

Prospective supervisor's form

Name of the supervisor: Zdzisław Kowalczyk

Academic title: Prof. DSc PhD (prof. dr hab. inż.)

Orcid ID number: <https://orcid.org/0000-0001-9174-546X>

Gdańsk University of Technology Faculty of Electronics, Telecommunications and Informatics

Department of Robotics and Decision Systems

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Discipline: control, electronic and electrical engineering none Optional

Key words (obligatory four key words describing research interests / expertise):

control & diagnostic systems

optimization, modeling & identification

artificial intelligence & decision making

cognitive & robotic systems

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 43

2. Citations excluding self-citations WoS 336 Scopus 599

3. Hirsch index WoS 9 Scopus 12

1. The number of PhD students who have graduated under your supervision: 11

2. The number of PhD students currently supervised:

a. within the current doctoral school

b. within doctoral studies (previous system) 1

3. Are you currently accepting new PhD students:

a. Polish Yes/No Yes

b. Foreign Yes/No Yes

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Research interests or topics offered for PhD research (no more than 2000 characters)ⁱⁱ

Modeling, Automatic Control and Robotics, Control and Decision-Making Systems:
 (I) Basic design issues: | modeling and identification of dynamic processes | system design for measurement, identification and control | adaptive systems (identification, estimation, control and decision making) | diagnostics of processes and control systems | autonomous robotics and decision-making | simulation of systems and environments | artificial intelligence and cognitive psychology (agent and autonomous systems, mobile and cognitive robotics).
 (II) Methodology and tools: | methods (artificial intelligence, mathematics, numerical algorithms) | algorithms (direct, predictive, optimal, robust, adaptive, optimal control) | optimization and approximation of systems and signals | digital signal processing | implementation of continuous-time and discrete-time systems | computer network systems, computer systems for DSP, simulation, control, and supervision | artificial intelligence (genetic and evolutionary algorithms, expert and fuzzy systems, neural networks and multi agent systems).

Funding or special equipment needed to carry out a PhD project ⁱⁱⁱ:

1. Is funding available for experimental work: *Yes/No/not needed*

2. Is the equipment needed to complete a PhD project available in your lab/department: *Yes/No/not needed*

Most important publication no more than 5 published after 1.01.2018

No	Authors/title/journal	Number of points according to the current list of the Ministry of Science and Higher Education	Publication year
1.	Z. Kowalczyk, T. Białaszewski, „Gender approaches to evolutionary multi-objective optimization using pre-selection of criteria” Engineering Optimization [DOI=10.1080/0305215X.2017.1305374], vol. 50, no. 1, pp. 121-145, 2018 (on-line, plus supplementary material)	70	2018
2.	Z. Kowalczyk, M. Tatara „Sphere drive and control system for haptic interaction with physical, virtual and augmented reality” IEEE Trans. Control Systems Technology [ISSN 1063-6536], vol. 27, no. 2, pp. 558-602, 2019	140	2019

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3.	Z. Kowalczuk, M. Czubenko, T. Merta "Interpretation and modeling of emotions in the management of autonomous robots using a control paradigm based on a scheduling variable" Engineering Applications of Artificial Intelligence [0952-1976], vol. 91, no. 103562, pp. 1-17, 2020.	140	2020
4.	Z. Kowalczuk, M. Tatara „Improved model of isothermal and incompressible fluid flow in pipelines versus the Darcy-Weisbach equation and the issue of friction factor”, J. of Fluid Mechanics [ISSN 0022-1120; doi:10.1017/jfm.2020.131], vol. 891, pp. A5.1-26, 2020	140	2020
5.	B. Wiszniewski, Z. Kowalczuk, M. Domzalski (Eds.), 10th IFAC Symposium on Intelligent Autonomous Vehicles. Special Issue of IFAC-PapersOnLine [Monography in ScienceDirect; ISSN 2405-8963, Elsevier], vol. 52, no. 8, pp. 1-474, 2019	80	2019

Most recent externally funded projects you were involved in – no more than 3

No	Project title, the name of the Principal Investigator (PI) and the institution the project was carried out	Years	Role in the project ^{iv}
1.			PI
2.			PI
3.			PI

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Additional relevant information – (no more than 1600 characters)^v

Recent Books:

Advanced Modeling of Management Processes in Information Technology. Studies in Computational Intelligence 518, pp. 375, Springer Verlag, 2014;

Advanced and Intelligent Computations in Diagnosis and Control. Advances in Intelligent Systems and Computing 386, pp. 442. Springer I.P. Switzerland, 2016;

Wyznaczanie trajektorii obiektów dynamicznych na podstawie danych z wielu estymatorów stanu [Problemy Nauk Technicznych: tom 5, ss. 138], PWNT, Gdańsk 2016;

Elementy psychologii w kontekście autonomii robotów [Problemy Nauk Technicznych: tom 6, ss. 108], PWNT Pomorskie Wydawnictwo Naukowo-Techniczne, Gdańsk 2019.

Member of the scientific committees of several international journals, including the post of Technical Associate Editor for the 21st IFAC World Congress 2020, July 12-17, 2020 in Berlin, Germany (<https://www.ifac2020.org>); and the post of Associate Editor of the IEEE Transactions on Cognitive and Developmental Systems (<https://cis.ieee.org/publications/t-cognitive-and-developmental-systems/tcds-editors-and-associate-editors>).

ⁱ You may select up to two disciplines out of 12 disciplines represented in the Doctoral School

ⁱⁱ Observe the limit of not more than 2000 characters

ⁱⁱⁱ Leave only one answer

^{iv} Select the role in the project: PI stands for principal investigator (refers to the holder of an independent grant and the lead researcher for the grant project), Co-I for co-investigator (Co-I assists the principal investigator in the management and leadership of the research project), R for researcher

^v Add any other relevant information e.g. awards for PhD students whom you supervised (no more than 1600 characters)