.1109/ACCESS.2019.2930704> [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>

Implementation and analysis of rolling bearing faults caused by shaft currents

Kudelina, Karolina; Autsou, Siarhei; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants International Workshop on Electric Drives: Optimization in Control of Electric Drives (IWED) 2022 <https://doi.org/10.1109/IWED54598.2022.9722596>

Improved diagnostic approach for BRB detection and classification in inverter-driven induction motors employing sparse stacked autoencoder (SSAE) and lightGBM

Khan, Muhammad Amir; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants Electronics (Switzerland) 2024 / art. 1292 <https://doi.org/10.3390/electronics13071292> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Induction motor bearing currents - causes and damages

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Asad, Bilal; Demidova, Galina 2021 28th International Workshop on Electric Drives : Improving Reliability of Electric Drives (IWED) 2021 / 5 p <https://doi.org/10.1109/IWED52055.2021.9376354>

Inverter-fed motor drive system : a systematic analysis of condition monitoring and practical diagnostic techniques

Energies 2023 / art. 5628 <https://doi.org/10.3390/en16155628> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#)

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>

Machinery utilization monitoring and pause identification prototype model design

Aruväli, Tanel; Serg, Risto; Otto, Tauno Proceedings of the 8th International Conference of DAAAM Baltic Industrial Engineering, 19-21st April 2012, Tallinn, Estonia. 1 2012 / p. 256-261 : ill

Measurement and operation based condition monitoring methodology for high voltage circuit breakers

Asefi, Sajjad; Andreesen, Guido; Leinakse, Madis; Kilter, Jako; Kalmet, Tauri; Manninen, Henri; Landsberg, Mart 2022 IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT-Europe) : proceedings 2022 / Art. 184786 <https://doi.org/10.1109/ISGT-Europe54678.2022.9960521>

Methods of condition monitoring and fault detection for electrical machines

Kudelina, Karolina; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Khang, Huynh Van Energies 2021 / art. 7459, 20 p. : ill <https://doi.org/10.3390/en14227459> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

The modeling and investigation of slot skews and supply imbalance on the development of principal slotting harmonics in squirrel cage induction machines

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Khang, Huynh Van; Shams Ghahfarokhi, Payam; Naseer, Muhammad Usman; Iqbal, Muhammad Naveed IEEE Access 2021 / p. 165932-165946 <https://doi.org/10.1109/ACCESS.2021.3134331> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Necessity for implementation of inverse problem theory in electric machine fault diagnosis

Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants SDEMPED 2015 : 10th IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives : Guarda, Portugal, September 1-4, 2015 : proceedings 2015 / p. 380-385 : ill <http://dx.doi.org/10.1109/DEMPED.2015.7303718>

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

Shirokova, Veroonika; Kudelina, Karolina; Raja, Hadi Ashraf; Rjabtsikov, 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](#)

New opportunities in real-time diagnostics of induction machines

Baraškova, Tatjana; Kudelina, Karolina; Shirokova, Veroonika Energies 2024 / art. 3265 <https://doi.org/10.3390/en17133265> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Non-intrusive defects identification for the high voltage instrument transformers

Asefi, Sajjad; Kilter, Jako; Landsberg, Mart 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / 5 p <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227493>

Performance comparison of PD data acquisition techniques for condition monitoring of medium voltage cables

Shafiq, Muhammad; Kiitam, Ivar; Kauhaniemi, Kimmo; Taklaja, Paul; Kütt, Lauri; Palu, Ivo Energies 2020 / art. 4272, 14 p. : ill <https://doi.org/10.3390/en13164272> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Possibilities of decreasing induction motor bearing currents

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants 2021 IEEE Open Conference of Electrical, Electronic and Information Sciences (eStream): proceedings of the conference, April 22, 2021, Vilnius, Lithuania 2021 / 5 p. : ill <https://doi.org/10.1109/eStream53087.2021.9431419>

Power consumption based online condition monitoring in milling machine

Serg, Risto; Aruväli, Tanel; Otto, Tauno Proceedings of the 9th International Conference of DAAAM Baltic Industrial Engineering, 24-26th April 2014, Tallinn, Estonia 2014 / p. 193-197 : ill

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; Autso, 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; Pomamacki, 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>

Review of high voltage instrument transformer condition monitoring

Asefi, Sajjad; Asad, Bilal; Leinakse, Madis; Manninen, Henri; Kilter, Jako; Vaimann, Toomas; Kallaste, Ants; Tealane, Marko; Landsberg, Mart IEEE Transactions on Dielectrics and Electrical Insulation 2024 / p. 3331-3341
<https://doi.org/10.1109/TDEI.2024.3422260> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Sensor resonance and its influence on the measurement results of fast transients

Kütt, Lauri; Shafiq, Muhammad; Lehtonen, Matti; **Mölder, Heigo; Järvik, Jaan** Proceedings of the International Conference on Power Systems Transients (IPST2013) in Vancouver, Canada July 18-20, 2013 2013 / [7] p.: ill
https://www.ipstconf.org/papers/Proc_IPST2013/13IPST134.pdf

State-of-the-Art techniques for fault diagnosis in electrical machines: Advancements and future directions

Akbar, Siddique; Vaimann, Toomas; Asad, Bilal; Kallaste, Ants; Sardar, Muhammad Usman; Kudelina, Karolina Energies 2023 / Art. 6345 <https://doi.org/10.3390/en16176345> [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; Autsou, 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](#)

Study of partial discharge characteristics in medium voltage cable insulation with internal defect

Choudhary, Maninder; Palu, Ivo; Kiitam, Ivar; Shafiq, Muhammad; **Taklaja, Paul** 2024 IEEE International Conference on High Voltage Engineering and Applications (ICHVE) 2024 / 4 p <https://doi.org/10.1109/ICHVE61955.2024.10676188>

The low voltage start-up test of induction motor for the detection of broken bars

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Heidari, Hamidreza 2020 International Conference on Electrical Machines (ICEM), 23-26 august 2020, Gothenburg, Sweden : online : proceedings 2020 / p. 1481-1487
<https://doi.org/10.1109/ICEM49940.2020.9271018>

Toward automated utility pole condition monitoring : a deep learning approach

Ramial, Craig J.; Singh, Arvind; Rocke, Sean; **Manninen, Henri; Kilter, Jako; Landsberg, Mart** Proceedings of 2020 IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), 26-28 October, 2020 2020 / p. 255-259 <https://doi.org/10.1109/ISGT-Europe47291.2020.9248797>

Transient modeling and recovery of non-stationary fault signature for condition monitoring of induction motors

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Shams Ghahfarokhi, Payam; **Kudelina, Karolina** Applied sciences 2021 / 17 p. : ill <https://doi.org/10.3390/app11062806> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Utilizing the fuzzy logic algorithm for cartesian robot control system in conditions of mechanical damage transmission

Dunaeva, Olga; Autsou, Siarhei; Kudelina, Karolina; Roosileht, Mare IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society IECON Proceedings (Industrial Electronics Conference) 2024 / 5 p
<https://doi.org/10.1109/IECON55916.2024.10905445> [Conference proceedings at Scopus](#) [Article at Scopus](#)

Variability of high voltage circuit breaker performance parameters for condition monitoring

Asefi, Sajjad; Kiitam, Ivar; Manninen, Henri; Kilter, Jako; Tealane, Marko; Landsberg, Mart International Conference on Condition Monitoring, Diagnosis and Maintenance 2023 - CMDM 2023 (7th edition), Bucharest, Romania, October 31th - November 2nd, 2023 : proceedings 2023 / p. 1-10