

WOJCIECH KOTŁOWSKI

Curriculum Vitae

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Appointments

03/2012–present Assistant professor
Faculty of Computing, Poznan University of Technology, Poznań, Poland

06/2009–02/2012 Postdoctoral researcher
Centrum Wiskunde & Informatica (CWI), Amsterdam, Netherlands

09/2008–05/2009 Research assistant
Faculty of Computing, Poznan University of Technology

Academic Qualifications

2018 Habilitation degree in Computer Science
Poznan University of Technology

2009 Ph.D. in Computer Science
Poznan University of Technology
Thesis: *Statistical Approach to Ordinal Classification with Monotonicity Constraints*
Advisor: Prof. Roman Słowiński

2006 M.Sc. in Theoretical Physics
Adam Mickiewicz University, Poznań
Specialization: Quantum optics and quantum information

2004 M.Sc. in Computer Science
Poznan University of Technology
Specialization: Intelligent decision support systems

2002 B.Sc. in Computer Science
Poznan University of Technology

Research Grants and Projects

2017–present Project leader: *Online learning algorithms for complex prediction problems*
SONATA BIS grant awarded by National Science Centre (NCN) in Poland

2018 Participant in an R&D project for TomTom Poland
Smart Rebase prediction model

2015–2017 Project leader: *Online learning of matrices*
SONATA grant awarded by National Science Centre (NCN) in Poland

2015 Participant in a R&D project for Allegro (online e-commerce platform)

2013–2014 Project leader: *Information theoretic methods in machine learning theory*
HOMING PLUS grant awarded by the Foundation for Polish Science

2012–2013 *Pro-IDEAS* research grant for young scientists awarded by the Faculty of Computing at
Poznan University of Technology

2013 Participant in an R&D project with Orange Labs
Adaptive learning algorithms for natural language processing

2007–2008 *Beyond Search* grant award sponsored by Microsoft Research and Microsoft adCenter
AdRules: Improving Quality of Ads (with K. Dembczyński and D. Weiss)

2009 Participant in a R&D project for NaviExpert (GPS navigation company)
Improving the Travel Time Prediction by Using the Real-time Floating Car Data

2008–2009 Participant in a grant awarded Polish Ministry of Science and Higher Education, headed
by Prof. Roman Słowiński.

Scholarships and Awards

2018	Outstanding reviewer at NeurIPS (top ~ 10% of reviewers)
2017	Medal of the Polish Commission of National Education (for teaching achievements)
2015	Best Paper Award at Asian Conference on Machine Learning (ACML) 2015, Hong Kong <i>Surrogate regret bounds for generalized classification performance metrics</i> (with K. Dembczyński)
2018, 2016	Award for teaching achievements granted by Poznan University of Technology
2017, 2014	Award for scientific achievements granted by Poznan University of Technology
2011–2014	Stipend for outstanding young scientists awarded by Polish Ministry of Science and Higher Education
2009	City of Poznań Scholarship for Young Researchers
2007	First place in ECML/PKDD 2007 Discovery Challenge
2005	Young Scientists Summer Program (YSSP) scholarship, Institute for Applied System Analysis (IIASA), Laxenburg, Austria
2004–2005	Polish Ministry of Education scholarship

Selected Publications in Peer-Reviewed Journals

1. Kotłowski, W. (2018) On minimaxity of follow the leader strategy in the stochastic setting. *Theoretical Computer Science*, **742**, 50–65
2. Kotłowski, W. and Dembczyński, K. (2017) Surrogate regret bounds for generalized classification performance metrics. *Machine Learning Journal*, **106**, 549–572
3. Nie, J., Kotłowski, W., and Warmuth, M. K. (2016) Online PCA with optimal regret. *Journal of Machine Learning Research*, **17**, 1–49
4. Warmuth, M. K., Kotłowski, W., and Zhou, S. (2014) Kernelization of matrix updates, when and how? *Theoretical Computer Science*, **558**, 159–178
5. Kotłowski, W. and Słowiński, R. (2013) On nonparametric ordinal classification with monotonicity constraints. *IEEE Transactions on Knowledge and Data Engineering*, **25**, 2576–2589
6. Guță, M. and Kotłowski, W. (2010) Quantum learning: asymptotically optimal classification of qubit states. *New Journal of Physics*, **12**, 123032
7. Dembczyński, K., Kotłowski, W., and Słowiński, R. (2010) ENDER - a statistical framework for boosting decision rules. *Data Mining and Knowledge Discovery*, **21**, 52–90
8. Dembczyński, K., Kotłowski, W., and Słowiński, R. (2009) Learning rule ensembles for ordinal classification with monotonicity constraints. *Fundamenta Informaticae*, **94**, 163–178
9. Kotłowski, W., Dembczyński, K., Greco, S., and Słowiński, R. (2008) Stochastic dominance-based rough set model for ordinal classification. *Information Sciences*, **178**, 3989–4204
10. Dembczyński, K., Kotłowski, W., and Sydow, M. (2008) Effective prediction of web user behaviour with user-level models. *Fundamenta Informaticae*, **89**, 189–206

Selected Publications in Peer-Reviewed Conference Proceedings

1. Kempka, M., Kotłowski, W., and Warmuth, M. K. (2019) Adaptive scale-invariant online algorithms for learning linear models. *International Conference on Machine Learning (ICML)*
2. Kotłowski, W. and Neu, G. (2019) Bandit principal component analysis. *Conference On Learning Theory (COLT)*
3. van der Hoeven, D., van Erven, T., and Kotłowski, W. (2018) The many faces of exponential weights in online learning. *Conference On Learning Theory (COLT)*, pp. 2067–2092
4. Kotłowski, W., Koolen, W. M., and Malek, A. (2017) Random permutation online isotonic regression. *Advances in Neural Information Processing Systems (NIPS)*, pp. 4180–4189
5. Kotłowski, W. (2017) Scale-invariant unconstrained online learning. *Algorithmic Learning Theory (ALT)*, pp. 412–433
6. Dembczyński, K., Kotłowski, W., Koyejo, O., and Natarajan, N. (2017) Consistency analysis for binary classification revisited. *International Conference on Machine Learning (ICML)*, pp. 961–969

7. Kotłowski, W. (2016) On minimaxity of follow the leader strategy in the stochastic setting. *Algorithmic Learning Theory (ALT)*, pp. 261–275
8. Dembczyński, K., Kotłowski, W., Waegeman, W., Busa-Fekete, R., and Hüllermeier, E. (2016) Consistency of probabilistic classifier trees. *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)*, pp. 511–526
9. Kotłowski, W., Koolen, W. M., and Malek, A. (2016) Online isotonic regression. *Conference on Learning Theory (COLT)*, pp. 1165–1189
10. Kotłowski, W. and Dembczyński, K. (2015) Surrogate regret bounds for generalized classification performance metrics. *Asian Conference on Machine Learning (ACML)*, pp. 301–316
11. van Erven, T., Kotłowski, W., and Warmuth, M. K. (2014) Follow the leader with dropout perturbations. *Conference on Learning Theory (COLT)*, pp. 949–974
12. Bartlett, P., Grünwald, P., Harremoës, P., Hedayati, F., and Kotłowski, W. (2013) Horizon-independent optimal prediction with log-loss in exponential families. *Conference on Learning Theory (COLT)*, pp. 639–661
13. Jiazhong, N., Kotłowski, W., and Warmuth, M. K. (2013) Online PCA with optimal regrets. *Algorithmic Learning Theory (ALT)*, pp. 98–112
14. Dembczyński, K., Jachnik, A., Kotłowski, W., Waegeman, W., and Hüllermeier, E. (2013) Optimizing the F-measure in multi-label classification: Plug-in rule approach versus structured loss minimization. *International Conference on Machine Learning (ICML)*, pp. 1130–1138
15. Warmuth, M., Kotłowski, W., and Zhou, S. (2012) Kernelization of matrix updates, when and how? *Algorithmic Learning Theory (ALT)*, pp. 350–364
16. Kotłowski, W., Dembczyński, K., and Hüllermeier, E. (2012) Consistent multilabel ranking through univariate losses. *International Conference on Machine Learning (ICML)*, pp. 1319–1326
17. Koolen, W., Kotłowski, W., and Warmuth, M. (2011) Learning eigenvectors for free. *Advances in Neural Information Processing Systems (NIPS)*, pp. 945–953
18. Kotłowski, W. and Grünwald, P. (2011) Maximum likelihood vs. sequential normalized maximum likelihood in on-line density estimation. *Conference on Learning Theory (COLT)*, pp. 457–476
19. Kotłowski, W., Dembczyński, K., and Hüllermeier, E. (2011) Bipartite ranking through minimization of univariate loss. *International Conference on Machine Learning (ICML)*, pp. 1113–1120
20. Kotłowski, W., Grünwald, P., and de Rooij, S. (2010) Following the flattened leader. *Conference on Learning Theory (COLT)*, pp. 106–118
21. Grünwald, P. and Kotłowski, W. (2010) Prequential plug-in codes that achieve optimal redundancy rates even if the model is wrong. *IEEE International Symposium on Information Theory (ISIT)*, pp. 1383–1387
22. Kotłowski, W. and Słowiński, R. (2009) Rule learning with monotonicity constraints. *International Conference on Machine Learning (ICML)*, pp. 537–544
23. Dembczyński, K., Kotłowski, W., and Słowiński, R. (2008) Maximum likelihood rule ensembles. *International Conference on Machine Learning (ICML)*, pp. 224–231
24. Jaśkowski, W. and Kotłowski, W. (2008) On selecting the best individual in noisy environments. *Conference on Genetic and Evolutionary Computation (GECCO)*, pp. 961–968
25. Dembczyński, K., Greco, S., Kotłowski, W., and Słowiński, R. (2007) Statistical model for rough set approach to multicriteria classification. *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)*, pp. 164–175

Teaching

2017-18	<i>Probabilistic Methods</i> , Poznan University of Technology
2018-19	<i>Continuous Optimization</i> , Poznan University of Technology
2013-19	<i>Calculus and Linear Algebra for Bioinformatics</i> , Poznan University of Technology
2012-18, 2008, 2007	<i>Statistics and Data Analysis</i> , Poznan University of Technology
2012-18, 2008, 2006	<i>Optimization Techniques</i> , Poznan University of Technology
2011, 2010	<i>Statistical Learning</i> (lecturer, jointly with Prof. Peter Grünwald and Prof. Jacqueline Meulman), Leiden University, Netherlands
2008	<i>Data Mining</i> , Poznan University of Technology
2008	<i>Data Warehouses and Data Exploration</i> , Poznan University of Technology
2005	<i>Software Engineering</i> , Poznan University of Technology

Selected Invited Talks

05/2019	Machine learning seminar at ETH Zürich, Switzerland
05/2019, 11/2018	Google Zürich, Switzerland
04/2019	DeepMind London, UK
11/2018	<i>From Multiple Criteria Decision Aid to Preference Learning</i> workshop, Poznań, Poland
03/2018	Polish Statistical Association Meeting, Adam Mickiewicz University, Poznań, Poland
02/2018	Universitat Pompeu Fabra, Barcelona, Spain
11/2016	<i>Theoretical Foundations for Learning from Easy Data</i> workshop, Lorentz Center, Leiden, The Netherlands
04/2016	Polish Special Interest Group on Machine Learning, Czestochowa, Poland
11/2014	Lecture series at the Faculty of Mathematics and Information Science, Warsaw University of Technology (with K. Dembczyński)
06/2014	Lecture series at a summer school organized by the Institute of Computer Science of the Polish Academy of Sciences, 2014, Mikołajki, Poland (with K. Dembczyński)
02/2014	<i>Preference Learning</i> seminar, Dagstuhl, Germany

Research Activities

<i>Research visits</i>	University of California, Santa Cruz (2018, 2016, 2015, 2014, 2013, 2012, 2011, 2010) Google Zürich (2019) Universitat Pompeu Fabra, Barcelona (2018) Centrum Wiskunde & Informatica, Amsterdam (2015, 2012) Philipps-Universität Marburg, Germany (2014) University of Nottingham, UK (2010) International Institute for Applied System Analysis (IIASA), Laxenburg, Austria (2008)
<i>Local organizer</i>	Workshop on Information Theoretic Methods in Science and Engineering (WITMSE 2012), Centrum Wiskunde & Informatica, Amsterdam. Meeting of the European Working Group in Multiple Criteria Decision Aid (MCDA) 2007, Poznań, Poland
<i>Conference PC member / reviewer</i>	International Conference on Machine Learning (ICML): 2019, 2017, 2016, 2012-2014 Neural Information Processing Systems (NeurIPS): 2016-2019, 2014, 2012 Conference on Learning Theory (COLT): 2015, sub-reviewer: 2016-2019, 2012-2014 Algorithmic Learning Theory (ALT): 2019, 2018 International Joint Conference on Artificial Intelligence (IJCAI): 2015, 2011 Conference on Uncertainty in Artificial Intelligence (UAI): 2014, 2013, 2012, 2010 Conference on Artificial Intelligence and Statistics (AISTATS): 2016, 2011 Conference on Artificial Intelligence (AAAI): 2012 IEEE International Symposium on Information Theory (ISIT): 2010 European Conference on Machine Learning (ECML) 2008
<i>Journal reviewer</i>	Journal of Machine Learning Research (JMLR) Machine Learning Journal (MLJ) Journal of the American Statistical Association (JASA) Artificial Intelligence Journal (AIJ) European Journal of Operational Research (EJOR) Information Sciences (INS) Operational Research – an International Journal (ORIJ) Data Mining and Knowledge Discovery (DAMI) IEEE Transactions on Signal Processing (TSP) IEEE Transactions on Knowledge and Data Engineering (TKDE)