Curriculum Vitae

PART 1

1a. Personal details					
Full name	*Title* Dr	*First name* Ciprian	*Second name(s)* Doru	*Family name* Giurcaneanu	
Present position	Senior Lecturer (above the bar)				
Organisation / employer	Statistics, The University of Auckland				
Contact Address	Department of Statistics, Private Bag 92019				
	Auckland			**Post code**	1142
Work telephone	+64 9 923 2819		**Mobile**		
Email	c.giurcaneanu@auckland.ac.nz				
Personal website (if applicable)	https://www.stat.auckland.ac.nz/people/cgiu216 http://orcid.org/0000-0001-5512-0868				

1b. Academic qualifications

2001 *Tampere University of Technology (TUT), Finland, PhD (with commendation), Major: Signal Processing, Minor: Telecommunications.*

1993 *"Politehnica" University of Bucharest, Romania, MSc Automatic Control.*

1c. Professional positions held

Feb. 2018 – present *Senior Lecturer (above the bar), Department of Statistics, The University of Auckland, New Zealand.*

Jul. 2012 – Jan. 2018 *Senior Lecturer, Department of Statistics, The University of Auckland, New Zealand.*

Jan. 2012 – Jun. 2012 *Senior Researcher, Helsinki Institute for Information Technology (HIIT), University of Helsinki, Finland.*

Oct. 1997 – Dec. 2011 *Researcher, Senior Researcher, Academy Research Fellow, Department of Signal Processing, Tampere University of Technology, Finland.*

Oct. 1993 – Sep. 1997 *Junior Assistant, Department of Automatic Control, "Politehnica" University of Bucharest, Romania.*

1d. Present research/professional speciality

I am a top researcher in the field of information theoretic methods for model selection and my focus is on statistical signal processing. According to Google Scholar, I have 425 citations, my h-index is 11 and my i10-index is 12. My Erdös number is 3. An important part of my research is related to the concept termed renormalized maximum likelihood (RNML); I have proposed novel RNML-based solutions for analysis of multivariate time series, hypothesis testing, adaptive filtering of time series, spectral estimation, construction of irregular histograms, histogram-based entropy estimation.

1e. Total years research experience	27 years

1f. Professional distinctions and memberships (including honours, prizes, scholarships, boards of governance roles, etc)

2021: Independent Chair for the PhD thesis - Ye Zhang: "Children's Everyday Mathematical Experiences (EMEs) in Hong Kong Kindergarten Settings"
2021: Independent Chair for the PhD thesis – Hazel Antonio: "The Factors Affecting the Marketing Channel Choices of Rice Farmers: Evidence from the Philippines"
2019: HoD Nominee for the PhD thesis - Victor Miranda: "Vector generalized linear time series models with an implementation in R"
2018: External Examiner for the PhD thesis – C.K. Wong: "Minimum message length inference with application to genome-wide association studies data", The University of Melbourne, Australia
2018: Good Departmental Citizen Award, Dept. of Statistics (UoA)
2017: Chairperson of Scientific Program Committee, 10th Conference of the IASC-ARS/68th Annual NZSA Conference, Auckland (10-14 Dec 2017)
2010-2012: Treasurer of IEEE Finland Section.
2010: Certificate of Appreciation awarded by Dept. of Signal Processing, Tampere Univ. of Technology, Finland.
2010: Finance Chair, 2010 Workshop on Information Theoretic Methods in Science and Engineering, Tampere, Finland.
2009: Committee Member for the PhD thesis - L. Amate, "Learning sparse spline-based shape models", Université de Nice - Sophia Antipolis, France.
2009: Reviewer for the PhD thesis of T. Mononen, "Computing the stochastic complexity of simple probabilistic graphical models", Faculty of Science, University of Helsinki, Finland.
2009: Program Committee Member, IEEE International Workshop on Genomic Signal Processing and Statistics (GENSIPS), Minneapolis, Minnesota, USA.
2008: Technical Program Co-Chair, IEEE International Workshop on Genomic Signal Processing and Statistics (GENSIPS), Phoenix, Arizona, USA.
2008: Program Committee Member, IEEE International Conference on Bioinformatics and Bioengineering (BIBE), Athens, Greece.
2006-2012: Chair of IEEE Finland Chapter SP-CAS.

Grants and scholarships
2006-2011: Finnish Academy Research Fellow (approx.400000€).
2003-2006: Finnish Academy Center of Excellence (SPAG) Postdoc (approx.200000€).
2002-2003: Finnish Academy Research Fellow (approx.70000€).
2001-2002: Tampere Graduate School in Information Science and Engineering (TISE) Postdoc (approx.12000€).
1998-2001: TISE Fellowship (approx.50000€).
1997: Tampere International Center for Signal Processing (TICSP) Fellowship (approx.3500€).

Projects for which I have been responsible
2012-2014: The University of Auckland - Science/The University of Auckland - Science FRDF New Staff – 30000NZD
2009-2011: Finnish Academy Project no. 134767/2009 - 99320€.
2006-2009: Finnish Academy Project no. 118355/2006 - 128400€.
2003: Finnish Academy Project no. 205363/2003 - 660€.
2002-2003: Finnish Academy Project no. 202217/2002 - 2140€.

1g. Total number of *peer reviewed* publications and patents	Journal articles	Books, book chapters, books edited	Conference proceedings	Patents
	21	6	42	0

PART 2

2a. Research publications and dissemination

Peer-reviewed journal articles

Dumitrescu, B., & **Giurcăneanu, C. D.** (2019). Adaptive-Size Dictionary Learning Using Information Theoretic Criteria. *Algorithms*, *12*(9), 178. doi:10.3390/a12090178

Li, F., Triggs, C. M., Dumitrescu, B., & **Giurcaneanu, C. D.** (2019). The matching pursuit algorithm revisited: A variant for big data and new stopping rules. *SIGNAL PROCESSING*, *155*, 170-181. doi:10.1016/j.sigpro.2018.09.033

Alavi-Shoshtari, M., Salmond, J. A., **Giurcăneanu, C. D.**, Miskell, G., Weissert, L., & Williams, D. E. (2018). Automated data scanning for dense networks of low-cost air quality instruments: Detection and differentiation of instrumental error and local to regional scale environmental abnormalities. *Environmental Modelling & Software*, *101*, 34-50. doi:10.1016/j.envsoft.2017.12.002

Maanan, S., Dumitrescu, B., & **Giurcăneanu, C.** (2018). Maximum Entropy Expectation-Maximization Algorithm for Fitting Latent-Variable Graphical Models to Multivariate Time Series. *Entropy*, *20*(1), 76. doi:10.3390/e20010076

Maanan, S., Dumitrescu, B., & **Giurcaneanu, C. D.** (2017). Conditional independence graphs for multivariate autoregressive models by convex optimization: Efficient algorithms. *Signal Processing*, *133*, 122-134. doi:10.1016/j.sigpro.2016.10.023

Giurcaneanu, C. D., Abeywickrama, R. V., & Berber, S. (2015). Performance analysis for a chaos-based code-division multiple access system in wide-band channel. *The Journal of Engineering*, *2015*(8), 276-284. doi:10.1049/joe.2015.0117

Giurcăneanu, C. D., & Abdul Saip, F. A. (2014). New insights on AR order selection with information theoretic criteria based on localized estimators. *Digital Signal Processing*, *32*, 37-47. doi:10.1016/j.dsp.2014.06.005

Razavi, S. A., & **Giurcaneanu, C. D.** (2013). Application of optimally distinguishable distributions to the detection of subspace signals in Gaussian noise of unknown level. *Digital Signal Processing: A Review Journal*, *23*(4), 1094-1102. doi:10.1016/j.dsp.2013.01.014

Giurcăneanu, C. D., Razavi, S. A., & Liski, A. (2011). Variable selection in linear regression: Several approaches based on normalized maximum likelihood. *Signal Processing*, *91*(8), 1671-1692. doi:10.1016/j.sigpro.2011.03.015

Giurcăneanu, C. D., & Razavi, S. A. (2010). AR order selection in the case when the model parameters are estimated by forgetting factor least-squares algorithms. *Signal Processing*, *90*(2), 451-466. doi:10.1016/j.sigpro.2009.07.011

Razavi, S., & **Giurcăneanu, C.** (2010). A Novel Method for Improving Fairness over Multiaccess Channels. *EURASIP Journal on Wireless Communications and Networking*, *2010*(1), 395763. doi:10.1155/2010/395763

Sakkalis, V., Cassar, T., Zervakis, M., **Giurcaneanu, C. D.**, Bigan, C., Micheloyannis, S., . . . Michalopoulos, K. (2010). A decision support framework for the discrimination of children with controlled epilepsy based on EEG analysis. *Journal of neuroengineering and rehabilitation*, *7*, 24.

doi:10.1186/1743-0003-7-24

Razavi, S. A., & **Giurcaneanu, C. D.** (2009). Optimally Distinguishable Distributions: a New Approach to Composite Hypothesis Testing With Applications to the Classical Linear Model. *IEEE Transactions on Signal Processing*, *57*(7), 2445-2455. doi:10.1109/TSP.2009.2017568

Sakkalis, V., **Giurcaneanu, C. D.**, Xanthopoulos, P., Zervakis, M., Tsiaras, V., Yang, Y., . . . Micheloyannis, S. (2009). Assessment of linear and nonlinear synchronization mea-sures for analyzing EEG in a mild epileptic paradigm.. *IEEE Transactions on Information Technology in Biomedicine*, *13*(4), 433-441. doi:10.1109/TITB.2008.923141

Giurcăneanu, C. D., Tăbuş, I., & Astola, J. (2005). Clustering Time Series Gene Expression Data Based on Sum-of-Exponentials Fitting. *EURASIP Journal on Advances in Signal Processing*, *2005*(8). doi:10.1155/ASP.2005.1159

Giurcăneanu, C. D., Tăbuş, I., Astola, J., Ollila, J., & Vihinen, M. (2004). Fast iterative gene clustering based on information theoretic criteria for selecting the cluster structure.. *Journal of computational biology : a journal of computational molecular cell biology*, *11*(4), 660-682. doi:10.1089/1066527041887285

Giurcăneanu, C. D., & Tăbuş, I. (2004). Cluster Structure Inference Based on Clustering Stability with Applications to Microarray Data Analysis. *EURASIP Journal on Advances in Signal Processing*, *2004*(1). doi:10.1155/S1110865704309078

Giurcăneanu, C. D. (2004). On some properties of the NML estimator for Bernoulli strings. *Information Processing Letters*, *89*(4), 209-213. doi:10.1016/j.ipl.2003.10.011

Giurcaneanu, C. D., & Tabus, I. (2002). Optimal coding of quantized Laplacian sources for predictive image compression. *JOURNAL OF MATHEMATICAL IMAGING AND VISION*, *16*(3), 251-268. Retrieved from http://gateway.webofknowledge.com/

Giurcăneanu, C. D., Tăbuş, I., & Mereuţă, S. (2002). Using contexts and R-R interval estimation in lossless ECG compression.. *Computer methods and programs in biomedicine*, *67*(3), 177-186. doi:10.1016/s0169-2607(01)00126-2

Giurcăneanu, C. D., Tăbuş, I., & Astola, J. (2000). Adaptive context-based sequential prediction for lossless audio compression. *Signal Processing*, *80*(11), 2283-2294. doi:10.1016/S0165-1684(00)00117-1

Peer reviewed books, book chapters, books edited (selected)

Forsell, V., & **Giurcaneanu, C. D.** (2013). On the use of stochastic complexity in spectral analysis of radial velocity data. In I. Dumitrache (Ed.), *Advances in intelligent control systems and computer science* (Vol. 187, pp. 1-14). Berlin. Germany: Springer-Verlag. doi:10.1007/978-3-642-32548-9_1

Giurcaneanu, C. D. (2008). Estimation of sinusoidal regression model by stochastic complexity. In P. Grunwald, P. Myllymaki, I. Tabus, M. Weinberger, & B. Yu (Eds.), *Festschrift in honor of Jorma Rissanen on the occasion of his 75th Birthday* (Vol. 38, pp. 229-249). Tampere, Finland: Tampere International Center for Signal Processing. Retrieved from http://www.cs.tut.fi/~tabus/TICSP_38_17.4.%2008.pdf

Giurcaneanu, C. D., & Rissanen, J. (2006). Estimation of AR and ARMA models by stochastic complexity. In H. C. Ho, C. K. Ing, & T. L. Lai (Eds.), *Time Series and Related Topics: In Memory of Ching-Zong Wei* (Vol. 52, pp. 48-59). Beachwood, Ohio, USA: Institute of Mathematical Statistics. doi:10.1214/074921706000000941

Giurcaneanu, C. D., Mircean, C., Fuller, G. N., & Tabus, I. (2006). Finding functional structures in glioma gene-expression using Gene Shaving clustering and MDL principle. In W. Zhang, & I. Shmulevich (Eds.), *Computational and Statistical Approaches to Genomics, 2nd Ed.* (pp. 89-118). Boston, USA: Kluwer Academic Publishers. doi:10.1007/0-387-26288-1_7

Refereed Conference Proceedings (selected)

Zheng, X., Dumitrescu, B., Liu, J., & **Giurcaneanu, C. D**. (2020). On the use of dictionary learning in time series imputation. In *Proceedings of the 28th European Signal Processing Conference* (pp. 2016-2020). Amsterdam, Netherlands. Retrieved from https://www.eurasip.org/Proceedings/Eusipco/Eusipco2020/pdfs/0002016.pdf

Dumitrescu, B., **Giurcaneanu, C. D.**, & Ding, Y. (2019). Identification of Vector Autoregressive Models with Granger and Stability Constraints. In *Proceedings 27th European Signal Processing Conference (EUSIPCO)* (pp. 5 pages). A Coruna, Spain: IEEE. doi:10.23919/EUSIPCO.2019.8902516

Li, F., Triggs, C. M., Dumitrescu, B., & **Giurcaneanu, C.** (2017). On the number of iterations for the matching pursuit algorithm. In *Proceedings 25th European Signal Processing Conference* (pp. 181-185). Kos, Greece: IEEE. doi:10.23919/EUSIPCO.2017.8081193

Maanan, S., Dumitrescu, B., & **Giurcaneanu, C. D.** (2016). Renormalized maximum likelihood for multivariate autoregressive models. In *Proceedings of 24th European Signal Processing Conference (EUSIPCO)* (pp. 150-154). Budapest, Hungary: The European Association for Signal Processing (EURASIP). doi:10.1109/EUSIPCO.2016.7760228

Giurcaneanu, C. D., & Razavi, S. A. (2009). New insights on stochastic complexity. In B. Stewart, & S. Weiss (Eds.), *Proceedings of Eusipco 2009, the 17th European Signal Processing Conference* Vol. 3 (pp. 2475-2479). Glasgow, Scotland, UK: EURASIP. Retrieved from http://www.eurasip.org/

Razavi, S. A., & **Giurcaneanu, C. D.** (2008). Composite hypothesis testing by optimally distinguishable distributions. In *2008 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, VOLS 1-12* (pp. 3897-3900). Las Vegas, NV: IEEE. doi:10.1109/ICASSP.2008.4518505

Giurcaneanu, C. D. (2007). Stochastic complexity for the estimation of sine-waves in colored noise. In *2007 IEEE International Conference on Acoustics, Speech, and Signal Processing, Vol III, Pts 1-3, Proceedings* (pp. 1097-1100). Honolulu, HI: IEEE. Retrieved from http://gateway.webofknowledge.com/

Yang, Y., **Giurcaneanu, C. D**., & Tabus, I. (2006). An application of the piecewise autoregressive model in lossless audio coding. In *2006 7TH NORDIC SIGNAL PROCESSING SYMPOSIUM* (pp. 326-+). Reykjavik, ICELAND: IEEE. Retrieved from http://gateway.webofknowledge.com/

Giurcaneanu, C. D., Tabus, I., Shmulevich, I., & Zhang, W. (2003). Stability-based cluster analysis applied to microarray data. In *SEVENTH INTERNATIONAL SYMPOSIUM ON SIGNAL PROCESSING AND ITS APPLICATIONS, VOL 2, PROCEEDINGS* (pp. 57-60). PARIS, FRANCE: IEEE. doi:10.1109/ISSPA.2003.1224814