Curriculum Vitae

Ioannis Kontoyiannis

Churchill Professor of Mathematics of Information

Statistical Laboratory
Department of Pure Mathematics and Mathematical Statistics
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ACADEMIC APPOINTMENTS

UNIVERSITY OF CAMBRIDGE (UK) *2020 – present*
Churchill Professor of Mathematics of Information, Statistical Laboratory,
Department of Pure Mathematics and Mathematical Statistics.

UNIVERSITY OF CAMBRIDGE (UK) *2020 – present*
Affiliate member, Probabilistic Systems, Information, and Inference Group,
Department of Engineering.

DARWIN COLLEGE, UNIVERSITY OF CAMBRIDGE (UK) *2019 – present*
Fellow.

ROBINSON COLLEGE, UNIVERSITY OF CAMBRIDGE (UK) *2019 – present*
Senior member.

FOUNDATION FOR RESEARCH AND TECHNOLOGY – HELLAS (Greece) *2017 – present*
Research Fellow, Institute of Applied & Computational Mathematics.

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS (Greece) *2010 – 2021*
Professor, Department of Informatics.

UNIVERSITY OF CAMBRIDGE (UK) *2018 – 2020*
Professor, *Chair of Information and Communications*, Department of Engineering.
Head, Signal Processing and Communications Laboratory, Department of Engineering.

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS (Greece) *2004 – 2010*
Associate Professor, Department of Informatics.

BROWN UNIVERSITY (USA) *2004 – 2005*
Associate Professor (with tenure), Division of Applied Mathematics
and (jointly) Department of Computer Science.

BROWN UNIVERSITY (USA) *2002 – 2004*
Manning Assistant Professor, Division of Applied Mathematics
and (jointly) Department of Computer Science.

BROWN UNIVERSITY (USA) *2001 – 2004*
Assistant Professor, Division of Applied Mathematics
and (jointly) Department of Computer Science.

PURDUE UNIVERSITY (USA) *1998 – 2001*
Assistant Professor, Department of Statistics,
and (by courtesy) Department of Mathematics,
and the School of Electrical and Computer Engineering.

RESEARCH INTERESTS

Probability, information theory, data compression, statistics, machine learning algorithms, simulation, communications and signal processing, mathematical biology

EDUCATION

STANFORD UNIVERSITY, **Ph.D. Electrical Engineering.** June 1998.
Recurrence and Waiting Times in Stationary Processes, and their Applications in Data Compression.
Advisor: Thomas M. Cover. *Associate Advisor*: Amir Dembo.

STANFORD UNIVERSITY, **M.S. Statistics.** June 1997.

UNIVERSITY OF CAMBRIDGE, **M.S. Pure Mathematics.** June 1993.
Distinction in Part III of the Cambridge Mathematics Tripos.

IMPERIAL COLLEGE, UNIVERSITY OF LONDON, **B.S. Mathematics.** June 1992.
First Class Honours.

PROFESSIONAL APPOINTMENTS

POSIMARK ASSOCIATES S.L. (SPAIN) *Sept. 2016 – Dec. 2016*
Consultant, Statistical analysis of financial data for prediction and investment.

CASPIDA (USA) *March 2014 – Dec. 2014*
Consultant, Statistical analysis of "Big Data" for online security

IBM T.J. WATSON RESEARCH CENTER (USA) *June 1995 – Dec. 1995*
Research Co-op. IBM-NASA Satellite Image Explorer Project.

VISITING POSITIONS

COLUMBIA UNIVERSITY *Jan. 2008 – Dec. 2008*
Visiting Associate Professor, Department of Statistics.

BROWN UNIVERSITY *July 2005 – July 2007*
Visiting Associate Professor (Research), Division of Applied Mathematics.

BROWN UNIVERSITY *Sept. 2002 – July 2007*
Visiting Research Associate, Department of Neuroscience.

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS *Sept. 2004 – Feb. 2005*
Visiting Associate Professor, Department of Informatics.

BROWN UNIVERSITY *Aug. 2000 – July 2001*
Visiting Assistant Professor, Division of Applied Mathematics.

UNIVERSITY OF CAMBRIDGE *July '99, June '98, June '97, Aug. '96, June '95, Sept. '93*
Visiting Scholar, Statistical Laboratory, Department of Pure Mathematics and Mathematical Statistics.

AWARDS, DISTINCTIONS

AIIA FELLOW
Elected fellow of the International Artificial Intelligence Industry Alliance in 2024.

IMS FELLOW
Named fellow of the Institute of Mathematical Statistics in 2023.
"For outstanding contributions to fundamental problems in information theory; and for consistent and important contributions in developing the deep connections of information theory with probability and statistics".

AAIA FELLOW
Elected fellow of the Asia-Pacific Artificial Intelligence Association in 2022.

IEEE FELLOW
Elevated to the grade of Fellow in 2011.
"For contributions to data compression".

MARIE CURIE FELLOW
International Outgoing Fellowship, Marie Curie Program (EU), entitled *Control Variates for Markov Chain Monte Carlo Variance Reduction,* 2009-2011.

HONORARY MASTER OF ARTS DEGREE, AD EUNDEM
Awarded by Brown University, May 2005.

SLOAN RESEARCH FELLOW
By the Sloan Foundation, 2004-2006.

MANNING ASSISTANT PROFESSOR
Endowed assistant professorship, awarded by Brown University, October 2002.

PLENARY SPEAKER
Second Congress of Greek Mathematicians
Athens, Greece, July 2022.

Conference of the Eastern Mediterranean Region, International Biometric Society
Virtual conference, April 2021.

Fifth London Symposium on Information Theory (LSIT)
London, UK, May 2019.

European Research Network on System Identification ERNSI
Cambridge, UK, September 2018.

International Zurich Seminar on Information and Communication
Zurich, Switzerland, February 2018.

16th Conference of the ASMDA International Society
Piraeus, Greece, July 2015.

International Workshop on Information-Theoretic Methods in Science and Engineering
Tampere, Finland, August 2009.

2002 Symbol Technologies Lecturer
Brooklyn Polytechnic, ECE Department, March 2002.

Conference on Stochastic Processes and their Applications
Cambridge, UK, July 2001.

TEACHING FOR TOMORROW AWARD
Received (Spring 2000) the annual Purdue Teaching for Tomorrow Award, which "recognises young faculty members for their commitment to and accomplishments in teaching and student learning."

RESEARCH FUNDING, GRANTS

EPSRC AI HUB

Co-investigator on EPSRC 'Mathematical and Computational Foundations of Artificial Intelligence' grant, entitled *Information Theory for Distributed AI*, for the foundation of the 'INFORMED-AI' Hub based at the University of Bristol, 2024-2029. [∼**£9m**].

DSTL GRANT

Co-PI on Defence Science and Technology Laboratory grant, by the Ministry of Defence, UK, entitled *Information Theory for Smart, Collaborative, Automated EM*, 2021-2022. [∼**£80,000**].

HFRI GRANT

PI on Hellenic Foundation for Research and Innovation research grant, entitled *Scaling stochastic dynamics: From microscopic interactions to macroscopic phenomena*, 2020-2024. [∼**€200,000**].

POSIMARK ASSOCIATES GRANT

Research grant awarded by Posimark Associates S.L. (Barcelona, Spain). *An investigation of the applicability of variable-length contexts for use in predictive algorithms in finance,* 2016. [∼**€6,000**].

EU-NSRF GRANTS [THALES]

Investigator in three research grant programs, CROWN, DISCO and SWINCOM, funded by the European Union (European Social Fund ESF) and by Greek national funds through the operational program "Education and Lifelong Learning of the National Strategic Reference Framework (NSRF) Research Funding." 2012-2015. [∼**€2,000,000**].

MARIE CURIE FELLOWSHIP

International Outgoing Fellowship, Marie Curie Program (EU), entitled *Control Variates for Markov Chain Monte Carlo Variance Reduction,* 2009-2011. [∼**€200,000**].

AUEB "BASIC RESEARCH" GRANT

AUEB Basic Research (PEVE) grant entitled *Simulation, computational learning and hypothesis testing: Theory and algorithms for efficient statistical computation,* 2009-2010. [∼**€10,000**].

EU RESEARCH GRANT

Investigator on European Union research grant entitled *Novel issues and techniques for the analysis of hyperlink structure on the WWW graph,* 2006-2008. [∼**$20,000**].

SLOAN RESEARCH FELLOWSHIP

Awarded by the Sloan Foundation, March 2004. [∼**$40,000**].

NSF RESEARCH GRANT

PI on NSF research grant entitled *Efficient lossy data compression via statistical model selection,* 2000-2004, under the Communications Research Program. [∼**$100,000**].

USDA RESEARCH GRANT

Co-PI with R.W. Doerge and L.M. McIntyre (Genomics, Purdue Univ.) on four-year USDA grant entitled *Development of statistical methodology for agricultural genomics,* beginning October 1, 2000, under the Initiative for Future Agriculture and Food Systems (IFAFS) Program. [∼**$1,000,000**].

SUMMER FACULTY GRANT

Awarded by the Purdue Research Foundation. Summer support for 1999.

PURDUE GLOBAL INITIATIVE FACULTY GRANT

Miscellaneous research support for the "Purdue Mini-Seminar on Information Theory," held in April-May 1999. Awarded by the Purdue Research Foundation. [**$10,000**].

RESEARCH GRANT

Student support from the Purdue Research Foundation, for a research student for two years. [∼**$25,000**].

PROFESSIONAL ACTIVITIES

CHAIR OF BOARD OF TRUSTEES *Rollo Davidson Trust*, Statistical Laboratory, University of Cambridge, 2022-present

WHITTLE FUND MANAGER *Peter Whittle Fund*, Statistical Laboratory, University of Cambridge, 2020-present

BOARD OF TRUSTEES *Rollo Davidson Trust*, Statistical Laboratory, University of Cambridge, 2020-2022

HEAD OF LABORATORY *Signal Processing and Communications*, Department of Engineering, University of Cambridge, 2018-2020

LABORATORY DIRECTOR *Theory, Economics and Systems Lab*, Department of Informatics, Athens University of Economics & Business, 2013-2018

EDITOR-IN-CHIEF *IEEE Transactions on Information Theory*, June-December 2013

AREA EDITOR *IEEE Transactions on Information Theory*, Shannon Theory and Information Measures, 2021-2024

ASSOCIATE EDITOR *IEEE Transactions on Information Theory*, At Large, 2017-2020

EDITORIAL ADVISORY BOARD *Lecture Notes in Mathematics series*, Springer, 2013-present

ASSOCIATE EDITOR *Acta Applicandae Mathematicae*, published by Springer, 2010-2024

CO-ORDINATING EDITOR (probability-statistics-operations research) *Bulletin of the Hellenic Mathematical Society*, 2015-present

ASSOCIATE EDITOR *IEEE Transactions on Information Theory*, At Large, 2011-2013

EDITORIAL BOARD *Foundations and Trends in Communications and Information Theory*, 2012-2023

ASSOCIATE EDITOR *IEEE Transactions on Information Theory*, Shannon Theory, 2007-2010

EDITORIAL COMMITTEE *Quarterly of Applied Mathematics*, published by the American Mathematical Society, 2004-2021

EDITORIAL BOARD *Entropy*, 1999-2008

GUEST EDITOR *IEEE Journal on Selected Areas in Information Theory*, Data, Physics, and Life Through the Lens of Information Theory. Special Issue Dedicated to the Memory of Toby Berger, December 2024.

IEEE INFORMATION THEORY SOCIETY EXTERNAL NOMINATIONS COMMITTEE
Member of the committee, which is responsible for the solicitation, processing and submission on behalf of the Society of nominations for appropriate IEEE and non-IEEE awards (2020-2022)

IEEE INFORMATION THEORY T.M. COVER DISSERTATION AWARD
Member of the committee, which is responsible for this annual award to the author of an outstanding doctoral dissertation (2016-2019)

IEEE INFORMATION THEORY SOCIETY BOARD OF GOVERNORS
Board of Governors Member (2013, 2024-2027)

IEEE INFORMATION THEORY SOCIETY AWARDS COMMITTEE
Member of the committee, which is responsible, among others, for the *Information Theory Society Best Paper Award*, the *Joint Information Theory-Communications Society Best Paper Award* and the *ISIT Student Paper Award* (2009-2011)

CONFERENCE TECHNICAL PROGRAM CO-CHAIR

IEEE International Symposium on Information Theory (2024)
IEEE International Symposium on Information Theory (2016)
IEEE Workshop on Information Theoretic Methods in Science and Engineering (2008, 2009, 2010)
IEEE Information Theory Workshop (2009)

CONFERENCE GENERAL CO-CHAIR

Athens Probability Colloquium (2012, 2014, 2015, 2016, 2017, 2018, 2019, 2023, 2024, 2025, 2026)
London Symposium on Information Theory (2025)
Cambridge Information Theory Colloquium (2025)
Stochastic Methods in Finance and Physics (2023)
Entropy Power Inequalities, American Institute of Mathematics Workshop (2017)
Greek Stochastics (α' 2009, β' 2010)
Athens Workshop on MCMC Convergence and Estimation (2009)
Purdue Mini-Seminar on Analytic Information Theory (1999)

CONFERENCE STEERING COMMITTEE MEMBER

IEEE European School on Information Theory (2023)
Beyond IID (2020-2025)

SCIENTIFIC ADVISORY COMMITTEE

Information Theory in Mathematics, Learning, and the Sciences.
Isaac Newton Institute Programme (Jan-June 2028)

CONFERENCE PROGRAM COMMITTEE

IEEE International Symposium on Information Theory
(2008, 2009, 2010, 2011, 2012, 2013, 2018, 2019, 2020, 2021, 2023, 2025, 2026)
IEEE Information Theory Workshop
(2005, 2006, 2007, 2008, 2010, 2012, 2015, 2016, 2023, 2024)
International ITG Workshop on Smart Antennas
(2023)
Conference on Systems, Communications and Coding
(2023)
IEEE International Workshop on Signal Processing Advances in Wireless Communications
(2018, 2019, 2020, 2021, 2022, 2024)
NeurIPS: Neural Information Processing Systems Conference
(2020)
IEEE Communication Theory Symposium of the *IEEE Int. Conference on Communications*
(2010)
IEEE International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks
(2009)
International Conference on Performance Evaluation Methodologies & Tools (ValueTools)
(2006, 2007, 2008)
Information Theory and Statistical Learning Conference
(2008)

INVITED SESSION ORGANIZER at various IEEE Information Theory Workshops (IEEE ITW), the Conference on Information Sciences and Systems (CISS), IEEE International Workshops on Signal Processing Advances in Wireless Communications (SPAWC), and the International Zurich Seminar on Communications (IZS)

PUBLICATIONS

JOURNAL PAPERS

Submitted

1. T. Viaud and I. Kontoyainnis. "The sample complexity of lossless data compression." Submitted.
2. I. Kontoyiannis. "Shakespeare, entropy and educated monkeys." Submitted.
3. A. Theocharous, L. Gavalakis and I. Kontoyiannis. "Pragmatic lossless compression: Fundamental limits and universality." Submitted.
4. L. Gavalakis and I. Kontoyiannis. "Conditions for equality and stability in Shannon's and Tao's entropy power inequalities." Submitted.
5. C.K. Lauand, I. Kontoyiannis, S.P. Meyn. "The case for and against fixed step-size: Stochastic approximation algorithms in optimization and machine learning." Submitted.
6. V. Lungu, J. Shaska, I. Kontoyiannis and U. Mitra. "Bayesian causal discovery: Posterior concentration and optimal detection." Sumbitted.
7. P. Włodzimierz, E. Perez-Roman, M. Hong, M. Zhang, L. Oliveira, J. Gonzalez-Isa, K. Jenike, R. Burns, C. Zhou, S. Koppera, M. Becker, N. Gorringe, P. Novak, Y. Mata-Sucre, I. Kontoyiannis, Darwin Tree of Life Consortium, M. Blaxter, A. Marques, J. Macas, R. Durbin, A. Bousios and I.R. Henderson. "Cyclical evolution of centromere architecture across 193 eukaryote species." Submitted.

Published or in press

8. R. Li, L. Gavalakis and I. Kontoyiannis. "Entropic additive energy and entropy inequalities for sums and products." To appear, *IEEE Transactions on Information Theory*, 2026.
9. I. Papageorgiou and I. Kontoyiannis. "The Bayesian Context Trees State Space Model for time series modelling and forecasting." To appear, *International Journal of Forecasting*, 2026.
10. E.M. Loizidou, A. Palaiokrassa, S. Assiedu, A. Simistiras, P. Barbounakis, S. Glentis, M. Anezaki, K.V. Bergersen, I. Chatzimichalis, E. Kotsanopoulou, I. Kontoyiannis, N. Demiris, P. Rouskas, N. Scarmeas, M. Yannakoulia, M. Verykokakis, M. Nair, K. Rouskas andn A.S. Dimas. "Short-term animal product restriction alters metabolic profiles and modulates immune function." To appear, *Communications Medicine*, 2026.
11. O. Johnson, L. Gavalakis and I. Kontoyiannis. "Relative entropy bounds for sampling with and without replacement." *Journal of Applied Probability*, **62**, no. 4, pp. 1578-1593, December 2025.
12. V. Borkar, S. Chen, A. Devraj, I. Kontoyiannis and S.P. Meyn. "The ODE method for asymptotic statistics in stochastic approximation and reinforcement learning." *Annals of Applied Probability*, **35**, no. 2, pp. 936-982, April 2025.
13. L. Gavalakis, I. Kontoyiannis and M. Madiman. "The entropic doubling constant and robustness of Gaussian codebooks for additive-noise channels." *IEEE Transactions on Information Theory*, **70**, no. 12, pp. 8467-8477, December 2024.
14. J. Chen, J. Gibson, I. Kontoyiannis, Y. Liang, S.S. Pradhan, A. Winter, R. Zamir, R.E. Blahut, Y. Oohama, A.B. Wagner and R.W. Yeung. "Editorial: Data, Physics, and Life Through the Lens of Information Theory." *IEEE Journal on Selected Areas in Information Theory*, Special issue dedicated to the memory of Toby Berger, **5**, pp. iv-xi, December 2024.
15. M. Tapia Costa, I. Kontoyiannis and S.J. Godsill. "Generalised shot noise representations of stochastic systems driven by non-Gaussian Lévy processes." *Journal of Applied Probability*, **56**, no. 4, pp. 1215-1250, December 2024.

16. I. Papageorgiou and I. Kontoyiannis. "Posterior representations for Bayesian Context Trees: Sampling, estimation and convergence." *Bayesian Analysis*, **19**, no. 2, pp. 501-529, June 2024.

17. L. Gavalakis and I. Kontoyiannis. "Entropy and the discrete central limit theorem." *Stochastic Processes and their Applications*, **70**, 104294, April 2024.

18. A. Theocharous, G.G. Gregoriou, P. Sapountzis and I. Kontoyiannis. "Temporally causal discovery tests for discrete time series and neural spike trains." *IEEE Transactions on Signal Processing*, **72**, pp. 1333-1347, February 2024.

19. I. Kontoyiannis. "Context-tree weighting and Bayesian Context Trees: Asymptotic and non-asymptotic justifications." *IEEE Transactions on Information Theory*, **70**, no. 2, pp. 1204-1219, February 2024.

20. I. Kontoyiannis, L. Mertzanis, A. Panotopoulou, I. Papageorgiou and M. Skoularidou. "Bayesian Context Trees: Modelling and exact inference for discrete time series." *Journal of the Royal Statistical Society: Series B*, **84**, no. 4, pp. 1287-1323, September 2022.

21. I. Kontoyiannis, Y.H. Lim, K. Papakonstantinopoulou and W. Szpankowski. "Compression and symmetry of small-world graphs and structures." *Communications in Information and Systems*, **22**, no. 2, pp. 275-302, May 2022.

22. P. Barmpounakis, N. Demiris, I. Kontoyiannis, G. Pavlakis, and V. Sypsa. "Evaluating the effects of second-dose vaccine-delay policies in European countries: A simulation study based on data from Greece." *PLoS ONE*, 17(4):e0263977, April 2022.

23. L. Gavalakis and I. Kontoyiannis. "An information-theoretic proof of a finite de Finetti theorem." *Electronic Communications in Probability*, **26**, paper no. 68, pp. 1-5, December 2021.

24. T.B. Berrett, I. Kontoyiannis and R.J. Samworth. "Optimal rates for independence testing via U-statistic permutation tests." *Annals of Statistics*, **49**, no. 5, pp. 2457-2490, October 2021.

25. A.M. Devraj, I. Kontoyiannis and S.P. Meyn. "Differential temporal difference learning." *IEEE Transactions on Automatic Control*, **66**, no. 10, pp. 4652-4667, October 2021.

26. S. Diggavi, A. El Gamal, I. Kontoyiannis, A. Paranjpe and M. Subbarao. "Joy Thomas: Legacy, foundation and the IT society." *IEEE BITS the Information Theory Magazine*, **1**, no. 1, pp. 85-88, August 2021.

27. L. Gavalakis and I. Kontoyiannis. "Fundamental limits of lossless data compression with side information." *IEEE Transactions on Information Theory*, **67**, no. 5, pp. 2680-2692, May 2021.

28. R. Cavallari, S. Toumpis, R. Verdone and I. Kontoyiannis. "Packet speed and cost in mobile wireless delay-tolerant networks." *IEEE Transactions on Information Theory*, **66**, no. 9, pp. 5683-5702, September 2020.

29. M. Riabiz, T. Ardeshiri, I. Kontoyiannis and S. Godsill. "Nonasymptotic Gaussian approximation for inference with stable noise." *IEEE Transactions on Information Theory*, **66**, no. 8, pp. 4966-4991, August 2020.

30. D. Cheliotis, I. Kontoyiannis, M. Loulakis and S. Toumpis. "A simple network of nodes moving on the circle." *Random Structures & Algorithms*, **57**, no. 2, pp. 317-338, July 2020.

31. L. Gavalakis and I. Kontoyiannis. "Sharp second-order pointwise asymptotics for lossless compression with side information." *Entropy*, **22**, no. 6, paper 705, June 2020.

32. A.M. Devraj, I. Kontoyiannis and S.P. Meyn. "Geometric ergodicity in a weighted Sobolev space." *Annals of Probability*, **48**, no. 1, pp. 380-403, January 2020.

33. M. Madiman and I. Kontoyiannis. "Entropy bounds on abelian groups and the Ruzsa divergence." *IEEE Transactions on Information Theory*, **64**, no. 1, pp. 77-92, January 2018.

34. I. Kontoyiannis and S.P. Meyn. "Approximating a diffusion by a hidden Markov model." *Stochastic Processes and their Applications*, **127**, no. 8, pp. 2482-2507, August 2017.

35. I. Kontoyiannis and S.P. Meyn. "On the f-norm ergodicity of Markov processes in continuous time." *Electronic Communications in Probability*, **21**, paper 77, pp. 1-10, November 2016.

36. I. Kontoyiannis and M. Skoularidou. "Estimating the directed information and testing for causality." *IEEE Transactions on Information Theory*, **62**, no. 11, pp. 6053-6067, November 2016.

37. I. Kontoyiannis and M. Madiman. "Sumset and inverse sumset inequalities for differential entropy and mutual information." *IEEE Transactions on Information Theory*, **60**, no. 8, pp. 4503-4514, August 2014.

38. I. Kontoyiannis and S. Verdú. "Optimal lossless data compression: Non-asymptotics and asymptotics." *IEEE Transactions on Information Theory*, **60**, no. 2, pp. 777-795, February 2014.

39. O. Johnson, I. Kontoyiannis and M. Madiman. "Log-concavity, ultra-log-concavity and a maximum entropy property of discrete compound Poisson measures." *Discrete Applied Mathematics*, (Special issue, Proceedings of the Jubilee Conference on Discrete Mathematics JCDM 2009, D.J. Kleitman, A. Shastri, V.T. So's, eds.) **161**, no. 9, pp. 1232-1250, June 2013.

40. C. Gioran and I. Kontoyiannis. "Complexity-compression tradeoffs in lossy compression via efficient random codebooks and databases." *Problems of Information Transmission*, **48**, Issue 4, pp. 376-394, October 2012.

41. I. Kontoyiannis and S.P. Meyn. "Geometric ergodicity and the spectral gap of non-reversible Markov chains." *Probability Theory and Related Fields*, **154**, Issue 1-2, pp. 327-339, October 2012.

42. V. Anantharam, G. Caire, M. Costa, I. Kontoyiannis, G. Kramer, R. Yeung, and S. Verdú. "Panel on *New Perspectives on Information Theory*." (Invited discussion.) *IEEE Information Theory Society Newsletter*, pp. 21-27, March 2012.

43. P. Dellaportas and I. Kontoyiannis. "Control variates for estimation based on reversible Markov chain Monte Carlo samplers." *Journal of the Royal Statistical Society: Series B*, **74**, Issue 1, pp. 133-161, January 2012.

44. P. Harremoës, O. Johnson and I. Kontoyiannis "Thinning, entropy and the law of thin numbers." *IEEE Transactions on Information Theory*, **56**, no. 9, pp. 4228-4244, September 2010.

45. A.D. Barbour, O. Johnson, I. Kontoyiannis and M. Madiman. "Compound Poisson approximation via information functionals." *Electronic Journal of Probability*, **15**, paper 42, pp. 1344-1369, August 2010.

46. I. Kontoyiannis. "Book review: *"Information and complexity in statistical modeling,"* by J. Rissanen, Springer, NY, 2007." *American Mathematical Monthly*, **115**, no. 10, pp. 956-960, December 2008.

47. I. Kontoyiannis and S.P. Meyn. "Computable exponential bounds for screened estimation and simulation." *Annals of Applied Probability*, **18**, no. 4, pp. 1491-1518, August 2008.

48. M. Harrison and I. Kontoyiannis. "Estimation of the rate-distortion function." *IEEE Transactions on Information Theory*, **54**, no. 8, pp. 3757-3763, August 2008.

49. Y. Gao, I. Kontoyiannis and E. Bienenstock. "Estimating the entropy of binary time series: Methodology, some theory and a simulation study." *Entropy*, **10**, issue 2, pp. 71-99, June 2008.

50. I. Kontoyiannis. "Counting the primes using entropy." *IEEE Information Theory Newsletter*, **58**, no. 2, pp. 6-9, June 2008.

51. H.M. Aktulga, I. Kontoyiannis, L.A. Lyznik, L. Szpankowski, A.Y. Grama and W. Szpankowski. "Identifying statistical dependence in genomic sequences via mutual information estimates." In *EURASIP Journal on Bioinformatics and Systems Biology*, **vol. 2007**, article ID 14741, November 2007.

52. I. Kontoyiannis and M. Madiman. "Measure concentration for compound Poisson distributions." *Electronic Communications in Probability*, **11**, paper 5, pp. 45-57, May 2006.

53. I. Kontoyiannis and R. Zamir. "Mismatched codebooks and the role of entropy-coding in lossy data compression." *IEEE Transactions on Information Theory*, **52**, pp. 1922-1938, May 2006.

54. A. Anagnostopoulos, I. Kontoyiannis, and E. Upfal. "Steady state analysis of balanced-allocation routing," *Random Structures & Algorithms*, **26**, pp. 446-467, July 2005.

55. I. Kontoyiannis and S.P. Meyn. "Large deviations asymptotics and the spectral theory of multiplicatively regular Markov processes," *Electronic Journal of Probability*, **10**, paper 3, pp. 61-123, February 2005.

56. I. Kontoyiannis, P. Harremoës and O. Johnson. "Entropy and the law of small numbers," *IEEE Transactions on Information Theory*, **51**, pp. 466-472, February 2005.

57. I. Kontoyiannis. "Pattern matching and lossy data compression on random fields," *IEEE Transactions on Information Theory*, **49**, pp. 1047-1051, April 2003.

58. N. Merhav and I. Kontoyiannis. "Source coding exponents for zero-delay coding with finite memory," *IEEE Transactions on Information Theory*, **49**, pp. 609-625, March 2003.

59. I. Kontoyiannis and S.P. Meyn. "Spectral theory and limit theorems for geometrically ergodic Markov processes," *Annals of Applied Probability*, **13**, pp. 304-362, February 2003.

60. I. Kontoyiannis and J. Zhang. "Arbitrary source models and Bayesian codebooks in rate-distortion theory," *IEEE Transactions on Information Theory*, **48**, pp. 2276-2290, August 2002.

61. A. Dembo and I. Kontoyiannis. "Source coding, large deviations, and approximate pattern matching." Invited paper in the special issue of the *IEEE Transactions on Information Theory* on Shannon Theory, dedicated to A.D. Wyner, **48**, pp. 1590-1615, June 2002.

62. A. Antos and I. Kontoyiannis. "Convergence properties of functional estimates for discrete distributions," *Random Structures & Algorithms*, **9**, pp. 163-193, October 2001, special issue in honor of D.E. Knuth's 64th birthday.

63. J. Zhang, E.K.P. Chong and I. Kontoyiannis. "Unified spatial diversity combining and power allocation schemes for CDMA systems," *IEEE Journal on Selected Areas in Communications*, **19**, pp. 1276-1288, July 2001.

64. I. Kontoyiannis. "Sphere-covering, measure concentration, and source coding," *IEEE Transactions on Information Theory*, **46**, pp. 1544-1552, May 2001.

65. A. Dembo and I. Kontoyiannis. "Critical behavior in lossy source coding," *IEEE Transactions on Information Theory*, **46**, pp. 1230-1236, March 2001.

66. I. Kontoyiannis. "Pointwise redundancy in lossy data compression and universal lossy data compression," *IEEE Transactions on Information Theory*, **46**, pp. 136-152, January 2000.

67. I. Kontoyiannis. "An implementable lossy version of the Lempel-Ziv algorithm – Part I: Optimality for memoryless sources," *IEEE Transactions on Information Theory*, **45**, pp. 2293-2305, November 1999.

68. A. Dembo and I. Kontoyiannis. "The asymptotics of waiting times between stationary processes, allowing distortion," *Annals of Applied Probability*, **9**, pp. 413-429, May 1999.

69. I. Kontoyiannis. "Asymptotic recurrence and waiting times for stationary processes," *Journal of Theoretical Probability*, **11**, pp. 795-811, July 1998.

70. I. Kontoyiannis, P.H. Algoet, Yu.M. Suhov and A.J. Wyner. "Nonparametric entropy estimation for stationary processes and random fields, with applications to English text," *IEEE Transactions on Information Theory*, **44**, pp. 1319-1327, May 1998.

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C129. "On rate-distortion theory as a convex selection problem." **Invited paper**, *38th Annual Allerton Conference on Communication, Control & Computing,* October 2000.

C130. "Probabilistic phenomena in data compression." **Invited talk** at the *Sixth International Seminar on the Analysis of Algorithms,* Krynica Morska, Poland, July 2000.

C131. "Model selection via rate-distortion theory." **Invited paper**, *34th Annual Conference on Information Sciences and Systems,* Princeton, NJ, March 2000.

C132. "Probabilistic results for sphere packing in high dimensions." *1999 Joint Statistical Meetings of IMS-ASA-ENAR/WNAR,* Baltimore, MD, August 1999.

C133. "How well does the Shannon codebook compress?" *1999 Canadian Information Theory Workshop,* Kingston, Ontario, June 1999.

C134. "Asymptotically optimal lossy Lempel-Ziv coding." *1998 IEEE International Symposium on Information Theory,* MIT, Cambridge, MA, August 1998.

C135. "Generalized waiting times and efficient lossy coding for memoryless sources." *1998 IEEE Information Theory Workshop,* San Diego, CA, February 1998.

C136. "Second-order analysis of lossless and lossy versions of Lempel-Ziv codes." **Invited paper**, *31st Asilomar Conference on Signals, Systems and Computers,* Pacific Grove, CA, November 1997.

C137. "The asymptotics of waiting times between stationary processes." *1997 Joint Statistical Meeting of IMS-ASA-ENAR/WNAR,* Anaheim, CA, August 1997.

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C140. "Progressive classification in the compressed domain for large EOS satellite databases," with V. Castelli, C.S. Li and J.J. Turek. *1996 IEEE International Conference on Acoustics, Speech and Signal Processing,* Atlanta, GA, May 1996.

C141. "Stationary entropy estimation via string matching," with Yu.M. Suhov. *The Data Compression Conference DCC 96,* Snowbird, UT, April 1996.

C142. "Prefixes and the entropy rate for long-range sources," with Yu.M. Suhov. *1994 IEEE International Symposium on Information Theory,* Trondheim, Norway, June 1994.

PERSONAL INFORMATION

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Updated January 13, 2026.