Prospective supervisor's form

Name of the supervisor: Michał Grochowski

Academic title: dr hab inż.

Orcid ID number: https://orcid.org/0000- 0002-2453-2410

Faculty of Electrical and Control Engineering

Gdańsk University of Technology **Department of** Control Systems Engineering

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E-mail: michal.grochowski@pg.edu.pl

Personal web page: https:/ pg.edu.pl/

Discipline[i] control, electronic and electrical engineering | none

Optional

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

machine learning

decision support systems

fault detection and diagnosis

advanced control systems

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus: 12/13
2. Citations excluding self-citations: WoS 158 Scopus 332
3. Hirsch index: WoS 8 Scopus 11

1. The number of PhD students who have graduated under your supervision: 0
2. The number of PhD students currently supervised:
   a. within the current doctoral school: 0
   b. within doctoral studies (previous system): 2 - auxilary supervisor
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]

My current research is focused on computational intelligence and machine learning methods and their utilization in decision support and fault detection systems. We carry out research in our team.
Topics offered for PhD research:
- development of machine learning tools, especially neural networks and deep neural networks;
- Development and application of Explainable Artificial Intelligence (XAI);
- Development and application of recurrent neural networks for signal analysis, for diagnostic purposes.

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

1. Is funding available for experimental work: *Yes/No/not needed* — not needed
2. Is the equipment needed to complete a PhD project available in your lab/department: *Yes/No/not needed* — Yes

Most important publicatio 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.	Kwasigroch A., Grochowski, M., Mikołajczyk, A. Neural Architecture Search for Skin Lesion Classification. IEEE Access, Volume 8, 2020, Pages 9061-9071	100	2020
2.	Grochowski M., Kwasigroch A., Mikołajczyk A. (2019). Selected Technical Issues of Deep Neural Networks for Image Classification Purposes. Bulletin of the Polish Academy of Sciences: Technical Sciences. Vol. 67, No. 2, pp. 363-376, 2019	100	2019

Prospective supervisor's form

3.	Grochowski M., Mikołajczyk A., Kwasigroch A. (2019). Diagnosis of malignant melanoma by neural network ensemble-based system utilising hand-crafted skin lesion features. Metrology and Measurement Systems. Vol. 26 (2019), No. 1, pp. 65–80.	100	2019
4.	Grochowski M., Wąsowicz M., Mikołajczyk A. Ficek M., Kulka M., Wróbel M.S., Jędrzejewska-Szczerska M. (2019). Machine learning system for automated blood smear analysis. Metrology and Measurement Systems. Vol. 26 (2019) No. 1, pp. 81–93.	100	2019
5.	Hirsch P., Grochowski M., Duzinkiewicz K. (2018). Decision support system for design of long distance heat transportation system. Energy and Buildings, Vol. 173 (2018), pp. 378-388	140	2018

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.	NCBiR Strategic research project: "Technologies supporting the development of safe nuclear energy". - Research task No. 10 entitled: "Development of a method and execution of an exemplary system analysis of the operation of a nuclear unit with a water reactor at partial cogeneration (DPS/410/J10/176450/1/MŚ/z/12)"	2012-2014	R
2.	Research project: COST Action IC0806: Intelligent Monitoring, Control and Security of Critical Infrastructure Systems (IntelliCIS).	2009-2013	R
3.	NCN Research project: Monitoring and control of water quality in drinking water supply and distribution systems (SDiDW)	2003-2006	R

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

Author of about 70 research papers, including 12 JCR papers.

Scientific supervisor in PhD research grants:
- Detecting and overcoming bias in data with explainable artificial intelligence, PRELUDIUM, National Science Center of Poland, 2020-2023;
- Development of the new Deep neural network structures for 2d image analysis for decision support. Diamond Grant, Ministry of Science and Higher Education of Poland, 2017-2021.

- Co-author of the paper awarded by Young author Best paper award at 24th International Conference on Methods and Models in Automation and Robotics – MMAR 2019, Kwasigroch, A., Grochowski M. Deep neural network architecture search using network morphism.
- Co-author of the paper awarded by Young author Best paper award at International Interdisciplinary PhD Workshop 2018: Mikołajczyk A., Grochowski M.: Data augmentation for improving deep learning in image classification problem.
- Co-author of the paper awarded as the Best paper in the seminar cycle "Use of Computers in Science and Technology - ZKwNiT'2018".

Supervisor of thesis awarded in contest Young Innovative (pol. PIAP Młodzi Innowacyjni) for the best thesis work in Poland:
- first place Master's thesis, 2018;

[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)