

Background for development methodology for creating the digital twin for propulsion drive of an electric vehicle

Rjabtšikov, Viktor 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 2022 / p. 27-28 : ill https://www.ester.ee/record=b5457278*est

Concept of the test Bench for electrical vehicle propulsion drive data acquisition

Rassõlkin, Anton; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir 2020 XI International Conference on Electrical Power Drive Systems (ICEPDS), Saint-Petersburg, Russia, October 4-7, 2020 2020 / p. 35-42 : ill <https://doi.org/10.1109/ICEPDS47235.2020.9249078>

Conceptual modelling of an EV-permanent magnet synchronous motor digital twin

Mohamed, Mahmoud Ibrahim Hassanin; Rjabtšikov, Viktor; Jegorov, Sergei; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants 2022 IEEE 20th International Power Electronics and Motion Control Conference (PEMC) : Brasov, Romania, 25-28 Sept. 2022 : proceedings 2022 / p. 156-160 <https://doi.org/10.1109/PEMC51159.2022.9962943>

Creating digital twins fo electric vehicles using Unity 3D, Unreal Engine, and Nvidia Omniverse : a comprehensive overview

Rjabtšikov, Viktor 22nd International Symposium "Topical Problems in the Field of Electrical and Power Engineering". Doctoral School of Energy and Geotechnology III : Pärnu, Estonia, August 23-26, 2023 2023 / p. 21-22 : ill https://www.ester.ee/record=b5570906*est

Deep Learning methodology for charging management applications in battery cells based on Neural Networks

Zequera, Rolando Antonio Gilbert; Rjabtšikov, Viktor; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants IEEE Transactions on Intelligent Vehicles 2025 / p. 668-682 <https://doi.org/10.1109/TIV.2024.3417216>

Design of an additively manufactured polymer composite electrical machine

Sarap, Martin; Kallaste, Ants; Naseer, Muhammad Usman; Tiismus, Hans; Rjabtšikov, Viktor; Ghahfarokhi, Payam Shams; Vaimann, Toomas; Aman, Alexander; Kutia, Mykhailo 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / 5 p <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227413>

Development methodology for creating the digital twin for propulsion drive of an electric vehicle = Elektrisõiduki veoajami digitaalse kaksiku arendusmetoodika

Rjabtšikov, Viktor 2024 https://www.ester.ee/record=b5685462*est <https://digikogu.taltech.ee/et/item/6cbd2dba-76a5-4931-a9f3-53b9d4d87c1e> <https://doi.org/10.23658/taltech.29/2024>

Digital shadow of an electric vehicle-permanent magnet synchronous motor drive for real-time performance monitoring

Mohamed, Mahmoud Ibrahim Hassanin; Rjabtšikov, Viktor; Rassõlkin, Anton Digital twins and applications 2025 / 12 p <https://doi.org/10.1049/dgt2.12024>

Digital twin of an electrical motor based on empirical performance model

Rassõlkin, Anton; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Partyshev, Andriy 2020 XI International Conference on Electrical Power Drive Systems (ICEPDS), Saint-Petersburg, Russia, October 4-7, 2020 2020 / p. 11-14 : ill <https://doi.org/10.1109/ICEPDS47235.2020.9249366>

Digital twin of wind generator for modelling various turbine characteristics

Raja, Hadi Ashraf; Outsou, 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](#)

Digital twin service unit development for an EV induction motor fault detection

Rjabtšikov, Viktor; Mohamed, Mahmoud Ibrahim Hassanin; Asad, Bilal; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Stepień, Mariusz; Krawczyk, Mateusz 2023 IEEE International Conference on Electric Machines and Drives (IEMDC) 2023 / 5 p <https://doi.org/10.1109/IEMDC55163.2023.10239085>

Digital Twin service unit for AC motor stator inter-turn short circuit fault detection

Rjabtšikov, Viktor; Rassõlkin, Anton; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Jegorov, Sergei; Stepień, Mariusz; Krawczyk, Mateusz 2021 28th International Workshop on Electric Drives : Improving Reliability of Electric Drives (IWED) 2021 <https://doi.org/10.1109/IWED52055.2021.9376328>

EV-Permanent magnet synchronous motor control strategy evaluation based on digital twin concept

Mohamed, Mahmoud Ibrahim Hassanin; Rjabtšikov, Viktor 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / 5 p <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227410>

EV-powertrain test bench for digital twin development

Rjabtšikov, Viktor; Mohamed, Mahmoud Ibrahim Hassanin; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants 2022 IEEE 20th International Power Electronics and Motion Control Conference (PEMC) : Brasov, Romania, 25-28 Sept. 2022 : proceedings 2022 / p. 559-563 : ill <https://doi.org/10.1109/PEMC51159.2022.9962879>

Experimental investigation of high viscosity on oil spray cooling system with hairpin winding

Ghahfarokhi, Payam Shams; Kallaste, Ants; Podgornovs, Andrejs; Cardoso, Antonio J. Marques; Vaimann, Toomas; Sarap, Martin; Rjabtšikov, Viktor 2023 IEEE 14th International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives (SDEMPED) 2023 / p. 234-238 <https://doi.org/10.1109/SDEMPED54949.2023.10271484>

Implementation of Digital Twins for electrical energy conversion systems in selected case studies

Rassõlkin, Anton; Orosz, Tamas; Demidova, Galina; Kuts, Vladimir; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants Proceedings of the Estonian Academy of Sciences 2021 / p. 19-39 : ill <https://doi.org/10.3176/proc.2021.1.03> https://doi.org/wg-content/plugins/kirj/pub/proc-1-2021-19-39_20210201183802.pdf [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Interface development for digital twin of an electric motor based on empirical performance model

Rassõlkin, Anton; Rjabtšikov, Viktor; Kuts, Vladimir; Vaimann, Toomas; Kallaste, Ants; Asad, Bilal; Partyshev, Andriy IEEE Access 2022 / p. 15635-15643 <https://doi.org/10.1109/ACCESS.2022.3148708> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

ISEAUTO self-driving vehicle dynamic model verification

Rjabtšikov, Viktor; Mohamed, Mahmoud Ibrahim Hassanin; Kuts, Vladimir 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / 6 p <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227396>

Modeling battery energy storage systems based on remaining useful lifetime through regression algorithms and binary classifiers

Zequera, Rolando Antonio Gilbert; Rjabtšikov, Viktor; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants Applied sciences 2023 / art. 7597 <https://doi.org/10.3390/app13137597> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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](#)

Novel digital twin concept for industrial application. Study case: propulsion drive system

Jegorov, Sergei; Rassõlkin, Anton; Rjabtšikov, Viktor; Mohamed, Mahmoud Ibrahim Hassanin; Kuts, Vladimir Proceedings of ASME 2022 International Mechanical Engineering Congress and Exposition (IMECE2022), 2B: Columbus, Ohio, USA, October 30 - November 3, 2022 2022 / art. IMECE2022-97243, V02BT02A011, 6 p. <https://doi.org/10.1115/IMECE2022-97243>

Overview of digital twin platforms for EV applications

Mohamed, Mahmoud Ibrahim Hassanin; Rjabtšikov, Viktor; Zequera, Rolando Antonio Gilbert Sensors 2023 / art. 1414, 15 p. : ill <https://doi.org/10.3390/s23031414> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Parametric digital twin of autonomous electric vehicle transmission

Rassõlkin, Anton; Rjabtšikov, Viktor; Kuts, Vladimir; Kudelina, Karolina; Vaimann, Toomas; Kallaste, Ants; Partyshev, Andriy Journal of machine engineering 2021 / p. 131-140 : ill <https://doi.org/10.36897/jme/134435> [Journal metrics at Scopus](#) [Article at Scopus](#)

Possibilities of changing the transport characteristics of the TEP70 locomotive

Rjabtšikov, Viktor; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants; Lukichev, Dmitry 2020 27th International Workshop on Electric Drives: MPEI Department of Electric Drives 90th Anniversary (IWED), Moscow, Russia, January 27-30, 2020 2020 / 6 p <https://doi.org/10.1109/IWED48848.2020.9069576>

Propulsion drive system data measurement for digital twin test bench validation

Rjabtšikov, Viktor 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. 25-26 : ill https://www.ester.ee/record=b5504019*est

Reverse engineering-based modeling of an EV motor drive for digital twin development

Mohamed, Mahmoud Ibrahim Hassanin; Rassõlkin, Anton; Rjabtšikov, Viktor 2024 IEEE International Conference on Electrical Systems for Aircraft, Railway, Ship Propulsion and Road Vehicles and International Transportation Electrification Conference, ESARS-ITEC 2024 2025 / 5 p <https://doi.org/10.1109/ESARS-ITEC60450.2024.10819839>

Review of electric vehicle testing procedures for digital twin development : a comprehensive analysis

Rjabtšikov, Viktor; Rassõlkin, Anton; Kudelina, Karolina; Kallaste, Ants; Vaimann, Toomas Energies 2023 / art. 6952
<https://doi.org/10.3390/en16196952> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

ROS middle-layer integration into Unity3D as an interface option for propulsion drive simulations of autonomous vehicles
Kuts, Vladimir; Rassõlkin, Anton; Jegorov, Sergei; Rjabtšikov, Viktor Proceedings of the Estonian Academy of Sciences 2021 /
p. 392-398 : ill <https://doi.org/10.3176/proc.2021.4.04> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

ROS middle-layer integration to Unity 3D as an interface option for propulsion drive simulations of autonomous vehicles
Kuts, Vladimir; Rassõlkin, Anton; Partyshev, Andriy; Jegorov, Sergei; Rjabtšikov, Viktor IOP conference series : materials
science and engineering 2021 / art. 012008, 7 p.:ill <https://doi.org/10.1088/1757-899X/1140/1/012008>

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>

Spatial representation of self-driving vehicle for virtual entity of digital twin
Rassõlkin, Anton; Maksimkins, Pavels; Stupans, Andrejs; Rjabtšikov, Viktor; Šenfelds, Armands; Kuts, Vladimir Computer 2024
/ p. 58-66 <https://doi.org/10.1109/MC.2023.3319108> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Validation of an EV-permanent magnet synchronous motor model based on analytical dynamic approach
Mohamed, Mahmoud Ibrahim Hassanin; Rjabtšikov, Viktor; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants 2022
International Conference on Electrical Machines (ICEM) 2022 / p. 2384-2390 <https://doi.org/10.1109/ICEM51905.2022.9910755>