

Curriculum Vitae(short)*

Alexander Gammerman

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Computer Learning Research Centre
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Research Areas

Pattern recognition; Machine learning; Kolmogorov randomness; applications of machine learning in medical diagnostics, forensic science, homeland security, bioinformatics, drug discovery and other fields.

Education

BSc and MSc in Physics; PhD (candidate of Physical and Mathematical Sciences)(1974), St.Peterburg.

Employment

- 1974–1983 Regional Research Computer Centre; Research Fellow, Senior Research Fellow; St.Petersburg, Russia.
- 1983–1993 Department of Computer Science, Heriot-Watt University, Edinburgh, UK; Lecturer, Senior Lecturer, Reader.
- 1993–present Department of Computer Science Royal Holloway, University of London
- Professor of Computer Science 1993–present
 - Head of Computer Science Department 1995–2005
 - Founding Director of Computer Learning Research Centre 1998–present

*for full CV see www.gammerman.com

Research and Expertise

- *Publications*: 9 books authored and edited; about 200 refereed publications, including books, journal papers and conference proceedings.
- *Research Grants*: the major grants from EU Framework 6,7; EPSRC, BBSRC, MRC, UK government, China, Cyprus government, industry, etc. The most recent grants are: EU Horizon 2020 grant "Exascale Compound Activity Prediction Engine"(2015 – 2018); AstraZeneca "Machine Learning for Drug Development"(2017 – 2020); EPSRC grant "Mining the Network Behaviour of Bots"(2013-2017).
- *PhD students*: supervised and co-supervised over 20 research postgraduate students; currently supervising 3 PhD students.
- *Conferences, Symposiums, Seminars*: Organised and Chaired many conferences. The most recent ones are:
 - Six conferences on Conformal and Probabilistic Predictors with Applications (COPA) from 2012 to 2017 (co-Chair).
 - Symposium on Statistical Learning and Data Sciences (SLDS), SLDS2015, London, April 2015 (co-Chair).
 - Kolmogorov Lecture and Medal at University of London ; 2003 – present (co-Chair).
 - Programme Committees of IEEE International Conference on Data Mining series (ICDM), 2011, 2012, 2013, 2014, 2015.
 - Indo-UK initiative in Applied Mathematics in Hyderabad, India, December 2015.
- *Invited Talks*: presented many invited talks in the UK, Europe and Russia. The most recent ones: are:
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 - Braverman's Readings in Learning Theory and Related Areas; Boston, April 2017.
 - International Conference on Pharmaceutical Bioinformatics (ICPB 2016); Pattaya, Thailand, January 2016.
 - National Polytechnic University, Odessa, Ukraine, September 2016.
 - The Yandex School of Data Analysis conference on *Machine Learning and Big Data*, invited talk, Berlin, Oct., 2015.
 - Modern machine learning algorithms for Big Data, RUSI Institute, London, March 2014.

For detailed research programme, grants, publications, and teaching - see <http://www.clrc.rhul.ac.uk/people/alex/index.html>

Awards and Prizes

- P.W. Allen Prize of Forensic Science Society, 1996.
- Transductive Learning. Best paper prizes at SCIS and ISIS *Joint 3rd International Conference on Soft Computing and Intelligent Systems* and 7th International Symposium on Advanced Intelligent Systems, Tokyo, Japan, 2006.
- Reliable classification of childhood acute leukaemia from gene expression data using Confidence Machines. Best paper award at *IEEE International Conference on Granular Computing* Atlanta, USA, 2006 (joint work with Z.Luo and A.Bellotti).
- AIA-08 Prize: Modern algorithms in Machine Learning. Artificial Intelligence and Applications Conference-08, Innsbruck, Austria, 2008.

0.1 Honorary Professorships

- Visiting Professor at School of Telecommunications University Polytechnic de Madrid, Madrid, Spain, 2003.
- Senior Research Scientist, Department of Computer Science and Center Computer Learning Systems, Columbia University New York, USA, 2004.
- Honorary Professor, University College London, from 2006 – 2010.
- Visiting Professor, University of Paris 9 (Dauphine), 2008 – 2009.
- Distinguished Professor (Profesor visitante distinguido Santander-UCM) of Complutense University de Madrid, Spain, 2010.

Learned Societies

- Fellow of the Royal Statistical Society; 1985 – present.
- British Classification Society, 2011 – 2010
- Royal Academy of Arts, 2005-2010.

Selected Publications

Books

- A. Gammerman, (ed.) Probabilistic Reasoning and Bayesian Belief Networks. Alfred Waller, Henley-on-Thames, 1995.

- A. Gammerman, (ed.) Computational Learning and Probabilistic Reasoning. John Wiley & Sons, Chichester, 1996.
- A. Gammerman. Machine Learning: Progress and Prospects. ISBN 0 900145 93 5, 1997.
- A. Gammerman, (ed.) Causal Models and Intelligent Data Management. Springer-Verlag, 1999.
- V.Vovk, A.Gammerman and G.Shafer. Algorithmic learning in a random world. New York: Springer, 2005.
- A.Gammerman, (ed.) Artificial Intelligence and Applications, Proceedings of the Conference, ACTA Press, ISBN: 978-0-88986-709-3, 2008.
- 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.
- V.Vovk, A.Gammerman and H.Papadopoulos (eds). Measures of Complexity. Festschrift in honor of Alexey Chervonenkis. Springer, 2015.
- Alexander Gammerman, Zhiyuan Luo, JesuMF's 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.

Special Issues of Journals

- A.Gammerman and V.Vovk (editors). Special Issue on Kolmogorov Complexity. *The Computer Journal*, vol. 42, no. 4, pp.254-347, (1999).
- 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.
- 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.
- Alex Gammerman, Ilia Nouretdinov, 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.
- Alex Gammerman and Vladimir Vovk (guest editors). Special Issue of Journal of Machine Learning Research (JMLR) in memory of Alexey Chervonenkis, September, 2015.

- Alexander Gammerman and Vladimir Vovk (eds.). *Annals of Mathematics and Artificial Intelligence*. Special issue on Conformal and Probabilistic Prediction with Applications; 2017.
- Alex Gammerman, Vladimir Vovk, Zhiyuan Luo, Harris Papadopoulos (eds). Conformal and Probabilistic Prediction and Applications. *Proceedings of Machine Learning Research* vol.60; 13-16 June 2017, Stockholm, Sweden; 2017.

Refereed Book Chapters, Journal Papers, Conference Proceedings

- Alex Gammerman, Vladimir Vovk, Zhiyuan Luo, Harris Papadopoulos. Preface. *Proceedings of Machine Learning Research*; vol.60; PMLR 60:1-2; 2017.
- Paolo Toccaceli and Alexander Gammerman. Combination of Conformal Predictors for Classification. *Proceedings of Machine Learning Research*; PMLR 60:39-61; 2017.
- Denis Volkhonskiy, Evgeny Burnaev, Ilia Nouretdinov, Alexander Gammerman, Vladimir Vovk; *Proceedings of Machine Learning Research*; PMLR 60:132-153; 2017.
- Paolo Toccaceli, Ilia Nouretdinov and Alexander Gammerman. Conformal prediction of biological activity of chemical compounds. *Annals of Mathematics and Artificial Intelligence* DOI 10.1007/s10472-017-9556-8; 2017.
- Alexander Gammerman and Vladimir Vovk. Foreword: conformal and probabilistic prediction with applications. *Annals of Mathematics and Artificial Intelligence*. DOI 10.1007/s10472-017-9557-7; 2017.
- Vladimir Vovk, Valentina Fedorova, Ilia Nouretdinov and Alex Gammerman. Criteria of Efficiency for Conformal Prediction. In: Alexander Gammerman, Zhiyuan Luo, JesuMFs 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.
- 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 20-23, 2015, Springer LNAI Proceedings. Gammerman, A., Vovk, V. & Papadopoulos, H. (eds.). Vol. 9047, p. 281-290 10 p.

- 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, Shenshyang Ho, Vladimir Vovk. Springer, 2014.
- Ilia Nouretdinov, Alex Gammerman et al.. Multiprobabilistic Prediction in Early Medical Diagnoses. *Annals of Mathematics and Artificial Intelligence*, v.74, 1, p. 203-222, Sept.2014.

Recent Grants

- Thales UK; Development of automated methods for helping detection of anomalous behaviour. £85,000; 2012-2015.
- EPSRC: Mining the Network Behaviour of Bots (with L.Cavalirro, V.Vovk, H.Shanahan and Z.Luo); £680,623 from 1-06-13 for 3 years until 2016.
- EPSRC iCASE award: "Applications of Machine Learning using Priviledged Information"; 2015 –2018.
- EU Horizon 2020 grant: "Exascale Compound Activity Prediction Engine"; 2015 – 2018.
- AstraZeneca, Sweden; "Machine Learning for Drug Discovery"; 2017-2020.