

Personal details and date of CV

- Orzechowski
- Grzegorz
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Degrees

- **2020:** Title of Docent in Artificial Intelligence based on Computational Dynamics, Lappeenranta-Lahti University of Technology LUT, Finland. Tel. +358 29 446 2111
- **2012:** Ph.D. in Automation and Robotics, Faculty of Power and Aeronautical Engineering, Warsaw University of Technology, Poland
- **2007:** M.Sc. (Tech), Faculty of Power and Aeronautical Engineering, Warsaw University of Technology, Poland

Current employment

- **2024-2028:** Associate Professor (Tenure Track) in Sustainable Mechatronics, Stage III, Department of Mechanical Engineering, Lappeenranta-Lahti University of Technology LUT, Lahti, Finland

Previous work experience

- **2021-2024:** Post-doctoral Researcher, Department of Mechanical Engineering, Lappeenranta-Lahti University of Technology LUT, Lappeenranta, Finland
- **2019-2021:** Senior Developer, Mevea Oy, Lappeenranta, Finland
- **2017-2019:** Post-doctoral Researcher, Department of Mechanical Engineering, Lappeenranta-Lahti University of Technology LUT, Lappeenranta, Finland
- **2012-2017:** Assistant Professor, Faculty of Power and Aeronautical Engineering, Warsaw University of Technology, Poland
- **2016:** Visiting Researcher, Department of Mechanical Engineering, Lappeenranta University of Technology, Finland (7 months)
- **2014:** Visiting Scholar, Department of Mechanical Engineering, University of Illinois at Chicago, Chicago, Illinois, USA (6 months)
- **2007-2012:** Researcher, Faculty of Power and Aeronautical Engineering, Warsaw University of Technology, Poland

Career breaks

Not applicable.

Research funding and grants

- **2025-2027:** "Industrial AI Innovation Hub for SMEs (TEHO-AI)," Regional ERDF Council (Päijät-Häme), €210 466, principal investigator.
- **2025-2026:** "Continuum Robotic Cable Exostructure for Autonomous Heavy-Duty EV Charging," Electric Mobility Research Center, €40 000, project manager, principal investigator.
- **2024-2028:** "Sustainable Mechatronics Professorship," Donation by the City of Lahti and regional companies, €1 155 000, project manager, principal investigator.
- **2024-2026:** "VIIMA – Virtual Material Engineering & Fatigue Design," Business Finland project, €1 886 778, project manager (university), PI Aki Mikkola.
- **2022-2024:** "SANTTU – To reduce stress from machine & operator," Business Finland project, €1 006 000, project manager (department), investigator, PI Aki Mikkola.

- **2021-2024:** "AITOC – Artificial Intelligence supported Tool Chain in Manufacturing Engineering," ITEA 3 project no. 19027, €1 080 376, investigator, PI Aki Mikkola.
- **2019-2021:** "Real-time simulator-driver design and manufacturing based on flexible systems," Research project 845600 – RealFlex, granted by the European Commission under Marie Skłodowska-Curie Individual Fellowships, €202 681, principal investigator.
- **2017-2018:** "Virtual Coach Based on Multibody Dynamics," Decision No. 305737, granted by the Academy of Finland, €537 809, project manager, no role in the preparation, PI Perttu Hämäläinen.
- **2013-2017:** "Flexible, Overconstrained Multibody Systems Modeling using Sequential and Parallel Methods," Research project no. 2012/07/B/ST8/O3993 granted by the Polish National Science Centre, 803 480 PLN (approx. €190 000), contractor, co-author, PI Janusz Frączek.
- **2015:** "Modeling of Composite Structures using Flexible Multibody Absolute Nodal Coordinate Formulation," Research project granted by the Dean of The Faculty of Power and Aeronautical Engineering, 20 000 PLN (approx. €4 500), principal investigator.
- **2011-2013:** "Modeling of Flexible Multibody Systems in Absolute Nodal Coordinate Formulation," Doctoral research project no. N N514 673340 granted by the Polish National Science Centre, 80 000 PLN (approx. €19 000), main author, contractor, PI Janusz Frączek.

Research output

- Twenty-two publications in international peer-reviewed journals. One as a single author, two as the last, and eight as the first.
- One referred book chapter.
- Twenty-two conference publications.
- Boat dynamics simulator written in Julia – github.com/gorzech/BoatDynamics.jl
- Monte Carlo Tree Search method implementation in Julia – github.com/gorzech/PureMCTS.jl
- Environments for Monte Carlo Tree Search method – github.com/gorzech/Environments.jl

Research supervision and leadership experience

- **2024-present:** Head of the Sustainable Mechatronics Laboratory within the Department of Mechanical Engineering, LUT University, Lahti
 - Establishing the first Mechanical Engineering research unit at LUT Lahti.
- **2023-2026:** Leadership in the VIIMA project:
 - Project leader at LUT. Managed and coordinated the work of five research groups at two universities (LUT, Oulu).
 - Instructing three post-doctoral researchers and two doctoral students.
- **2023-2026:** Research advisor on "Autonomous Heavy Machinery Innovation Environment" Project, Savonia University of Applied Sciences.
- **2021-present:** Co-supervision of six doctoral theses (ongoing).
- **2021-2023:** Research group leader at LUT in the SANTTU project. Managed and coordinated the work of five research groups at three Finnish universities (LUT, Aalto, Oulu).
- **2014-2026:** Supervision of ten bachelor's and seven master's theses.

Teaching merits

- **2026:** "Workshop on machine learning in multibody systems," during the international IMSD Multibody conference, Seville, Spain
- **2026-present:** Post-graduate practical course on "Project Course in Mechatronics," LUT University
- **2025:** "Workshop on machine learning in multibody systems," during the international ECCOMAS Multibody conference, Austria, Innsbruck

- **2025-present:** Post-graduate course on “Advanced Industrial Mechatronics,” LUT University
- **2024-present:** Head of Master’s Programme in Mechatronics, LUT University, Lahti
- **2024:** Training on “University Pedagogy, Basic Module, 10 ECTS,” LUT University Pedagogy
- **2017-2024:** Post-graduate and doctoral course on “Computer methods in mechanics,” LUT University
- **2022-2026:** Workshops on Artificial Intelligence in Mechanical Engineering during the course “Simulation of a Mechatronic Machines,” LUT University.
- **2018:** Training on “Supervision of doctoral thesis and dissertation,” LUT University Pedagogy
- **2008-2017:** Lecturer and tutor on various faculty courses at Warsaw University of Technology (including automation, robotics, statistics, artificial intelligence, and mechanics)

Awards and honours

- **2016:** 1st-degree team award for scientific achievements, Rector of Warsaw University of Technology (60% participation in the work). Received jointly with J. Frączek and P. Malczyk.
- **2014:** 3rd degree individual award of the Rector of the Warsaw University of Technology for scientific achievements.

Other key academic merits

- **2025:** Invited Seminar for Doctoral Students: **AI in Mechanical Engineering**, October, University of Seville, Seville, Spain
- **2025:** Member of Doctoral Dissertation Defense Committee, thesis of **Narges Mohammadi**, supervision of **Prof. José Escalona**, 22 July, University of Seville, Seville, Spain
- **2025:** Visiting Professor, Intensive Course: “Multibody Dynamics & Machine Learning in Julia,” Warsaw University of Technology, Warsaw, Poland
- **2025:** Opponent in Doctoral Dissertation Defense, thesis of **Gustav Sten**, supervision of **Prof. Lei Feng**, 20 May, KTH Royal Institute of Technology, Stockholm, Sweden
- **2024-present:** Associate Editor in the ASME Journal of Computational and Nonlinear Dynamics
- **2024:** Guest Editor of the Special Issue on “Data-Driven Methods for Multibody System Dynamics” in the journal of Mechanics Based Design of Structures and Machines
- **2024:** Co-chair of the 20th International Conference on Multibody Systems, Nonlinear Dynamics, and Control (ASME IDETC-CIE)
- **2023:** Invited lecture “Towards the robotic construction site,” SimTech 2023 Conference, Stuttgart, Germany
- **2023-2024:** Guest Editor of the Special Issue on “Artificial Intelligence within Multibody System Dynamics” in the journal of Multibody System Dynamics.
- **2023:** Guest Editor of the Special Issue for the best papers from the 19th International Conference on Multibody Systems, Nonlinear Dynamics, and Control in the ASME Journal of Computational and Nonlinear Dynamics.
- **2023:** Co-chair of the 19th International Conference on Multibody Systems, Nonlinear Dynamics, and Control (ASME IDETC-CIE).
- **2023:** Evaluator of the Student Paper Competition on 19th International Conference on Multibody Systems, Nonlinear Dynamics, and Control (ASME IDETC-CIE).
- **2023:** Member of the Doctoral Examination Committee for Mahmoud Elbakly (thesis under the supervision of Prof. Ahmed Shabana), University of Illinois at Chicago.
- **2022-present:** Member of the ASME Technical Committee on Multibody Systems and Nonlinear Dynamics.
- **2022-present:** Preparatory Committee Member of the International Society of Mechanical System Dynamics.
- **2022-present:** Member of the Young Scientists Editorial Board of the International Journal of

Mechanical System Dynamics.

- **2019:** Co-organizer of the Symposium on Flexible Multibody Dynamics within the ASME International Conference on Multibody Systems, Nonlinear Dynamics, and Control.
- **2015-present:** Active reviewer for numerous international journals.
- **2009:** Co-organizer of the ECCOMAS Thematic Conference on Multibody Dynamics, Warsaw, Poland.

Scientific and societal impact

Not applicable.

Other

Not applicable.