IPPT PAN

Institute of Fundamental Technological Research

Polish Academy of Sciences

List of publications related to the subject of Artificial Intelligence

I. Application of AI algorithms to optimal design of engineering systems and classification and clusterization biological and medical data

1. Marszałek A., Burczyński T., *Forecasting day-ahead spot electricity prices using deep neural networks with attention mechanism*, **JOURNAL OF SMART ENVIRONMENTS AND GREEN COMPUTING**, ISSN: 2767-6595, DOI: 10.20517/jsegc.2021.02, Vol.1, pp.21-31, 2021.

2. Kuś W., Mrozek A.,, Burczyński T., *Memetic optimization of graphene-like materials on Intel PHI Coprocessor*, **LECTURE NOTES IN ARTIFICIAL INTELLIGENCE**, Vol.9692, pp.401-410, 2016.

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4. Poteralski A., Szczepanik M., Górski R., Burczyński T., *Swarm and Immune Computing of Dynamically Loaded Reinforced Structures*, **LECTURE NOTES IN ARTIFICIAL INTELLIGENCE**, DOI: 10.1007/978-3-319-19369-4_43, Vol.9120, pp.483-494, 2015.

5. Poteralski A., Szczepanik M., Burczyński T., *Immune Optimal Design of 2-D and 3-D Structures*, **LECTURE NOTES IN ARTIFICIAL INTELLIGENCE**, DOI: 10.1007/978-3-319-19369-4_42, Vol.9120, pp.471-482, 2015.

6. Burczyński T., Poteralski A., Szczepanik M., *Immune and swarm optimization of structures Chapter in:* **ADVANCES IN EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL IN ENGINEERING AND SCIENCES**, Springer International Publishing Switzerland, D.Greiner et al. (eds.), Computational Methods in Applied Sciences 36, pp.295-308, 2015.

7. Dziatkiewicz J., Kuś W., Majchrzak E., Burczyński T., Turchan Ł., *Bioinspired Identification of Parameters in Microscale Heat Transfer*, **INTERNATIONAL JOURNAL FOR MULTISCALE COMPUTATIONAL ENGINEERING**, Vol.12, No.1, pp.79-89, 2014.

8. Marszałek A., Burczyński T., *Modeling and forecasting financial time series with ordered fuzzy candlesticks*, **INFORMATION SCIENCES**, Vol.273, pp.144-155,

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10. Burczyński T., Szczepanik M., *Intelligent optimal design of spatial structures*, **COMPUTERS AND STRUCTURES**, Vol.127, pp.102-115, 2013.

11. Kolodziej J., Khan S.U. and Tadeusz Burczynski (Eds.), Advances in Intelligent Modelling and Simulation: **ARTIFICIAL INTELLIGENCE-BASED MODELS AND TECHNIQUES IN SCALABLE COMPUTING**. Springer 2012.

12. Szczepanik M., Burczyński T., *Swarm optimization of stiffeners locations in 2-D structures*, **BULLETIN OF THE POLISH ACADEMY OF SCIENCES: TECHNICAL SCIENCES**, Vol.60, No.2, pp.241-246, 2012.

13. Długosz A., Burczyński T., *Multiobjective shape optimization of selected coupled problems by means of evolutionary algorithms*, **BULLETIN OF THE POLISH ACADEMY OF SCIENCES: TECHNICAL SCIENCES**, Vol.60, No.2, pp.215-222, 2012.

14. Bereta M., Burczyński T., *Evolving ensembles of linear classifiers by means of* clonal *selection algorithm*, **CONTROL AND CYBERNETICS**, Vol.39, No.2, pp.325-342, 2010.

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18. Bereta M., Burczyński T., Comparing binary and real-valued coding in hybrid immune algorithm for feature selection and classification of ECG signals. **JOURNAL ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE**, 20(5):571–585, 2007.

Guest Editor of Special Issues on AI

1. Burczynski, T., Cholewa W., Moczulski, W. (Guest editors), *JOURNAL OF ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE*. *Special Issue on Selected Problems of Knowledge Representation*. Vol.17, No. 4, 2004, Elsevier.

2. Burczyński T., Cholewa W., Moczulski W., (Guest editors), *ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE*: *Special Issue on Soft Computing Applications*, Vol. 20, No. 5, 2007, Elsevier

3. Burczyński, T., (Guest editor), *INFORMATION SCIENCE JOURNAL. Special Issue on Artificial Immune Systems*, Vol. 179, Issue 10, 2009 Elsevier.

II. Publications in the field of Neuroinformatics - information processing and transmission in the brain

1. Pręgowska A., Signal fluctuations and the information transmission rates in binary communication channels, **ENTROPY**, ISSN: 1099-4300, DOI: 10.3390/e23010092, Vol.23, No.1, pp.92-1-12, **2021**   **100 pkt.**

2. Paprocki B., Pręgowska A., Szczepański J., Optimizing information processing in brain-inspired neural networks, **BULLETIN OF THE POLISH ACADEMY OF SCIENCES**, Techn., ISSN: 0239-7528, DOI: 10.24425/bpasts.2020.131844, Vol.68, No.2, pp.225-233, 2020   **100 pkt.**

3. Pręgowska A., Kaplan E., Szczepański J., How far can neural correlations reduce uncertainty? Comparison of information transmission rates for Markov and Bernoulli processes, **INTERNATIONAL JOURNAL OF NEURAL SYSTEMS**, ISSN: 0129-0657, DOI: 10.1142/S0129065719500035, Vol.29, No.8, pp.1950003-1-13, 2019   **140pkt.**   World Scientific

4. Pręgowska A., Proniewska K., van Dam P., Szczepański J., Using Lempel-Ziv complexity as effective classification tool of the sleep-related breathing disorders, **COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE**, ISSN: 0169-2607, DOI: 10.1016/j.cmpb.2019.105052, Vol.182, pp.105052-1-7, 2019 **100pkt.** Elsevier

5. Pręgowska A., Casti A., Kaplan E., Wajnryb E., Szczepański J., Information processing in the LGN: a comparison of neural codes and cell types, **BIOLOGICAL CYBERNETICS**, ISSN: 0340-1200, DOI: 10.1007/s00422-019-00801-0, Vol.113, No.4, pp.453-464, 2019 **70pkt.**   Elsevier

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7. Pręgowska A., Szczepański J., Wajnryb E., Mutual information against correlations in binary communication channels, **BMC NEUROSCIENCE**, ISSN: 1471-2202, DOI: 10.1186/s12868-015-0168-0, Vol.16, No.32, pp.1-7, 2015 25p. BioMed

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9. Paprocki B., Szczepański J., How do the amplitude fluctuations affect the neuronal transmission efficiency, **NEUROCOMPUTING,** ISSN: 0925-2312, DOI: 10.1016/j.neucom.2012.11.001, Vol.104, pp.50-56, 2013 30p. Elsevier **140 pkt.**

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18. Szczepański J., Wajnryb E., Amigó J.M., Sanchez-Vives M.V., Slater M. , Biometric random number generators, **COMPUTERS AND SECURITY**, ISSN: 0167-4048, DOI: 10.1016/S0167-4048(04)00064-1, Vol.23, No.1, pp.77-84, 2004   Elsevier
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III. Publications using artificial intelligence methods, with particular emphasis on vision systems and mobile robots

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[3] Zawidzki M., Szklarski J., Transformations of Arm-Z modular manipulator with Particle Swarm Optimization, Advances in Engineering Software 126, pp.147-160, 2018.
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V. Publications in the field of biomedical signals classification - Image recognition - Diagnostics with the use of Artificial Intelligence methods

[1] Han A.♦, Byra M., Heba E.♦, Andre M.P.♦, Erdman J.W.Jr.♦, Loomba R.♦, Sirlin C.B.♦, O'Brien W.D.Jr., Noninvasive diagnosis of nonalcoholic fatty liver disease and quantification of liver fat with radiofrequency ultrasound data using one-dimensional convolutional neural networks, **RADIOLOGY,** ISSN: 0033-8419, DOI: 10.1148/radiol.2020191160, Vol.295, No.2, pp.342-350, **2020**

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[5] Jarosik P., Klimonda Z., Lewandowski M., Byra M., Breast lesion classification based on ultrasonic radio-frequency signals using convolutional neural networks, **BIOCYBERNETICS AND BIOMEDICAL ENGINEERING**, ISSN: 0208-5216, DOI: 10.1016/j.bbe.2020.04.002, Vol.40, No.3, pp.977-986, **2020**

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