

# Publications

## Alexander Gammerman

### Selected Publications

#### Books

1. A. Gammerman, (ed.) *Probabilistic Reasoning and Bayesian Belief Networks*. Alfred Waller, Henley-on-Thames, 1995. 1996
2. A. Gammerman, (ed.) *Computational Learning and Probabilistic Reasoning*. John Wiley & Sons, Chichester, 1996.
3. A. Gammerman. *Machine Learning: Progress and Prospects*. ISBN 0 900145 93 5, 1997.
4. A. Gammerman, (ed.) *Causal Models and Intelligent Data Management*. Springer-Verlag, 1999.
5. V.Vovk, A.Gammerman and G.Shafer. *Algorithmic learning in a random world*. New York: Springer, 2005.
6. A.Gammerman, (ed.) *Artificial Intelligence and Applications*, Proceedings of the Conference, ACTA Press, ISBN: 978-0-88986-709-3, 2008.
7. Gammerman, A., Vovk, V. & Papadopoulos, H. (eds.). *Statistical Learning and Data Sciences: Third International Symposium, SLDS 2015, UK, April 20-23, 2015, Springer LNAI, Proceedings, Vol. 9047*.
8. V.Vovk, A.Gammerman and H.Papadopoulos (eds). *Measures of Complexity*. Festschrift in Honour of Alexey Chervonenkis. Springer, 2015.
9. Alexander Gammerman, Zhiyuan Luo, Jesus Vega and Vladimir Vovk (eds.) *Conformal and Probabilistic Prediction with Applications 5th International Symposium, COPA 2016 Madrid, Spain, April, 2016. Lecture Notes in Artificial Intelligence*, Springer, 9653, 2016.
10. Alex Gammerman, Vladimir Vovk, Zhiyuan Luo, Harris Papadopoulos (eds.) *Proceedings of Machine Learning Research (PMLR)*; vol.60, pp.1-279; 2017.

### Special Issues of Journals

11. A.Gammerman and V.Vovk (editors). Special Issue on Kolmogorov Complexity. *The Computer Journal*, vol. 42, no. 4, pp.254-347, (1999).
12. C. Aitken, T. Connolly, A. Gammerman, G. Zhang, D. Oldfield. Predicting an Offender's Characteristics: an evaluation of statistical modelling. *Special Interest Series - Paper 4*, Home Office, London, 1995.
13. Alexander Gammerman and Vladimir Vovk. The 2nd British Computer Society Lecture. Hedging Predictions in Machine Learning. Published with discussion in *The Computer Journal*, v.50, No.2, 151-163, March 2007. The same journal also published: i) Discussion on Hedging Predictions in Machine Learning. *The Computer Journal*, 2007, 50: 164-172; ii) Rejoinder Hedging Predictions in Machine Learning. *The Computer Journal*, 2007, 50: 173-177.
14. Alex Gammerman, Ilia Nourtdinov, Brian Burford Alexey Chervonenkis, Vladimir Vovk and Zhiyuan Luo. Clinical Mass Spectrometry Proteomic Diagnosis by Conformal Predictors. *Statistical Applications in Genetics and Molecular Biology Journal*, Volume 7, Issue 2 2008, Article 13, 2008.
15. Alexander Gammerman. Conformal Predictors. *Progress in Artificial Intelligence*, v.1, No.3, 2012
16. Harris Papadopoulos, Volodya Vovk, Alex Gammerman. *Annals of Mathematics and Artificial Intelligence*, vol.74 (1-2), May-June 2015. Guest editors of the Special issue on Conformal Prediction and its Applications. DOI 10.1007/s10472-014-9429-3, 2015.
17. Alex Gammerman and Vladimir Vovk (editors). Special Issue of Journal of Machine Learning Research (JMLR) in memory of Alexey Chervonenkis. 16 (Sep), 2015.
18. Alexander Gammerman and Vladimir Vovk (eds.). *Annals of Mathematics and Artificial Intelligence*, vol.81, No.1-2, September – October 2017. Special issue on Conformal and Probabilistic Prediction with Applications; 2017.

### Refereed Book Chapters, Journal Papers, Conference Proceedings

19. Ilia Nourtdinov, Denis Volkhonskiy, Pitt Lim, Paolo Toccaceli and Alexander Gammerman. Inductive Venn-Abers Predictive Distribution. Submitted for publication in COPA 2018 (PMLR); 2018.
20. V.Vovk, A.Gammerman "Key Ideas in Learning Theory from Inception to Current State: Emmanuel Braverman's Legacy". Submitted to the Springer Subseries LNCS State-of-the-Art Surveys; 2018

21. Vladimir Vovk, Ilya Nourtdinov, Valery Manokhin and Alexander Gammerman. Cross conformal predictive distributions. Submitted for publication COPA 2018 (PMLR); 2018.
22. Alex Gammerman, Vladimir Vovk, Zhiyuan Luo, Harris Papadopoulos. Preface. *Proceedings of Machine Learning Research*; vol.60; PMLR 60:1-2; 2017.
23. Paolo Toccaceli and Alexander Gammerman. Combination of Conformal Predictors for Classification. *Proceedings of Machine Learning Research*; PMLR 60:39-61; 2017.
24. Denis Volkhonskiy, Evgeny Burnaev, Ilya Nourtdinov, Alexander Gammerman, Vladimir Vovk; Inductive Conformal Martingales for Change-Point Detection; *Proceedings of Machine Learning Research*; PMLR 60:132-153; 2017.
25. Paolo Toccaceli, Ilya Nourtdinov and Alexander Gammerman. Conformal prediction of biological activity of chemical compounds. *Annals of Mathematics and Artificial Intelligence*, vol.81, No.1-2; pp.105–124. DOI 10.1007/s10472-017-9556-8; 2017.
26. Criteria of efficiency for set-valued classification. V. Vovk, I. Nourtdinov, V. Fedorova, I. Petej, A. Gammerman. Criteria of efficiency for set-valued classification. *Annals of Mathematics and Artificial Intelligence*, vol.81, No.1–2; pp.21–46. DOI 10.1007/s10472-017-9557-7; 2017.
27. Alexander Gammerman and Vladimir Vovk. Foreword: conformal and probabilistic prediction with applications. *Annals of Mathematics and Artificial Intelligence*, vol.81, No.1-2; pp.1–3. DOI 10.1007/s10472-017-9557-7; 2017.
28. Vladimir Vovk, Valentina Fedorova, Ilya Nourtdinov and Alex Gammerman. Criteria of Efficiency for Conformal Prediction. In: Alexander Gammerman, Zhiyuan Luo, Jesus Vega and Vladimir Vovk (Eds.) Conformal and Probabilistic Prediction with Applications 5th International Symposium, COPA 2016 Madrid, Spain, April 20–22, 2016 Proceedings. Lecture Notes in Artificial Intelligence, Springer, 9653, 2016.
29. Paolo Toccaceli, Ilya Nourtdinov and Alexander Gammerman. Conformal Predictors for Compound Activity Prediction. In: Alexander Gammerman, Zhiyuan Luo, Jesus Vega and Vladimir Vovk (Eds.) Conformal and Probabilistic Prediction with Applications 5th International Symposium, COPA 2016 Madrid, Spain, April, 2016 Proceedings. Lecture Notes in Artificial Intelligence, Springer, 9653, 2016.
30. Alex Gammerman, Vladimir Vovk; Preface to the Special Issue of JMLR in memory of Alexey Chervonenkis *Journal of Machine Learning Research*, 16(Sep):1677–1681, 2015.

31. Smith, J., Nouretdinov, I., Craddock, R., Offer, C. & Gammerman, A. Conformal Anomaly Detection of Trajectories with a Multi-class Hierarchy Statistical Learning and Data Sciences: Third International Symposium, SLDS 2015, Egham, UK, April, 2015, Springer LNAI Proceedings. Gammerman, A., Vovk, V. & Papadopoulos, H. (eds.). Vol. 9047, p. 281-290; 2015.
32. Cherubin, G., Nouretdinov, I., Gammerman, A., Jordaney, R., Wang, Z., Papini, D. & Cavallaro, L. Conformal Clustering and Its Application to Botnet Traffic. Statistical Learning and Data Sciences: Third International Symposium, SLDS 2015, Egham, UK, 2015. Gammerman, A., Vovk, V. & Papadopoulos, H. (eds.). Springer LNAI Proceedings 2015, Vol. 9047, p. 313-322 10 p.
33. Alexander Gammerman. Foreword to the book *Conformal Predictions for Reliable Machine Learning: Theory, Adaptations and Applications*; editors: Vineeth Balasubramanian, Shen-Shyang Ho, Vladimir Vovk. Springer, 2014.
34. Ilia Nouretdinov, Tony Bellotti and Alexander Gammerman. Diagnostic and Prognostic by Conformal Predictors. Published in: *Conformal Predictions for Reliable Machine Learning: Theory, Adaptations and Applications*, pp.217–230; editors: Vineeth Balasubramanian, Shen-Shyang Ho, Vladimir Vovk. Springer, 2014.
35. Tony Bellotti, Ilia Nouretdinov, Meng Yang, Alex Gammerman. Feature Selection by Conformal Predictors. Published in: *Conformal Predictions for Reliable Machine Learning: Theory, Adaptations and Applications*, pp.115–130; editors: Vineeth Balasubramanian, Shen-Shyang Ho, Vladimir Vovk. Springer, 2014.
36. Antonis Lambrou, Harris Papadopoulos, Ilia Nouretdinov, and Alexander Gammerman. Reliable probabilistic outputs for large datasets. *Annals of Mathematics and Artificial Intelligence*, Sept.2014.
37. Ilia Nouretdinov, Dmitry Devetyarov, Brian Burford, Volodya Vovk, Stephane Camuzeaux, Aleksandra Gentry-Maharaj, Ali Tiss, Celia Smith, Zhiyuan Luo, Alexey Chervonenkis, Rachel Hallett, Mike Waterfield, Rainer Cramer, John F. Timms, Ian Jacobs, Usha Menon, **Alex Gammerman**. Multiprobabilistic Prediction in Early Medical Diagnoses. *Annals of Mathematics and Artificial Intelligence*, Sept.2014.
38. Brian Burford, Aleksandra Gentry-Maharaj, Rosalind Graham, Diane Allen, Johannes Pedersen, Aaron Nudelman, Ola Blixt, Evangelia-Ourania Fourkala, Deanna Bueti, Anne Dawnay, Jeremy Ford, Rakshit Desai, Leonor David, Peter Trinder, Bruce Acres, Tilo Schwientek, **Alex Gammerman**, Celso Reis, Luisa Silva, Hugo Osorio, Rachel Hallett,

Hans Wandall, Ulla Mandel, Michael A Hollingsworth, Ian Jacobs, Ian Fentiman, Henrik Clausen, Joyce Taylor-Papadimitriou, Usha Menon, and Joy Burchell.

Autoantibodies to MUC1 glycopeptides cannot be used as a screening assay for early detection of breast, ovarian, lung or pancreatic cancer. *British Journal of Cancer* (2013) 108, 2045B1Y2055. doi:10.1038/bjc.2013.214

Antonis Lambrou, Harris Papadopoulos, and Alexander Gammerman. Osteoporosis Risk Assessment with Well-Calibrated Probabilistic Outputs. In *Proceedings of the 9th Artificial Intelligence Applications and Innovations Conference (AIAI)*, pp.432-441, eds. by H.Papadopoulos, A.Andreou, L. Iliadis, I.Magologiannis, Springer, 2013.

39. Valentina Fedorova, Alex Gammerman, Ilia Nouretdinov and Vladimir Vovk. Conformal prediction under hypergraphical models. In *Proceedings of the 9th Artificial Intelligence Applications and Innovations Conference (AIAI)*, pp.371–383, Springer, 2013.
40. Valentina Fedorova, Alex Gammerman, Ilia Nouretdinov, Volodya Vovk. Plug-in martingales for testing exchangeability on-line. *International Conference on Machine Learning*, 2012. Full text available at: arXiv:1204.3251v1.
41. Ilia Nouretdinov, Alex Gammerman, Yanjun Qi, Judith Klein-Seetharaman. Determining Confidence of Predicted Interactions Between HIV-1 and Human Proteins Using Conformal Method *Pacific Symposium on Biocomputing*, 17. p. 311–322; 2012
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43. Valentina Fedorova, Ilia Nouretdinov, Alex Gammerman. Testing exchangeability assumption. *Progress in Artificial Intelligence*, v.1, No.3, pp.205–213, 2012)
44. Olga Ivina, Ilia Nouretdinov, Alex Gammerman. Valid predictions with confidence estimation in air pollution problem. *Progress in Artificial Intelligence*, v.1, No.3, pp.235-243, 2012)
45. Nouretdinov, I., Devetyarov, D., Burford, B., Camuzeaux, S., Gentry-Maharaj, A., Tiss, A., Smith, C., Luo, Z., Chervonenkis, A., Hallett, R., Vovk, V., Waterfield, M., Cramer, R., Timms, J.F., Jacobs, I., Menon, U., Gammerman, A. Multiprobabilistic Venn Predictors with Logistic Regression. In: 8th AIAI *Artificial Intelligence Applications and Innovations Conference*, 1st Conformal Prediction and its Applications Workshop (COPA 2012).

46. Antonis Lambrou, Harris Papadopoulos, Iliia Nourtdinov, Alexander Gammerman Reliable probability estimates based on Support Vector Machines for large multiclass datasets.  
In: 8th AIAI *Artificial Intelligence Applications and Innovations* Conference, 1st Conformal Prediction and its Applications Workshop (COPA 2012).
47. Harris Papadopoulos, Alexander Gammerman, Volodya Vovk Confidence Predictions for the Diagnosis of Acute Abdominal Pain. *Artificial Intelligence Applications and Innovations III*, Proceedings of the 5TH IFIP Conference on Artificial Intelligence Applications and Innovations (AIAI'2009), April 23-25, 2009, Thessaloniki, Greece; 01/2009
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50. Dmitry Adamskiy, Iliia Nourtdinov and Alex Gammerman. "Conformal prediction in semi-supervised case". Chapter 4 in *"Learning and Data Science"*, edited by L.Bottou, F.Murtagh, M.Gettler-Summa, B.Goldfarb, C.Pardoux, M.Touati; Chapman&Hall, Paris, 2011.
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54. C.Zhou, I.Nourtdinov, Z.Luo and A.Gammerman. "Development of the Venn Machine". Accepted for publication in Proceedings of the *Workshop on Artificial Intelligence Applications in Biomedicine* (AIAB 2011).

55. D.Adamsky, I.Nouretdinov and A.Gammerman. "Applying Conformal Prediction to the Bovine TB Diagnosing". Accepted for publication in Proceedings of the *Workshop on Artificial Intelligence Applications in Biomedicine* (AIAB 2011).
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57. Dmitry Devetyarov, Martin J. Woodward, Nicholas G. Coldham, Muna F. Anjum, Alex Gammerman. "A New Bioinformatics Tool for Prediction with Confidence". 2010 International Conference on Bioinformatics and Computational Biology (*BIOCOMP'10*) Proceedings, p. 24-26, 2010.
58. Ola Blixt, Deanna Bueti, Brian Burford, Diane Allen, Sylvain Julien, Michael Hollingsworth, Alex Gammerman, Ian Fentiman, Joyce Taylor-Papadimitriou and Joy M. Burchell. "Autoantibodies to aberrantly glycosylated MUC1 in early stage breast cancer are associated with a better prognosis". Accepted for publication in *Breast Cancer Research Journal* (MS : 1027144559463124).
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