

Augustyn Lorenc, Ph.D. Eng.

Scientist, R&D Engineer and analyst

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Education Background



Training center and organization of quality systems

Logistics and road transport
(2016-2017) postgraduate studies



Cracow University of Technology,

Faculty of Civil Engineering
Field of study: transport
(2012-2016) PhD studies



University of Economics and Innovation in Lublin

Manager of research and development
(2012-2013) postgraduate studies

Working Experience



Cracow University of Technology, Institute of Rail Vehicle (2011.10 – present)

Scientific and didactic assistant, since July 2018 assistant professor



SKK S.A., R&D Department

(2016.05 - present)
Research and development specialist, since April 2017 project manager, since May 2020 project manager and big data analytic



Cracow University of Economics, Department of International Management

(01.10.2018 – 30.09. 2019)
Contract of mandate (fixed-term), conducting classes in institutions of logistics, logistics workshops

Bionanotechnology and Innovative Techniques Center, Richard P. Feynman

(08.2014 – 10.2014)
Analyst - internship in the project "Innovation chance for development enterprises in Malopolska"



Trade and Transport company Czesław & Artur Mierzwa (10.2012 – 12.2012)

Forwarder – internship in the project „Research and development in the knowledge-based economy”



Phu Lukanet

(06.2012 – 08.2012)
Specialist for Internet Marketing - internship in the project „SPIN – An effective entrepreneur and scientist”



Advertising agency Aklo WEB

(06.2011 - 01.2012)
Own IT business activity under the Academic Business Incubator in Krakow



Modern Advertising Agency JM Group

(2006 – 2012)
cooperation as Freelancer, programmer, developer



Short note

I started work in Institute of Rail Vehicle and Transportation at Faculty of Mechanical Engineering at Cracow University of Technology in 2011. Since 2006 I cooperate with Warsaw advertisement agency JM Group as a web application developer. In 2012, I was running my own IT company in the Academic Business Incubator. In 2016 I started work for SKK S.A. as R&D Engineer and Big Data analyst. I am participant of many research projects for railway companies. I am member of “Association of Engineers and Technicians of Transportation” and “Association of Engineers and Polish Technicians”

Research interests:

- ✓ artificial neural network,
- ✓ artificial intelligence,
- ✓ Big Data analysis (Power BI, Tableau),
- ✓ warehouse logistics,
- ✓ intralogistics,
- ✓ modelling & simulation,
- ✓ online systems design,
- ✓ production optimization,
- ✓ rail transport,
- ✓ cargo forwarding and securing,
- ✓ risk analysis,
- ✓ cold chain,
- ✓ Internet of Things (IoT).

Certificates

- ✓ Certificate of "Power BI - data analysis and visualization", Comarch, Cracow 07.2019,
- ✓ Certificate of professional competence in the carriage of goods by road, ITS, No. 1720/TR/17, Warszawa, 07.2017,
- ✓ Certificate of professional competence in road passenger transport, ITS, No. 00324/TO/17, Warszawa, 07.2017,
- ✓ Certified Auditor of internal management systems in the laboratory ISO/IEC 17025, TUV Rheinland, Licence No. AZJ-2014-V-C314 - Cracow, 2014,
- ✓ Certified Appraisers SIMP Licence No. 9898/14, specialty: 110 - Industrial logistics and 120 - Marketing and management in industry - Warsaw, 02.2014,
- ✓ Assistant Certificate of Quality Management System, Licence No. 12994 PCBC - Cracow, 2013,
- ✓ Certified in PCA accreditation: DAB-07, DA-05 i DA-06. Supervision of equipment, measurement traceability, quality assurance of research - Cracow, 2012.

Research projects

- ✓ EUREKA PROJECT EI6726 LOADFIX, Development of the Software Web Application for Loading and Fixing Goods in Railway Freight Wagons (OLTIS Group, University of Žilina, The Faculty of Operation and Economics of Transport and Communications, Institute of Rail Vehicle PK), 2013-2016, co-worker.
- ✓ M-8/355/2016/DS-M, Optimization of logistics processes in warehouse, 20.04.2016-15.12.2017, project manager.
- ✓ RPMP.01.02.01-12-0497/16, SKK Hive Analysis - System for proactive management and analysis of resources, project vice manager.
- ✓ RPMP.01.02.01-12-0530/17, "SKK Hive X – intelligent system of prediction and prevention of damage to products in the transport chain", 01.11.2017-31.07.2018 r., project manager.
- ✓ M-08/279/2019/P "Designing the schedule of vehicle inspections at levels P1 - P5 taking into account cycles and current mileage of traction vehicles" - subcontracting under the project "Selected problems of optimal management of rolling stock operation and work of traction teams" POIR.01.01.01-00-0952/18-00, 01.07.2019-28.02.2021, R&D project manager as a subcontractor.
- ✓ RPMP.01.02.01-12-0361/19 "Smart Logistics Unit for IoT and Industry 4.0 - a logistic unit that uses artificial intelligence to optimize processes", 01.11.2019-actually, project manager.

Cooperation with industry

- ✓ M-08/279/2019/P DPK System Sp. z o.o. Designing the schedule of vehicle inspections at levels P1 - P5 taking into account cycles and current mileage of traction vehicles – project manager
- ✓ M-8/688/2015/P CID International, a.s., Analysis of the current state of data sources and available systems of monitoring cargo units in rail and intermodal transport in PL and EU – project manager
- ✓ M-8/493/2015/P RAILTRANS LOGISTICS SP. Z O.O., Feasibility study for the project of modernization of the EU07 series electric locomotive for international freight transport
- ✓ M-8/265/2014/P PHP CARGO S.A., Report on safety assessment allowing for temporary termination from the application of the time criterion, valid for switching off ET21, ET22, ST44, ST44m, ST45, ST46 and SU46 series locomotives for repairs on P4 and P5 levels
- ✓ M-8/494/2014/P PHP CARGO S.A., Strategy for performing periodic inspections at the P1 maintenance level of modernized SM42 series diesel locomotives (type 6Dg, 6Dg / A, 6Dg / B). Feasibility study
- ✓ M-8/494/2014/P PKP LHS S.A., Identification of the potential of train locomotives owned by PKP PLK and the forecast necessary to obtain an additional number of train locomotives
- ✓ PKP LHS S.A., The forecast for transport of goods within the railway line No. 65 and the necessary number of train locomotives to service transport
- ✓ PKP CARGO S.A., Strategy for performing periodic inspections at the P1 maintenance level of modernized SM42 series diesel locomotives (type 6Dg, 6Dg / A, 6Dg / B). Feasibility study.
- ✓ KGHM Polska Miedź S.A., The logistics concept of material transport inside the Copper Smelter complex „Głogów”
- ✓ M-8/297/2012/P PHP CARGO S.A., Analysis of investment effectiveness of the acquisition project by PKP Cargo S.A. new electric multi-system locomotives for international freight services

Research activity and cooperation

- ✓ Participation in 28 scientific conferences, including 14 foreign conferences (including Slovenia, Czech Republic, Russia, France, Austria, Ukraine).
- ✓ The manager has international publications, cooperates with scientists such as from Slovenia, Lithuania, Iraq and Iran, Ukraine, the Czech Republic.
- ✓ Author of 75 research paper, 33 paper published in the English language in international journals.
- ✓ Hirsch Index by Scopus: 5.

Major Publications

- ✓ Lorenc A., Kuźnar M., The most common type of disruption in the supply chain - evaluation based on the method using artificial neural networks, *International Journal of Shipping and Transport Logistics*, Vol. 13, No. 1/2, Bristol (UK), p. 1-24
- ✓ Lorenc A., Kuźnar M., Lerher T., Solving Product Allocation Problem (PAP) by using ANN and clustering, *FME Transactions*, VOL. 49, No 1, Belgrade, Serbia, p. 206-213
- ✓ Lorenc A., Burinskiene A., Improve the orders picking in e-commerce by using WMS data and BigData analysis, *FME Transactions*, VOL. 49, No 1, Belgrade, Serbia, p. 233-243
- ✓ Lorenc A., Szarata J., Czuba M., Big Data analytics and anomaly prediction in the cold chain to supply chain resilience, *FME Transactions*, VOL. 49, No 2, Belgrade, Serbia,
- ✓ Lorenc A., Szkoda M., Jacyna-Golda I., Szarata A., Evaluation of the effectiveness of methods and criteria for the classification of products in the warehouse, *European Journal of Industrial Engineering*, Vol. 14, No. 2, Genève, Switzerland, 2020, p. 147–164
- ✓ Lorenc A., Kuźnar M., Lerher T., Szkoda M., Predicting the probability of cargo theft for individual cases in railway transport, *Technical Gazette*, Vol. 27/No. 3, Slavonski Brod, Croatia, 2020, p. 773-780
- ✓ Lorenc A., Lerher T., PickupSimulo–Prototype of Intelligent Software to Support Warehouse Managers Decisions for Product Allocation Problem, *Applied Science* vol. 10, no. 23, 8683, Basel, Switzerland, , p. 1-29
- ✓ Lorenc A., Lerher T., Effectiveness of product storage policy according classification criteria and warehouse size, *FME Transactions*, VOL. 47, No 1, Belgrade, Serbia, 2019, p. 142-150
- ✓ Lorenc A., Transport wewnętrzny w halach wielkopowierzchniowych na przykładzie przemysłu ciężkiego, *Nowoczesne Hale nr 2/2019*, Katowice, 2019, p.
- ✓ Gajewska T., Lorenc A., The impact of trailer conditions on the quality of refrigerated food transport services – a case study, *Transport Problems*, vol. 14, no. 3, Katowice, 2019, p. 97-107
- ✓ Kuźnar M., Lorenc A., Risk minimization methods for loading dangerous goods into tanker train, *Technical Transactions*, vol. 116, Iss. 12, Kraków, 2019, p. 163-172
- ✓ Burinskiene A., Lorenc A., Lerher T., A simulation study for the sustainability and reduction of waste in warehouse logistics, *International Journal of Simulation Modelling*, Vol. 17, No. 3, DAAAM International Vienna, Austria, 2018, p. 485-497
- ✓ Lorenc A., Metody klasyfikacji produktów jako narzędzia poprawy efektywności kompletacji zamówień typu człowiek do towaru - najnowsze osiągnięcia, *Monografie Politechniki Krakowskiej*, Kraków, 2018, p.
- ✓ Lorenc A., Kuźnar M., Intelligent system to predict risk and costs of cargo theft in road transport in Europe, *International Journal of Engineering and Technology Innovation*, vol. 8, no. 4, Taiwan, 2018, p. 284 - 293
- ✓ Lorenc A., Assessment of logistic customer service in the CEP sector on the example of the city of Cracow, *European Journal of Service Management*, Vol. 25, 1, Szczecin, 2018, p. 149-156
- ✓ Jamshidi M. , Darwesh A.M., Lorenc A., Ranjbari M., Meybodi, M.R., A precise Algorithm for detecting malicious sybil nodes in Mobile Wireless Sensor Networks, *IEIE Transactions on Smart Processing and Computing*, vol. 7, no. 6, Seoul, Korea, 2018, p. 457-466
- ✓ Kuźnar M., Lorenc A., Górka N., Reduction of Delays in the Supply Chain by Using Maintenance Decision Supporting Systems for Rail Vehicle Pantograph, *Carpathian Logistics Congress - Congress Proceedings*, TANGER Ltd., Ostrava, Czech Republic, , p. 300-305
- ✓ Lorenc A., Kuźnar M., Modeling Cargo Theft Probability in Rail Transport Using Artificial Neural Network, *Carpathian Logistics Congress - Congress Proceedings*, TANGER Ltd., Ostrava, Czech Republic, , p. 306-311
- ✓ Naumov V., Lorenc A., Solarz A., Predicting Delivery Volumes for Petrol Stations under Conditions of Stochastic Demand, *Carpathian Logistics Congress - Congress Proceedings*, TANGER Ltd., Ostrava, Czech Republic, , p. 137-142
- ✓ Lorenc A., Kuźnar M., The impact of cargo monitoring systems usage on intermodal transport risk and costs, *World Review of Intermodal Transportation Research*, Vol. 6, No. 4, 2017, Bristol (UK), 2017, p. 336-351
- ✓ Lorenc A., Экономика и менеджмент, The efficiency and cost Evaluation of loading train wagons with the use of a railroad car puller, *Экономический вектор*, Издательство Санкт-Петербургского государственного технологического института (технического университета), St. Petersburg, Russia, 2016, p. 248-253

Reviews in Journals and scientific conferences

- ✓ SUSTDE - Sustainability (MDPI, Switzerland)
- ✓ APPLSCI - Applied Science (MDPI, Switzerland)
- ✓ AMMOD - Applied Mathematical Modelling (Elsevier)
- ✓ IJSTL - International Journal of Shipping and Transport Logistics (InderScience, Switzerland)
- ✓ IJTET - International Journal of Transportation Engineering and Technology (Science Publishing Group, USA)
- ✓ ANOR - Annals of Operations Research (Springer, USA)
- ✓ JART - Journal of Applied Research and Technology (Elsevier)
- ✓ IEEE ICALT - Conference Proceedings
- ✓ AITI - Advances in Technology Innovation (Taiwan Association of Engineering and Technology Innovation, Taiwan)
- ✓ IJETI - International Journal of Engineering and Technology Innovation (Taiwan Association of Engineering and Technology Innovation, Taiwan)
- ✓ IJML - International Journal of Logistics Management (Emelard, UK)

Research Projects

- ✓ EUREKA PROJECT EI6726 LOADFIX, "Development of the Software Web Application for Loading and Fixing Goods in Railway Freight Wagons" (OLTIS Group, University of Žilina, The Faculty of Operation and Economics of Transport and Communications, Institute of Rail Vehicle PK), 2013-2016, co-worker.
- ✓ M-8/355/2016/DS-M, "Optimization of logistics processes in the warehouse", 20.04.2016-15.12.2017, project manager.
- ✓ RPMP.01.02.01-12-0497/16, "SKK Hive Analysis - System for proactive management and analysis of resources", 01.04.2017-30.02.2021, project vice manager.
- ✓ RPMP.01.02.01-12-0530/17, "SKK Hive X – intelligent system of prediction and prevention of damage to products in the transport chain", 01.11.2017-31.07.2018 r., project manager.
- ✓ M-08/279/2019/P "Designing the schedule of vehicle inspections at levels P1 - P5 taking into account cycles and current mileage of traction vehicles" - subcontracting under the project "Selected problems of optimal management of rolling stock operation and work of traction teams" POIR.01.01.01-00-0952/18-00, 01.07.2019-28.02.2021, R&D project manager as a subcontractor.
- ✓ RPMP.01.02.01-12-0361/19 "Smart Logistics Unit for IoT and Industry 4.0 - a logistic unit that uses artificial intelligence to optimize processes", 01.11.2019-actually, project manager.
- ✓ POWR.03.01.00-00-T071/18 Operational project Knowledge Education Development (implementation project) "Laboratory of the Little Engineer" - conducting didactic classes with early school children. From 2020, he was employed as part of the project as Lecturer

Professional Membership

- ✓ From 2013 Member of the Association of Engineers and Technicians of Transportation
- ✓ From 2011 Member of the Association of Engineers and Polish Technicians

Others

- ✓ Expert of the National Center for Research and Development (NCBiR) under the Operational Program Intelligent Development 2014-2020 (engineering and technical sciences).
- ✓ From November 2018 Member of Editorial Board In Science Publishing Group International Journal of Transportation Engineering and Technology (ISBN 2575-1743)
- ✓ From August 2018 Member of Editorial Board In SCIREA Journal of Safety Science and Technology
- ✓ From August 2017 Member of the Scientific Council of the "Nowoczesne Hale" magazine (ISBN 1899-8224)
- ✓ 2020 Member of the technical program committee 8th IEEE International Conference on Advanced Logistic and Transport, Strasbourg, France
- ✓ 2019 Member of the program committee VII International Conference IEEE International Conference on Advanced Logistics and Transport, Marrakech, Morocco
- ✓ 2018 Member of the technical program committee VII International Conference on Advanced Logistics and Transport, Montreal, Canada
- ✓ 2017 Member of the scientific and program committee of Modelling, Cracow, Poland
- ✓ 2017 Member of the organizing committee of XXIV Scientific Workshop on PTSK, Simulation in Research and Development, Krynica Zdrój, Poland
- ✓ 2017 Member of the program committee of VI IEEE International Conference on Advanced Logistics and Transport, Bali, Indonesia
- ✓ 2016 Member of the organizing committee of V IEEE International Conference on Advanced Logistics and Transport, Cracow, Poland
- ✓ 2016 Member of the faculty admissions committee at Faculty of Mechanical Engineering PK
- ✓ 2015 Member of the organizing committee of XV Scientific Conference QSET Quality Safety and Economy in Transport, Cracow, Poland
- ✓ 2013 Member of the organizing committee of XIV Scientific Conference QSET Quality Safety and Economy in Transport, Niepolomice, Poland

Potential Research Projects

- ✓ Intralogistics for warehouse and production
- ✓ Internet of Things (IoT)
- ✓ Logistics and modern solutions in Distribution Center (DC)
- ✓ Big Data analysis