



# Grzegorz Marcin Wójcik

## Curriculum Vitae

*Born in 1976 in Nisko, Subcarpathia, Poland*

### Education

- 18.06.2013 **Habilitation in Technical Sciences in the field of Biocybernetics and Biomedical Engineering**, *Faculty of Automatic Control, Electronics and Computer Science*, Silesian University of Technology, Gliwice, Poland.
- 13.12.2004 **Doctorate in Physical Sciences in the field of Computer Physics**, *Faculty of Mathematics, Physics and Computer Science*, Maria Curie-Sklodowska University in Lublin, Poland.
- 2000–2004 **Doctoral studies at Institute of Physics**, *Faculty of Mathematics, Physics and Computer Science*, Maria Curie-Sklodowska University in Lublin, Poland.
- 20.06.2000 **Master of Science in the field of Computer Physics**, *Faculty of Mathematics and Physics*, Maria Curie-Sklodowska University in Lublin, Poland.
- 1995–2000 **Master studies in Physics**, *Faculty of Mathematics and Physics*, Maria Curie-Sklodowska University in Lublin, Poland.
- 1991–1995 **1st Stanislaw Staszic High School in Lublin**, *Class profiled for Mathematics, Physics and Computer Science*, Poland.
- 1983–1991 **Romuald Traugutt Primary School No. 6 in Lublin**, Poland.

### Experience

#### Polish-Japanese Academy of Information Technology

- 1.10.2018– **Head of postgraduate studies "Cybersecurity of Information and Telecommunication Systems"**, *Polish-Japanese Academy of Information Technology*, Warsaw, Faculty of Information Technology.
- 1.10.2017– **Head of postgraduate studies "Big Data Engineering"**, *Polish-Japanese Academy of Information Technology*, Warsaw, Faculty of Information Technology.
- 1.10.2017– **Associate Professor**, *Polish-Japanese Academy of Information Technology*, Warsaw, Faculty of Information Technology.  
Chair of Computer Networks

*Maria Curie-Sklodowska University, Institute of Computer Science  
Department of Neuroinformatics, Akademicka 9, 20-033 Lublin – Poland*

☎ +48 (81) 53-72-940 • 📠 +48 (81) 53-76-262

✉ gmwojcik@live.umcs.edu.pl • 🌐 <https://about.me/gmwojcik>

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### Maria Curie-Sklodowska University in Lublin

- 1.09.2016– **Head of Department of Neuroinformatics**, *Maria Curie-Sklodowska University in Lublin*, Faculty of Mathematics, Physics and Computer Science.  
Institute of Computer Science
- 1.10.2015– **Associate Professor**, *Maria Curie-Sklodowska University in Lublin*, Faculty of Mathematics, Physics and Computer Science.  
Institute of Computer Science
- 1.09.2014– **Head of Laboratory of Neuroinformatics**, *Maria Curie-Sklodowska University in Lublin*, Faculty of Mathematics, Physics and Computer Science.  
31.08.2016 Institute of Computer Science
- 1.07.2013– **Assistant Professor with Habilitation**, *Maria Curie-Sklodowska University in Lublin*, Faculty of Mathematics, Physics and Computer Science.  
30.09.2015 Institute of Computer Science
- 1.10.2005– **Assistant Professor**, *Maria Curie-Sklodowska University in Lublin*, Faculty of Mathematics, Physics and Computer Science.  
30.06.2013 Institute of Computer Science

### University of Economics and Innovation in Lublin

- 1.10.2013– **Associate Professor**, *University of Economics and Innovation in Lublin*, Faculty of Transport and Computer Science.  
30.09.2017
- 1.10.2012– **Assistant Professor**, *University of Economics and Innovation in Lublin*, Faculty of Transport and Computer Science.  
30.09.2013
- 1.04.2009– **Meritorical Coordinator for ICT in the project "School of Key Competences"**,  
31.12.2012 *University of Economics and Innovation in Lublin*, Poland.  
The project financed by the European Union from the European Social Fund and the State Budget under the Human Capital Operational Program.
- 1.10.2008– **Dean's Proxy for the 1st Degree Graduate Studies in Computer Science**, *University of Economics and Innovation in Lublin*, Faculty of Transport and Computer Science.  
30.09.2009
- 1.10.2007– **Lecturer**, *University of Economics and Innovation in Lublin*, Faculty of Transport and Computer Science.  
30.09.2012

### 1st Stanislaw Staszic High School in Lublin

- 1.09.2004– **Contract Teacher**, *1st Stanislaw Staszic High School in Lublin*, Poland.  
30.09.2005
- 1.09.2003– **Trainee Teacher**, *1st Stanislaw Staszic High School in Lublin*, Poland.  
31.08.2004

### Daewoo Motor Poland

- 3.07.2000– **Analyst Programmer**, *Daewoo Motor Poland*, Lublin.  
14.10.2000
- 1.05.2000– **Application Programmer**, *Daewoo Motor Poland*, Lublin.  
2.07.2000

*Maria Curie-Sklodowska University, Institute of Computer Science  
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🌐 gmwojcik • 🐦 gmwojcik • 🌐 gmwojcik

1.02.2000– **Referent**, *Daewoo Motor Poland*, Lublin.  
30.04.2000

#### Additional

9.03.2009– **Meritorical Expert – content author of physics and mathematics in the project "Hand in Hand with Einstein. 2nd Edition"**, *Betacom S.A.*, Lublin, Poland.

The project financed by the European Union from the European Social Fund.

2001-2004 **Computational Neuroscience Teacher**, *Youth Academy of Skills*, Ignacy Jan Paderewski Foundation for the Promotion of Alternative Forms of Education in Lublin, Idea by Piotr Kononowicz.

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### Courses, certificates, scientific visits and stays

- 2016 – Visit to Klaipeda State University of Applied Sciences, Lithuania
- 2016 – Visit to Fondo Formación Euskadi, Trapagaran, Spain
- 2015 – Visit to Transport and Telecommunication Institute, Riga, Latvia
- 2015 – Visit to Klaipeda State University of Applied Sciences, Lithuania
- 2012–2013 – Postgraduate studies: Scientific Projects Management, University of Economics and Innovation in Lublin, Poland
- 2009, 2012, 2013 – Visits to Bergen University College, Norway (financed by: FSS, EEA Grants, Norway Grants and Erasmus – Life-Long Learning)
- 2008 – Visit to Interdisciplinary Center for Neural Computations (ICNC), Hebrew University, Jerusalem, Israel
- 2006, 2009, 2010 – Visits in Dept. of Physiology, Anatomy & Genetics (DPAG), University of Oxford
- 2006 – Changing your Mind about the Brain, workshop at Interdisciplinary Center for Neural Computations (ICNC), Hebrew University, Jerusalem, Israel
- 2005 – Stay at Edinburgh Parallel Computing Centre (EPCC) and at Dept. of Computing Science and Mathematics at University of Stirling financed by HPC-Europa project, United Kingdom
- 2002 – EU Advanced Course In Computational Neuroscience, Obidos, Portugal
- 2002 – Cambridge Certificate in Advanced English (CAE), No. 8585438
- 2001 – Visit to Institute for Theoretical Computer Science at Technische Universität Graz, Austria
- 1999 – Certified Novell Administrator (CNA) – intraNetWare, No. 9695185
- 1999 – Novell NetWare 4.11 Administration Course (NW520)
- 1997 – Cambridge First Certificate in English (FCE), No. 976PL0100060
- 1994 – Driving Licence B-category

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### Awards

- 2018 – 2nd Class Individual Award of Rector of Maria Curie-Skłodowska University in Lublin for outstanding service for the University

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🌐 gmwojcik • 🐦 gmwojcik • 🌐 gmwojcik

- 2014 – 3rd Class Individual Award of Rector of Maria Curie-Sklodowska University in Lublin for outstanding service for the University
- 2013 – Individual Award of Rector of Maria Curie-Sklodowska University in Lublin for Habilitation
- 2012 – 3rd Class Individual Award of Rector of Maria Curie-Sklodowska University in Lublin for outstanding service for the University
- 2011 – 3rd Class Individual Award of Rector of Maria Curie-Sklodowska University in Lublin for outstanding service for the University in academic year 2010/2011

## Membership in Organisations

- Since 2016 – Rector's Representative in the Council of Academic Centre of Culture "Chatka Żaka" in Lublin, Poland
- Since 2016 – Council Member of Centre of Transfer of Knowledge and Technology at Maria Curie-Sklodowska University in Lublin, Poland
- Since 2015 – Editorial Board Member of Bio-Algorithms and Med-Systems
- Since 2015 – Program Council of High Field Magnetic Resonance Laboratory at the ECOTECH-COMPLEX Centre in Lublin, Poland
- Since 2015 – Vice-Chairman of the Commission of Fundamentals and Applications in Chemistry, Physics and Technology, Agriculture and Medicine. Polish Academy of Sciences, Filiale in Lublin, Poland. Chairman of Section of Physics. Member since 2009
- Since 2009 – Member of National Geographic Society
- 2009-2010 – Chapter Member (area: Science) in the Competition "Promotion of the Achievements of Polish Science". Foundation OIC Poland, Lublin
- Since 2005 – Member of Polish Numismatic Society. Since 2015 Board Member of Lublin Branch

## Scientific Projects

- 2010–2012 – Autism Spectrum Disorder - Integrated Theory. Investigator. Grant of Polish Ministry of Science and National Education, No. N519 578138
- 2008–2010 – Investigating of the model of primate visual system in the large-scale simulation. Head, Principal Investigator. Grant of Polish State Committee for Scientific Research, No. N519 403734
- 2007–2009 – Modelling and large-scale simulations of the mammalian visual cortex. Principal Investigator. Grant of Polish State Committee for Scientific Research, No. N519 01732/2120
- 2007 – Investigating the properties of the simulated mammalian visual cortex macro-neural ensembles. Head, Principal Investigator. Grant of Maria Curie-Sklodowska University in Lublin Vice-Rector for Science
- 2004–2005 – CLUSTERIX – National Linux Cluster. Investigator. Grant of Polish State Committee for Scientific Research, No. 6T11 2003C/06098

## Foreign languages

English **Full professional proficiency**

*Maria Curie-Sklodowska University, Institute of Computer Science  
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Russian **Basic proficiency**

Polish **Native**

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## Interests

Numismatics The selected coins of the British Empire and the Kingdom of the Netherlands (farthings & stuivers) and other world coins of the 19th & 20th century

Orchidaceae Moth orchids (*Phalaenopsis*)

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## Publications

W. K. Ozga, D. Zapała, P. Wierzgała, P. Augustynowicz, R. Porzak, and G. M. Wójcik, "Acoustic neurofeedback increases beta erd during mental rotation task," *Applied Psychophysiology and Biofeedback*, pp. 1–13, 2018.

P. Wierzgała, D. Zapała, G. M. Wójcik, and J. Masiak, "Most popular signal processing methods in motor-imagery bci: A review and meta-analysis," *Frontiers in Neuroinformatics*, vol. 12, p. 78, 2018.

Ł. Kwaśniewicz, P. Schneider, A. Kawiak, and G. M. Wójcik, "Comparison of mne selected functions parallelisation performance in source localisation algorithms for brain cortex activity quantitative analysis," in *Proceedings of Cracow Grid Workshop 2018*, pp. 49–51, 2018.

G. M. Wojcik, J. Masiak, A. Kawiak, L. Kwasniewicz, P. Schneider, N. Polak, and A. Gajos-Balinska, "Mapping the human brain in frequency band analysis of brain cortex electroencephalographic activity for selected psychiatric disorders," *Frontiers in Neuroinformatics*, vol. 12, p. 73, 2018.

A. Gajos-Balinska, G. M. Wojcik, and P. Stpiczynski, "Performance comparison of parallel fastica algorithm in the plgrid structures," in *ITM Web of Conferences*, vol. 21, p. 00026, EDP Sciences, 2018.

G. M. Wójcik, J. Masiak, A. Kawiak, P. Schneider, L. Kwasniewicz, N. Polak, and A. Gajos-Balinska, "New protocol for quantitative analysis of brain cortex electroencephalographic activity in patients with psychiatric disorders," *Frontiers in Neuroinformatics*, vol. 12, p. 27, 2018.

D. Kufel and G. M. Wojcik, "Analytical modelling of temperature effects on an ampa-type synapse," *Journal of Computational Neuroscience*, pp. 1–13, 2018.

A. Gajos-Balinska, G. M. Wojcik, and P. Stpiczynski, "High performance optimization of independent component analysis algorithm for eeg data," *Lecture Notes in Computer Science*, vol. 10777, pp. 495–504, 2018.

Y. Chow, J. Masiak, E. Mikołajewska, D. Mikołajewski, G. M. Wójcik, B. Wallace, A. Eugene, and M. Olajossy, "Limbic brain structures and burnout – a systematic review," *Advances in Medical Sciences*, vol. 63, pp. 192–198, 2018.

D. Mikołajewski, P. Prokopowicz, E. Mikołajewska, G. M. Wójcik, and J. Masiak, "Traditional versus mechatronic toys in children with autism spectrum disorders,"

*Maria Curie-Skłodowska University, Institute of Computer Science  
Department of Neuroinformatics, Akademicka 9, 20-033 Lublin – Poland*

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*Acta Mechatronica - International Scientific Journal about Mechatronics*, vol. 2, no. 1, pp. 11–17, 2017.

E. Mikołajewska, J. Masiak, D. Mikołajewski, G. M. Wójcik, and B. Augustyńska, "Neurorehabilitacja oparta na dowodach naukowych - wyzwania i zagrożenia," *Niepełnosprawność i Rehabilitacja*, no. 4, pp. 227–241, 2017.

A. Gajos, G. M. Wojcik, and P. Stpiczyński, "Parallel independent component analysis algorithm – performance comparison for eeg signal," in *Proceedings of Cracow Grid Workshop 2017*, pp. 33–34, 2017.

S. Kotyra and G. M. Wojcik, "The station for neurofeedback phenomenon research," *Advances in Intelligent Systems and Computing*, vol. 647, pp. 32–43, 2017.

S. Kotyra and G. M. Wojcik, "Steady state visually evoked potentials and their analysis with graphical and acoustic transformation," *Advances in Intelligent Systems and Computing*, vol. 647, pp. 22–31, 2017.

S. Kotyra and G. M. Wojcik, *20-th Polish Conference on Biocybernetics and Biomedical Engineering*, ch. The Station for Neurofeedback Phenomenon Research, p. 29. Kraków, 2017.

S. Kotyra and G. M. Wojcik, *20-th Polish Conference on Biocybernetics and Biomedical Engineering*, ch. Steady State Visually Evoked Potentials and their analysis with graphical and acoustic transformation, p. 28. Kraków, 2017.

G. M. Wojcik, *Proceedings of the International Scientific Conference Humboldt-Kolleg of Societas Humboldtiana Polonorum*, ch. Artificial Brain – An Non- Biological Intelligence Evolution Hypothesis, pp. 50–51. Kraków, 2017.

E. Mikołajewska, D. Mikołajewski, G. M. Wójcik, B. Augustyńska, and J. Masiak, "Analiza wielkich zbiorów danych w rehabilitacji osób niepełnosprawnych," *Niepełnosprawność i Rehabilitacja*, no. 3, pp. 180–188, 2017.

G. M. Wójcik, E. Mikołajewska, D. Mikołajewski, P. Wierzgała, A. Gajos, and M. Smolira, "Wykorzystanie egi's geodesic eeg system jako narzędzia do badań możliwości interfejsów mózg-komputer - doniesienie wstępne," *Niepełnosprawność i Rehabilitacja*, no. 2, pp. 166–181, 2016.

Ł. Kwaśniewicz, W. Kuniszyk-Józkowiak, G. M. Wójcik, and J. Masiak, "Adaptation of the humanoid robot to speech disfluency therapy," *Bio-Algorithms and Med-Systems*, vol. 12, no. 4, pp. 169–177, 2016.

D. Kufel and G. M. Wójcik, "Parallel computing of local field potentials in biological neural networks using lfpv," in *Proceedings of Cracow Grid Workshop 2016*, pp. 79–80, 2016.

D. S. Kufel and G. M. Wojcik, "Analytical modelling of temperature effects on synapses," *arXiv preprint arXiv:1610.00611*, 2016.

J. Masiak, G. M. Wójcik, A. Gajos, A. Kawiak, N. Polak, S. Kotyra, and Łukasz Kwaśniewicz, *Światowe innowacje łączące medycynę, inżynierię oraz technologie*

*Maria Curie-Skłodowska University, Institute of Computer Science  
Department of Neuroinformatics, Akademicka 9, 20-033 Lublin – Poland*

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✉ gmwojcik@live.umcs.edu.pl • 🌐 <https://about.me/gmwojcik>

🌐 gmwojcik • 🐦 gmwojcik • 🌐 gmwojcik

w diagnozowaniu i terapii autyzmu – Książka abstraktów, ch. Zastosowanie elektroencefalografów gęstej matrycy do oceny podejmowania decyzji u młodzieży z diagnozą autyzmu i zespołu Aspergera, pp. 49–50. Rzeszów, 2016.

A. Gajos and G. M. Wójcik, "Independent component analysis of eeg data for egi system," *Bio-Algorithms and Med-Systems*, vol. 12, no. 2, pp. 67–72, 2016.

G. M. Wójcik, *Osnovy neirokibernetiki. Pod redakcją profesora Ryszarda Tadeusewicha*, ch. Zhidokostnye vychislenija v modelovanii mozga, pp. 196–211. Goriachaja linija - Telekom. Moskwa, 2015.

G. M. Wójcik, P. Wierzgala, and A. Gajos, "Evaluation of emotiv eeg neuroheadset," *Bio-Algorithms and Med-Systems*, vol. 11, no. 4, pp. 211–215, 2015.

A. Gajos, G. M. Wojcik, and P. Stpiczyński, "Concept of independent component analysis algorithm parallelisation," in *Proceedings of Cracow Grid Workshop 2015*, pp. 55–56, 2015.

G. M. Wójcik, *XLIII Zjazd Fizyków Polskich – Program i streszczenia*, ch. Badania złożoności mózgu homo sapiens: aspekty funkcjonalne i morfologiczne, p. 179. Oddział Kielecki Polskiego Towarzystwa Fizycznego, 2015.

G. M. Wojcik and M. Ważny, "Bray-curtis metrics as measure of liquid state machine separation ability in function of connections density," *Procedia Computer Science*, vol. 51, pp. 2979–2983, 2015.

A. Gajos and G. M. Wójcik, "Independent component analysis of eeg data for egi system," *Bio-Algorithms and Med-Systems*, vol. 11, no. 2, p. eA23, 2015.

P. H. Wójcik and G. M. Wójcik, "Application of levenberg–marquardt algorithm for engagement detection in electroencephalographic time-series," *Bio-Algorithms and Med-Systems*, vol. 11, no. 2, p. eA23, 2015.

A. Gajos and G. M. Wojcik, "Electroencephalographic detection of synesthesia," *Annales Universitatis Mariae Curie-Sklodowska, Sectio AI: Informatica*, vol. 14, no. 3, pp. 43–52, 2014.

R. Cebryk and G. M. Wojcik, "Liquid computing and analysis of sound signals," *Annales Universitatis Mariae Curie-Sklodowska, Sectio AI: Informatica*, vol. 14, no. 3, pp. 33–42, 2014.

S. Kotyra, G. M. Wojcik, and M. Smolira, "Synchronous ssvp data acquisition system," *Annales Universitatis Mariae Curie-Sklodowska, Sectio AI: Informatica*, vol. 14, no. 3, pp. 15–20, 2014.

G. M. Wojcik and M. Ważny, "Bray-curtis dissimilarity in liquid simulations of cortical hyper-column," in *Proceedings of Cracow Grid Workshop 2014*, pp. 127–128, 2014.

M. Ważny and G. M. Wojcik, "Shifting spatial attention – numerical model of posner experiment," *Neurocomputing*, vol. 135C, pp. 139–144, 2014.

*Maria Curie-Sklodowska University, Institute of Computer Science  
Department of Neuroinformatics, Akademicka 9, 20-033 Lublin – Poland*

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- G. M. Wójcik, E. Mikołajewska, D. Mikołajewski, P. Wierzgała, A. Gajos, and M. Smolira, "Usefulness of egi eeg system in brain computer interfaces research," *Bio-Algorithms and Med-Systems*, vol. 9, no. 2, pp. 73–79, 2013.
- K. Dobosz, D. Mikołajewski, G. M. Wójcik, and W. Duch, "Simple cyclic movements as a distinct autism feature – computational approach," *Computer Science*, vol. 14, no. 3, pp. 475–489, 2013.
- E. Mikołajewska, G. M. Wójcik, D. Mikołajewski, P. Wierzgała, and A. Gajos, "Interfejsy mózg - komputer oparte na p300 w neurorehabilitacji," *Praktyczna Fizjoterapia i Rehabilitacja*, vol. 35, pp. 30–34, 2013.
- P. Wierzgała, G. M. Wojcik, and M. Smolira, "Finding the best efficiency in actionscript based web applications on example of fft algorithm," *Bio-Algorithms and Med-Systems*, vol. 8, no. 4, pp. 373–385, 2012.
- G. M. Wójcik, *Modelowanie i eksploracja sieci neuronów biologicznych w GENESIS*. Lublin: Instytut Informatyki UMCS, 2012.
- W. Duch, W. Nowak, J. Meller, G. Osinski, K. Dobosz, D. Mikołajewski, and G. M. Wójcik, "Computational approach to understanding autism spectrum disorders," *Computer Science*, vol. 13, no. 2, pp. 47–61, 2012.
- G. M. Wojcik, "Electrical parameters influence on the dynamics of the hodgkin-huxley liquid state machine," *Neurocomputing*, vol. 79, pp. 68–78, 2012.
- G. M. Wojcik, "Self-organising criticality in the simulated models of the rat cortical microcircuits," *Neurocomputing*, vol. 79, pp. 61–67, 2012.
- G. M. Wójcik, "Obserwacja samolotów na wysokościach przelotowych," *Zeszyty Naukowe WSEI – Transport i Informatyka*, vol. 1, no. 1, pp. 23–28, 2011.
- G. M. Wójcik and S. Kotyra, *Środowisko programisty*. Lublin: Instytut Informatyki UMCS, 2011.
- G. M. Wójcik, *Obliczenia płynowe w modelowaniu mózgu*. Warszawa: Akademicka Oficyna Wydawnicza Exit, 2011.
- W. Duch, W. Nowak, J. Meller, G. Osinski, K. Dobosz, D. Mikołajewski, and G. M. Wójcik, "Consciousness and attention in autism spectrum disorders," in *Proceedings of Cracow Grid Workshop 2010*, pp. 202–211, 2011.
- P. Wierzgała and G. M. Wojcik, "Signal visualisation software for mindset ms-1000 electroencephalograph," *Bio-Algorithms and Med-Systems*, vol. 7, no. 13, pp. 83–88, 2011.
- G. M. Wójcik, *Neurocybernetyka teoretyczna pod redakcją naukową Ryszarda Tadeusiewicza*, ch. Obliczenia płynowe w modelowaniu mózgu, pp. 173–187. Wydawnictwo Uniwersytetu Warszawskiego, 2010.



M. Zukowski, W. A. Kaminski, D. Stanislawek, J. J. Ruthe, G. M. Wojcik, and M. Falski, "Modelling eutheria's visual cortex using snnml language," *Bio-Algorithms and Med-Systems, Supplement*, vol. 10, no. 6, p. 233, 2010.

S. Kotyra and G. M. Wojcik, "Test signal generators for mindset ms-1000 electroencephalograph with data acquisition system for linux os," *Bio-Algorithms and Med-Systems*, vol. 7, no. 13, pp. 77–82, 2011.

S. Kotyra and G. M. Wojcik, "Test signal generators for mindset ms-1000 electroencephalograph with data acquisition system for linux os," *Bio-Algorithms and Med-Systems, Supplement*, vol. 10, no. 6, pp. 93–94, 2010.

K. Dmitruk and G. M. Wojcik, "Modelling simple 3d scene based on rapid face tracking and objects recognition," *Annales Universitatis Mariae Curie-Sklodowska, Sectio AI: Informatica*, vol. 10, no. 2, pp. 63–68, 2010.

G. M. Wojcik and J. A. Garcia-Lazaro, "Analysis of the neural hypercolumn in parallel pcsim simulations," *Procedia Computer Science*, vol. 1, no. 1, pp. 845–854, 2010.

S. Kotyra and G. M. Wojcik, "Developing brain electric activity acquisition software for linux," *Annales Universitatis Mariae Curie-Sklodowska, Sectio AI: Informatica*, vol. 10, no. 1, pp. 7–14, 2011.

G. M. Wojcik and J. A. Garcia-Lazaro, "Investigating dynamics of mammalian cortical hypercolumn in parallel pcsim simulations," in *Proceedings of Cracow Grid Workshop 2009*, pp. 246–254, 2010.

B. J. Grzyb, E. Chinellato, G. M. Wojcik, and W. A. Kaminski, "Facial expression recognition based on liquid state machines built of alternative neuron models," in *IJCNN*, IEEE, pp. 1011–1017, 2010.

B. J. Grzyb, E. Chinellato, G. M. Wojcik, and W. A. Kaminski, "Which model to use for the liquid state machine?," in *IJCNN*, IEEE, pp. 1018–1024, 2010.

S. Kotyra and G. M. Wojcik, "The system of electric brain activity acquisition from eeg equipment for linux os," *Annales Universitatis Mariae Curie-Sklodowska, Sectio AI: Informatica*, vol. 8, no. 1, pp. 151–155, 2008.

B. J. Grzyb, G. M. Wojcik, and W. A. Kaminski, "The choice of the model of neuron and its influence on the properties and computational efficiency of liquid state machine," *Polish Journal of Environmental Studies*, vol. 17, no. 3B, pp. 548–552, 2008.

G. M. Wojcik and W. A. Kaminski, "Self-organised criticality as a function of connections' number in the model of the rat somatosensory cortex," in *Computational Science – ICCS 2008*, vol. 5101 of *Lecture Notes in Computer Science*, pp. 620–629, Springer, 2008.

G. M. Wojcik and W. A. Kaminski, "Nonlinear behaviour in mpi-parallelised model of the rat somatosensory cortex," *Informatica*, vol. 19, no. 3, pp. 461–470, 2008.

*Maria Curie-Sklodowska University, Institute of Computer Science  
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*Maria Curie-Sklodowska University, Institute of Computer Science  
Department of Neuroinformatics, Akademicka 9, 20-033 Lublin – Poland*

☎ +48 (81) 53-72-940 • 📠 +48 (81) 53-76-262

✉ gmwojcik@live.umcs.edu.pl • 🌐 <https://about.me/gmwojcik>

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*Maria Curie-Sklodowska University, Institute of Computer Science  
Department of Neuroinformatics, Akademicka 9, 20-033 Lublin – Poland*

☎ +48 (81) 53-72-940 • 📠 +48 (81) 53-76-262

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