

Curriculum vitae

Cezary Sielużycki

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31st October 2023

History of employment

10/2019–currently Associate professor, Department of Biomedical Engineering, Faculty of Fundamental Problems of Technology, Wrocław University of Science and Technology.

06/2016–09/2019 Assistant professor, Department of Biomedical Engineering, Faculty of Fundamental Problems of Technology, Wrocław University of Science and Technology. Employed in the following research grants: Opus 8 (National Science Centre), Polonez 2 (Marie Skłodowska-Curie Actions; principal investigator).

08/2015–05/2016 Assistant professor, Department of Computational Intelligence, Faculty of Computer Science and Management, Wrocław University of Science and Technology. Employed in a European Commission grant within the 7th Framework Programme.

01/2014–06/2015 Managerial research engineer, ICM Brain and Spine Institute, Pierre and Marie Curie University (Paris VI, Sorbonne), Paris, France.

07/2004–12/2013 Research fellow, Special Laboratory for Non-invasive Brain Imaging, Leibniz Institute for Neurobiology, Magdeburg, Germany. A Marie Curie scholarship within the 5th Framework Programme from 07/2004 to 06/2006.

10/2004–12/2006 Assistant professor, Institute of Biomedical Engineering and Instrumentation, Faculty of Fundamental Problems of Technology, Wrocław University of Technology.

10/2003–09/2004 Research assistant, Institute of Biomedical Engineering and Instrumentation, Faculty of Fundamental Problems of Technology, Wrocław University of Technology.

10/1999–09/2003 Doctoral studies in the field of physics and applied mathematics, Faculty of Fundamental Problems of Technology, Wrocław University of Technology. A Socrates–Erasmus scholarship at the MEG Center, VU University Medical Center, Vrije Universiteit Amsterdam, The Netherlands, from 10/2000 to 06/2001.

Degrees/titles

D.Sc. Habilitation degree in technical sciences, in the field of biocybernetics and biomedical engineering, by the resolution of the Faculty Board of the Faculty of Automatic Control, Electronics and Computer Science at Silesian University of Technology from 16th April 2019. Habilitation achievement entitled *Advanced signal processing methods in magnetoencephalography*.

Ph.D. Doctoral degree in technical sciences, in the field of biocybernetics and biomedical engineering, by the resolution of the Faculty Board of the Faculty of Mechatronics at Warsaw University of Technology from 19th November 2003. Ph.D. dissertation entitled *Identification of the Parameters of Brain Evoked Responses for Repeated Stimulus Paradigm*.

M.Sc. Engr Five-year master studies in *Technical physics*, specialization *Biomedical engineering—Applications of computers in medicine* completed with cum laude and a title of master of engineering from the Faculty of Fundamental Problems of Technology at Wrocław University of Technology on 2nd July 1999.

Participation in research grants

1. *Neural adaptation in human auditory cortex investigated with magnetoencephalography and advanced methods of statistical signal processing*. German Academic Exchange Service (DAAD) within its Project based Personnel exchange Programme (PPP) between Germany and Poland (57393544), 2018–2019; investigator.
2. *Advancing methods of signal processing for magnetoencephalography*. European Commission under the H2020 Programme, Marie Skłodowska-Curie Actions, Polonez 2, National Science Centre of Poland (2016/21/P/ST7/03929), 2017–2019; principal investigator.

3. *Advanced imaging methods for modelling aging processes and the assessment of disease changes in glaucoma patients.* Opus 8, National Science Centre of Poland (2014/15/B/ST7/05220). 2016–2017; investigator.
4. *ENGINE—European research centre of Network intelliGence for INnovation Enhancement.* European Commission under the 7th Framework Programme (316097), 2015–2016; investigator.
5. *Cerebello-cortical dialogue through beta and gamma rhythms in dystonia.* Fondation pour la Recherche Médicale, France (FRM-ING-20130526750), 2014–2015; investigator.
6. *Temporal and spectral aspects of auditory short-term memory in humans studied by means of MEG and EEG.* German Academic Exchange Service (DAAD) within its Project Based Personnel Exchange Programme (PPP) between Germany and Poland (56269824), 2013–2014; coordinator.
7. *Novel approaches to characterize neural responses to standard and non-standard sounds in humans: A single-trial MEG/EEG study of the auditory mismatch negativity.* German Research Foundation (KO1713/10-1), 2011–2013; investigator and co-supervisor of a PhD student.
8. *High-resolution time-frequency analysis of evoked and spontaneous brain activity simultaneously acquired with EEG and MEG.* German Academic Exchange Service (DAAD) within its Project based Personnel exchange Programme (PPP) between Germany and Poland (D/07/00413), 2008–2009; investigator.
9. *Insights from MR-monitoring of animal brain function and dysfunction.* European Commission, Improving the Human Research Potential, Marie Curie Action, Fifth Framework Programme (HPMD-CT-2001-00068), 2004–2006; investigator.

Selected publications

1. Tomana E, Härtwich N, Rozmarynowski A, König R, May PJC, Sielużycki C (2023) Optimising a computational model of human auditory cortex with an evolutionary algorithm. *Hearing Research*, 439:108879, DOI: [10.1016/j.heares.2023.108879](https://doi.org/10.1016/j.heares.2023.108879)
2. Sielużycki C, Matysiak A, König R, Iskander DR (2021) Reducing the number of MEG/EEG trials needed for the estimation of brain evoked responses: A bootstrap approach. *IEEE Transactions on Biomedical Engineering*, 68(7):2301–2312, DOI: [10.1109/TBME.2021.3060495](https://doi.org/10.1109/TBME.2021.3060495)

3. Syga P, Sielużycki C, Krzyżanowska-Berkowska P, Iskander DR (2019) A fully automated 3D in-vivo delineation and shape parameterization of the human lamina cribrosa in optical coherence tomography. *IEEE Transactions on Biomedical Engineering*, 66(5):1422–1428, DOI: [10.1109/TBME.2018.2873893](https://doi.org/10.1109/TBME.2018.2873893)
4. Kordowski P, Matysiak A, König R, Sielużycki C (2017) Simultaneous spatio-temporal matching pursuit decomposition of evoked brain responses in MEG. *Biological Cybernetics*, 111(1):69–89; DOI: [10.1007/s00422-016-0707-5](https://doi.org/10.1007/s00422-016-0707-5)
5. König R, Matysiak A, Kordecki W, Sielużycki C, Zacharias N, Heil P (2015) Averaging auditory evoked magnetoencephalographic and electroencephalographic responses: A critical discussion. *European Journal of Neuroscience*, 41:631–640; DOI: [10.1111/ejn.12833](https://doi.org/10.1111/ejn.12833)
6. Kipiński L, König R, Sielużycki C, Kordecki W (2011) Application of modern tests for stationarity to single-trial MEG data: Transferring powerful statistical tools from econometrics to neuroscience. *Biological Cybernetics*, 105(3–4):183–195; DOI: [10.1007/s00422-011-0456-4](https://doi.org/10.1007/s00422-011-0456-4)
7. Sielużycki C, König R, Matysiak A, Kuś R, Ircha D, Durka PJ (2009) Single-trial evoked brain responses modeled by multivariate matching pursuit. *IEEE Transactions on Biomedical Engineering*, 56(1):74–82; DOI: [10.1109/TBME.2008.2002151](https://doi.org/10.1109/TBME.2008.2002151)
8. König R, Sielużycki C, Durka P (2007) Tiny signals from the human brain: Acquisition and processing of biomagnetic fields in magnetoencephalography. *Journal of Low Temperature Physics*, 146:697–718; DOI: [10.1007/s10909-006-9290-9](https://doi.org/10.1007/s10909-006-9290-9)

Full list available at [Google Scholar](#).

Reviewing for scientific journals

1. IEEE Transactions on Biomedical Engineering
2. IEEE Transactions on Signal Processing
3. Digital Signal Processing (Elsevier)
4. Journal of Neuroscience Methods (Elsevier)
5. Brain Topography (Elsevier)

Teaching

1. Digital signal processing
2. Mathematical analysis
3. Programming in MATLAB, Python, C++, C
4. Programming of microcontrollers in assembler
5. Programming of human-computer interfaces
6. Basics of electronics