



Grzegorz Liśkiewicz

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SUMMARY

I'm a researcher with a passion for two things: turbomachinery and engaged + modern universities. My work involves studying compressor stability, surge and stall, signal monitoring systems, as well as fluid dynamics. I focus on developing and implementing advanced techniques to improve the performance and reliability of such systems. Through my research, I aim to enhance the understanding of fluid dynamics and their impact on the operation of compressors. I am committed to advancing this field and contributing to the development of better technologies that can make compressors safer and optimize energy efficiency.

I'm co-founder of the STEM Racing Poland organization - the Polish representative of the international competition for high school students. This competition is named as the most exciting STEM competition worldwide, and the only event of this kind officially supported by Formula 1. I was working or interning at the University of Strathclyde, University of Leeds, University of Oxford, University of Cambridge, General Electric. I was serving as a Rector's proxy for Academic Entrepreneurship, Board Member of the Top 500 Innovators Association Poland. I'm a member of the American Society of Mechanical Engineering, Institute of Physics, The Institution of Engineering and Technology, and Strathclyde Alumni Society.

EXPERIENCE

Fulbright Scholarship

Texas A&M

August 2024 - May 2025, College Station (USA)

- Project realized in collaboration with NASA Glenn Research Center.
- Member of the AeroCFD group conducted by prof. Paul Cizmas.
- Numerical simulation of the NASA HECC centrifugal compressor.
- Focus on off-design operation and physics of unstable flow structures.

Associate Professor

Lodz University of Technology

November 2022 - Present, Lodz (Poland)

- Design of Industry 4.0 systems for centrifugal compressor monitoring and maintenance systems.
- Performing numerical analyses, experimental tests, analytical work on mathematical models.
- Leading EU and National research projects.

Assistant Professor

Lodz University of Technology

October 2014 - October 2022, Lodz (Poland)

Rectors' Proxy for Academic Entrepreneurship

Lodz University of Technology

October 2017 - August 2020, Lodz (Poland)

- Supporting University Rectors' office in creating the strategy for the Technology Transfer Office.
- Involved in operational groups responsible for collaboration with industry and society.
- Building relations with international partners in the field of Tech Transfer and Innovation.

Board of Directors Member

Lodz University of Technology Tech Transfer Office (Poland)

November 2018 - August 2021, Lodz

- Developing a strategy for marketing university technologies.
- Proposed commercialization strategies for different technologies.
- Building partnerships with industry.
- Overcoming legal and procedural bottlenecks.

Industrial Internship

General Electric

July 2009 - August 2009, Warsaw (Poland)

- R&D internship in Aircraft Industry.
- Examining the influence of mesh topology on results of modal analysis.
- HPC blades of GENx engine were analyzed.

Research Internship

University of Oxford

June 2008 - August 2008, Oxford (United Kingdom)

- "Laser-wire project for development of new solutions for particle accelerators (mainly CERN).
- Developed code in computational particle physics (Java & Matlab).
- Simulating intersection of laser and electron beams (inverse Compton scattering).

Research Internship

University of Leeds

June 2007 - October 2007, Leeds (United Kingdom)

- Testing how hydrogen affects friction and wear using pin-on-plate test stand.
- Analyzed various types of oil additives (ZDDP, MoDTC).
- Analyzed various types of surface treatment (nitrided, sulphonitrided).

PROJECTS

H2mJet - NATO Science for Peace and Security Project

University Project Leader • 2026 - Present

- Development of a hydrogen combustion chamber for a micro jet engine.
- International consortium within the NATO Science for Peace and Security programme.
- Collaboration with Texas A&M University.

FLEXindustries - Horizon Europe Project

University Project Leader • April 2022 - Present

- Budget of 17 mln EUR with 36 partners, 530k EUR University Budget.
- 7 industrial facilities are transformed towards intelligent energy solutions & monitoring.
- Automotive, biofuels, polymers, steel, pulp and paper, pharmaceuticals, cement.
- We designed a system that recovers waste heat using an Organic Rankine Cycle (ORC).
- Website: <https://flexindustries.eu/>.

FRONTSH1P - Horizon 2020 Green Deal Project

University Work Package Leader • November 2021 - Present

- Budget of 19 mln EUR with 34 partners, 500k EUR University Budget.
- Introduces circular economy to Lodzkie region in Poland.
- CFD simulations of injecting captured CO2 into thermal insulation.
- Website: <https://frontsh1p.eu/>.

Anti-surge protection system for automotive turbochargers

Work Package Leader • October 2020 – September 2022

- Project funded by Polish Ministry of Science "Innovation Incubator" - 2 mln PLN.
- Awarded for the development of technologies with commercial potential.
- Our part included building a prototype of the anti-surge system for the turbocharger.

Development of a novel biomass harvesting technology.

Project Coordinator • August 2021 - Present

- Commercial project ran by Scottish-Polish startup uFraction8 - 500k PLN.
- The university conducted filter module tests as part of its work package.
- The university took part in the design of flow channels connecting the modules.

Centrifugal Compressors: focus on safety and economy

Project Leader • January 2016 - December 2018

- Awarded by the Polish National Centre for Science and Development - 1.2 mln PLN.
- Prestigious program for young leaders in Polish science.
- Small team of 6 researchers from Łódź and the University of Strathclyde.
- Development of flexible anti-surge system for centrifugal compressors.

Investigation of air injection into a bladeless diffuser

Principal Supervisor • October 2015 - September 2019

- Awarded by the Polish Ministry of Science - 200k PLN.
- Prestigious program for especially talented students and their supervisors.
- Development of air injection system that stabilizes the flow in centrifugal compressor diffuser.

SELECTED PUBLICATIONS

- Book: The Ph.D. Code: 60 Tips to Get Your Degree in STEM Subjects, Liskiewicz, T., Liskiewicz, G., Springer Nature, 2025.
- [Aerodynamic instabilities detection via empirical mode decomposition in centrifugal compressors](#), Stajuda, M., García Cava, D., Liśkiewicz, G., *Measurement: Journal of the International Measurement Confederation*, 2022, 199, 111496
- [Singular spectrum analysis as a tool for early detection of centrifugal compressor flow instability](#), Logan, A., Cava, D.G., Liśkiewicz, G., *Measurement: Journal of the International Measurement Confederation*, 2021, 173, 108536

- [Experimental analysis of surge-detection system based on pressure derivatives at part-speed operation](#), Liśkiewicz, G., Kabalyk, K., Jaeschke, A., Ouyang, H., Shen, X., *Journal of Engineering for Gas Turbines and Power*, 2021, 143(5), 051018
- [Experimental study of vaneless diffuser rotating stall development and cell-merging phenomena](#), Grapow, F., Olasek, K., Liśkiewicz, G., Magiera, R., Kryłłowicz, W., *Journal of Turbomachinery*, 2021, 143(5), 4050119
- [Study of the greitzer model for centrifugal compressors: Variable lc parameter and two types of surge](#), Grapow, F., Liśkiewicz, G., *Energies*, 2020, 13(22), 6072
- [Efficient and reliable surge prevention algorithm for centrifugal compressor](#), Liśkiewicz, G., *Aircraft Engineering and Aerospace Technology*, 2020, 92(1), pp. 47–59
- [Numerical Model of a Deep Surge Cycle in Low-Speed Centrifugal Compressor](#), Liśkiewicz, G., Kulak, M., Sobczak, K., Stickland, M., *Journal of Turbomachinery*, 2020, 142(12), 121005
- [Identification of phenomena preceding blower surge by means of pressure spectral maps](#), Liśkiewicz, G., Horodko, L., Stickland, M., Kryłłowicz, W., *Experimental Thermal and Fluid Science*, 2014, 54, pp. 267–278

SCOPUS

- Number of papers: 46
- Times cited: 623
- H-index: 11

Web of Science

- Number of papers: 44
- Times cited: 493
- H-index: 9

Revised 29.08.2026

SELECTED RESEARCH ACTIVITIES

Memberships

- Strathclyde Alumni Community, no 219864, 2015 –
- The Institution of Engineering and Technology, no 1100313247, 2013 –
- American Society of Mechanical Engineers, no 000100684325 2013 –
- Institute of Physics, no 100684325, 2007 –

Phd Supervision

- Krzysztof Wojtaluk – Compressed Air Energy Storage System for food industry
- Abdul Basit - Mathematical modeling of unstable flows in a centrifugal compressor
- Muhammad Zahid - Non-linear feature extraction methods in centrifugal compressor
- Tariq Ullah - Passive flow control methods for stall control in a centrifugal compressor (co-supervisor)
- Mateusz Stajuda - Data-driven safety systems for centrifugal compressor (co-supervisor, University of Edinburgh, UK)
- Filip Grapow - Oderwanie wirujące w dyfuzorze bezłopatkowym sprężarki: rozwój niestabilności i jej kontrola (Vaneless Diffuser Rotating Stall: instability growth and control) (co-supervisor, defended on 03.12.2021)

Patents

- M Stajuda, G Liśkiewicz, F Grapow, A Jaeschke, M Kulak, Method of monitoring unsteady flow structures in a compression system (polish patent), P.432123, 2020
- M Stajuda, D Garcia, G Liśkiewicz, F Grapow, A Jaeschke, M Kulak. Method of monitoring unsteady flow structures in a compression system (polish patent), P.432118, 2020
- G Liśkiewicz Method of monitoring unsteady flow structures in a compression system (polish patent), P.408621, 2014

Journal Reviewer

- IEEE Transactions on Control Systems Technology, IEEE
- International Journal of Turbo and Jet Engines, de Gruyter
- International Journal of Green Energy, Taylor & Francis
- Applied Energy, Elsevier
- Ocean Engineering, Elsevier
- Proceedings of American Society of Mechanical Engineering, ASME
- Journal of Turbomachinery, ASME
- Archive of Mechanical Engineering, PAN
- Transactions of IFFM, PAN
- Tribology: Materials, Surfaces & Interfaces, Maney Publishing
- Energies, MDPI
- Applied Science, MDPI
- Processes, MDPI

Examiner & Expert

- Alasdair Mackenzie - Development and validation of a novel hybrid CFD slurry model (Phd External examiner, University of Strathclyde, UK)
- Francesco Rizzuto - One-dimensional positive displacement pump description in cavitating conditions (Phd External examiner, University of Strathclyde, UK)
- Ola Ilseth Pronk - Transient Analysis of First- and Second-Quadrant Compressor System Behaviour (PhD first opponent, NTNU, Norway)
- Lorenzo Carrattieri - CFD-Informed Methods for Condition Monitoring and Diagnostics of Turbomachinery (PhD External reviewer, University of Genoa, Italy)
- National Centre for Research and Development (project evaluator)
- National Agency for Academic Exchange (project evaluator)
- Innovation Coach (SME support program)

Selected Science popularization events

- Participation in the “Łódź Energy Roundtable” in the international congress [Energy Regeneration of the Cities](#), 2023.

- Lecture during the 18th [Festival of Art, Science and Technology](#) in Łódź, "What will the world technology look like in 20 years?", 2018.
- Lecture during the matriculation of the Faculty of Mechanical Engineering, Łódź University of Technology entitled 'Exponential Growth of Technology. What will an engineer be doing in 20 years' time?", 2017.
- Presentation during the [Explorers Festival Łódź](#) entitled "The power of the wind", 2013.
- Author of popular science articles published among others on the [TUL university blog](#).

LEADERSHIP PROGRAMS

Leadership Academy for Poland

Centre for Leadership • 2023-2024

The purpose of the Leadership Academy for Poland is to bring world-class education to Poland and build diverse group from different backgrounds (media, politics, artists, science, ngo and business) with access to one of Europe's best leadership development programs. World-class educators, including Harvard professors and other leading international scholars and speakers, deliver interactive classes in a deeply immersive setting and are available for consultations and closed meetings with the participants. The Academy is an opportunity for a deep reflection that re-centers, refreshes, and inspires. It also offers practical insights on how to positively reshape ongoing projects, careers, and life. The program is open to limited number of 40 participants each year.

International Visitor Leadership Program (Tech Transfer in the USA)

U. S. Department of State • 2018

The International Visitor Leadership Program (IVLP) is the U.S. Department of State's premier professional exchange program started in 1940 by Nelson Rockefeller. There is no application for IVLP - participants are nominated and selected annually by the staff at U.S. Embassies around the world. Through short-term visits to the United States, emerging leaders in a variety of fields meet with their American counterparts. This program entitled "Tech Transfer in the US" included meetings with specialists in the field in Washington, Los Angeles, Cleveland, Pittsburgh, Atlanta. This exceptional experience allowed to explore the tech transfer strategies implemented by top universities and research institutions in visited cities and states.

Top 500 Innovators

University of Cambridge • 2015

10-week intensive program for future leaders focused on Tech Transfer. It was conducted at most influential institutions from the Cambridge-Oxford-London triangle including: Judge Business School, Saïd Business School, St. John's Innovation Centre, Cambridge Enterprise, Oxentia (Oxford University), Imperial College London. The program included technology commercialization, innovative entrepreneurship, project management, technology roadmapping, creative thinking, negotiation skills, pitching skills, communicating research, team building and management. The course included classes, meetings with influential business leaders and entrepreneurial researchers, workshops, team projects combined with unique experience of Oxbridge college culture.

PUBLIC INVOLVEMENT

STEM Racing Poland

- Co-founder and Vice-chairman • November 2022 - Present
- Biggest and most exciting STEM education program worldwide.
- The only program for high schools which is officially supported by Formula 1.
- Competition organized in over 50 countries for over 20 years.
- We organize the STEM Racing Poland national finals through our NGO.
- Website: <https://stemracing.pl/>.

Stodola Academy (formerly IGTI-4-CEE)

Co-founder • 2024 - Present

- Supporting young turbomachinery researchers from Central and Eastern Europe.
- Scholarships and mentoring enabling participation in the ASME Turbo Expo.
- Website: <https://stodola.org/>.

Mechaton

Originator • Faculty of Mechanical Engineering TUL

- 48-hour engineering hackathon for students of the Faculty.
- Teams solve real industrial problems prepared by partner companies (Veolia, SECO/WARWICK, Hitachi,

COMMON).

- The most popular student initiative at the Faculty.

Energy Regeneration of Cities Congress

Vice-chairman of the Programme Council

- International congress on energy and technologies in cities, held in Lodz.
- Building a multi-generational community around the future of cities, actively engaging students.
- Website: <https://www.regeneracjamiast.pl/>.

Startups by Invest in Lodz

Łódź (Poland) • Mentor • April 2020 – September 2023

- Accelerator for Startups run by the Lodz City Council for over 15 years.
- Advising on program strategy and content of incoming editions.
- Mentoring teams in the field of energy.
- Website <https://startupy.lodz.pl/>.

Top 500 Innovators Association Poland

Warsaw (Poland) • Board of Directors Member • May 2018 - November 2020

- An NGO that supports the top Polish innovators and technology transfer.
- Organization gave feedback to government on supporting innovation.
- Members are the alumni of the Top 500 Innovators program.
- This Board's position was voluntary work for the community.
- Website: <https://www.top500innovators.org/>.

EDUCATION

Doctor of Philosophy (PhD)

Minor in Mechanical Engineering (Awarded with distinction) • Lodz University of Technology • Lodz, Poland • 2014 • Dissertation: Numerical and Experimental study of the surge phenomenon in centrifugal compressors.

Doctor of Philosophy (PhD)

Minor in Mechanical & Aerospace Engineering • University of Strathclyde • Glasgow, Scotland • 2014 • Joint PhD Scheme that included one year at University of Strathclyde and continuous cooperation throughout rest of PhD.

Master of Science (MSc)

Minor in Theoretical Physics • Lodz University of Technology • Lodz, Poland • 2011 • Dissertation: Problem of Heat and Temperature Transformation in the Relativistic Thermodynamics.

Master of Science (MSc)

Minor in Mechanical Engineering (Distinguished with Curran Werner prize for the best graduate of the department) • Lodz University of Technology • Lodz, Poland • 2009 • Dissertation: Numerical Analysis of Aerodynamical Performance of a Sail.

SKILLS

Top Skills according to the CliftonStrengths test:

INDIVIDUALISATION, DEVELOPER, LEARNER, IDEATION, SELF-ASSURANCE.

Technical skills:

Programming, ICEM CFD, CFX, ANSYS, Fluent, Turbogrid, Workbench, Matlab, Scilab, Mathematica, LaTeX, ProEngineer, AutoCAD, AxStream.

Hobby:

Long-range bike trips, bonsai, vinyl discs, ice hockey.