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|-------------|--|----------------------------------|
| 2014 – 2015 | Researcher Project no. POIG.01.01.02-00-015/08-00 entitled <i>Modern Material Technologies in Aerospace Industry</i> | Rzeszow University of Technology |
| 2013 | Design engineer Project no. INNOTECH-K2/IN2/39/182334/NCBR/13 entitled <i>Development and implementation of plastic forming technology with resistance heating of aircraft engine components made of difficult-to-deform nickel-iron superalloys</i> | Rzeszow University of Technology |
| 2010 – 2012 | Design engineer Project no. OR00011611 entitled <i>UAV for terrain surveillance</i> | Rzeszow University of Technology |

EDUCATION

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|------|---|----------------------------------|
| 2015 | Doctor of Engineering Construction and Exploitation of Machines | Rzeszow University of Technology |
| 2013 | Master of Science Mechanics and Machine Building (specialty: mechanical drives) | Rzeszow University of Technology |
| 2012 | Bachelor of Engineering Automation and Robotics (specialty: computer science in robotics) | Rzeszow University of Technology |

SELECTED PROJECTS

Gear fault detection by unsupervised deep learning of autoencoder

</> Python, TensorFlow, Scikit-learn, NumPy, Scipy, Pandas [🔗 Read more](#)

Vibration excitation in gearboxes due to surface deviations

</> Python, NumPy, Scipy, Matlab, Differential geometry, Optimization Toolbox [🔗 Read more](#)

The method of prediction of tooth profile deviations in gear honing

</> Matlab, Differential geometry, Optimization Toolbox [🔗 Read more](#)

Vision-based control of small educational double SCARA robot

</> Python, OpenCV, TensorFlow, Scikit-learn, NumPy, Scipy, C, RaspberryPI, Matlab, Automatic code gen. [🔗 Read more](#)

Image processing algorithm for evaluation of the roundness of small objects

</> Matlab, Image processing toolbox, Optimization Toolbox [🔗 Read more](#)

What is the optimal shape of sofa?

</> Matlab, Differential geometry, Optimization Toolbox [🔗 Read more](#)

SELECTED SCIENTIFIC PUBLICATIONS

Helical Bevel Novikov Gears

👤 Michał Batsch 📅 2022 📖 Novikov/Conformal Gearing ed. by S.P. Radzevich, Springer [doi 10.1007/978-3-031-10019-2](#)

A Numerical Approach for Analysing the Moving Sofa Problem

👤 Michał Batsch 📅 2022 📖 Symmetry, 14(7) [doi 10.3390/sym14071409](#)

Image processing algorithm to assess the roundness of blanks for the production of copper seals for brake, fuel and gas installations

👤 Michał Batsch, Waldemar Witkowski, Dawid Wydrzyński 📅 2021 📖 Mechanik, 7 [doi 10.17814/mechanik.2021.7.10](#)

Mathematical model and tooth contact analysis of convexo-concave helical bevel Novikov gear mesh

👤 Michał Batsch 📅 2020 📖 Mechanism and Machine Theory, 149 [doi 10.1016/j.mechmachtheory.2020.103842](#)

A novel method of obtaining honing tool profile for machining gears with profile modifications

👤 Michał Batsch 📅 2020 📖 ASME Journal of Manufacturing Science and Engineering, 142(9) [doi 10.1115/1.4047351](#)

Measurement and mathematical model of convexo-concave Novikov gear mesh

👤 Michał Batsch, Tadeusz Markowski, Stanisław Legutko, Grzegorz Królczyk 📅 2018 📖 Measurement, 125 [doi 10.1016/j.measurement.2018.04.095](#)

LANGUAGES

- Polish - native
- **English** - C1 level

AWARDS

- third degree award of the Committee on Mechanics of the Polish Academy of Sciences
- six awards from the Head of the RUT

INTERESTS

- motorcycles
- music
- skiing
- microcontrollers