**Curriculum Vitae of Dimitris Kugiumtzis
as of July 2023**

Current Position:
Professor, Department of Electrical and Computer Engineering, Faculty of Engineering, Aristotle University of Thessaloniki (**AUTh**), Greece

Homepage: http://users.auth.gr/dkugiu E-mail*:* dkugiu@auth.gr

Education:
- B.Sc. obtained in 1987 at the Department of Mathematics, AUTh
- Cand. Scient (M.Sc.) obtained in 1991 at the Division of Data Analysis, Signal and Image Processing (then called Cybernetics and Mathematical Modeling), Department of Informatics, University of Oslo, Norway.
- Doktor Scient (PhD) obtained in 1997 at the Division of Data Analysis, Signal and Image Processing, Department of Informatics, University of Oslo, Norway.

Professional Experience:
- Professor at the Institute of current position (from 10/2/2017)
- Associate Professor at the Institute of current position (2010 – 2017)
- Assistant Professor at the Institute of current position (2001 – 2010)
- Lecturer B at the Department of Statistics, University of Glasgow, UK (2000-2001)
- Guest Scientist (postdoc) at the Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany (1998-1999)
- Associate Researcher (postdoc) at the National Center for Epilepsy, Norway (1997)

Distinctions / Awards:
- Included in the list of the top-cited scientists for single recent year impact "Data for updated science-wide author databases of standardized citation indicators" published by Stanford University: Ranking 100162 / 161441 in year 2019, ranking 94619 / 190063 in year 2020, ranking 86709 / 200409 in year 2021.
- Included in the list of 100 Outstanding Referees for the journals of the American Physical Society for the year 2015.

Expertise and Research Interests:
Linear and nonlinear analysis of time series; connectivity analysis of multivariate time series and complex networks; computational statistics; dynamical systems and chaos, complex systems; big data analytics; machine learning; software development; stochastic simulation; data analysis in neuroscience, geophysics, finance, biology and engineering.

Funded projects:
Projects currently running:
- Non-profit coordinator of the PhD project "Causality Network Estimation from High Dimensional Multivariate Time Series" funded by the Hellenic Foundation for Research and Innovation (30/11/2019 – 30/11/2022), budget 32400 €
- Participation in the project "Development and optimization of Transcranial Magnetic Stimulation combined with EEG/EMG as a biomarker predicting response to Antiepileptic Drugs", funded by the biopharmaceutical company UCB (13/05/2020 - 13/5/2022), overall budget: 100000 Euro.
- Coordinator of the research project "Discrete multivariate time series analysis using information measures: causality relationships and prediction" funded by the Program for Development of Human Potential, Education and Lifelong Learning of the Ministry of Economy and Development, Greece (21/1/2020 – 21/4/2021), overall budget: 37000 €
- Non-profit participation in the project "Merging complex financial interactions with portfolio construction techniques", Hellenic Foundation for Research and Innovation (HFRI) postdoctoral Fellowship (11/2018 – 11/2021), budget 150000 €.

- Participation in the project "Development and validation of Deep-TMS combined with high-density EEG as a novel diagnostic and therapeutic tool in Epilepsy (dt-EPILEPSY)" co-financed by Israeli and Greek funds (General Secretariat for Research and Technology) through the Program for Greek-Israeli Research and Technology Collaboration (7/2018 – 7/2021), budget for AUTh team: 264612 €.
- Participation in the project "Valorization of aromatic and medicinal plants of the Greek flora (AromaDistil)" co-financed by the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation, under the call Research – Create – Innovate (6/2018 – 6/2021), budget for AUTh team: 315296 €.

Selected completed projects in the last decade:
- Coordinator of the research project titled "Networks and Classification from Granger Causality of Multivariate Time Series with Applications in Neurophysiology" funded by the General Secretariat for Research and Technology, Greece (http://timeseriesnetworks.web.auth.gr/) (1/2014 – 10/2015), overall budget: 130000 €
- Project "Granger Causality and Complex Networks from Multi-variate Time Series" of the program for the support of research activity in the Aristotle University of Thessaloniki, budget 4000 € (4/2013 – 4/2014)
- Participation in the project "Smart Open Internet Services for Health, SOHealth" funded by the General Secretariat for Research and Technology, Greece (2013 – 2016), Overall Budget: 800000 €
- Non-profit participation in the project "Development of multivariate causality measures for the detection of direct causal effects – applications to macro-economic and financial time series", General Secretariat for Research and Technology postdoctoral Fellowship (3/2012 – 9/2015), budget 150000 €.
- Participation in the project "Secure and Revokable Biometric Identification for use in Disparate Intelligence Environments" funded by the General Secretariat for Research and Technology, Greece (4/2011 – 4/2014), overall budget: 591365 €

Main collaborations (in the last decade):

2010 – to date	Close collaboration with Prof Vassilis K. Kimiskidis, Department of Medicine AUTh, in the analysis of electroencephalograms (EEG) in conjunction with magnetic transcranial stimulation (TMS).
2012 – to date	Collaboration with Prof. Cees Diks, Faculty of Economics and Finance, University of Amsterdam, The Netherlands, in the application of Granger causality methodology in multivariate financial time series. Visit and invited talk in the seminar series of the Center for Nonlinear Dynamics in Economics and Finance of the University of Amsterdam, The Netherlands, 16 – 18 February 2016
2017 – to date	Collaboration with Prof. Michael Small, University of Western Australia (UWA), Perth, in the analysis of complex systems with application to epidemics. Two-month stay at UWA giving talks and doing collaborative work (funded by research funds of the host).
2016 – to date	Collaboration with Senior Researcher Milan Paluš, Academy of Sciences of the Czech Republic, Prague, in the analysis of complex systems and particular time series of phases with application to climate. Two stays at Prague (one week in October 2016 funded by collateral program and one month in May 2017 funded by host).
2013 – 2017	Collaboration with Assoc. Prof. Ralph Andrzejak, Department of Information and Comuunication Technologies, Pompeu Fabra University, Barcelona, Spain, in the development of Granger causality methodology in multivariate time series and application in electroencephalograms (EEG). Participating in the examining committee of a PhD completed in September 2017 (funded visit for this). Visit and invited talk at the University Pompeu Fabra, Barcelona, Spain, 6 – 9 November 2013
2013 – 2016	Collaboration with Prof. Daniele Marinazzo, Department of Data Analysis, University of Gent, Gent, Belgium, Assoc. Prof. Luca Faes, Department of Energy Information engineering and Mathematical models, University of Palermo, Italy, in the development of Granger causality methodology in multivariate time series and application to neuroscience and heart science. Visit and invited talk at the Department of Data Analysis, Faculty of Psychological and Pedagogical Sciences, University of Ghent, Belgium, 23 – 27 April 2013.
2012 – 2016	Collaboration with Prof. Henrik Jensen, Department of Mathematics, Imperial College, London UK, in the study of dynamical systems and complex networks with application to finance. Two visits

and invited talk at the Department of Mathematics, Imperial College, UK, 9-11 October 2016 and 11 – 13 June 2012.

2003 – 2015   Collaboration with Senior Doctor Pål G. Larsson, first at the State Center of Epilepsy of Norway and now at the Department of Neurosurgery of the University Hospital Rikshopitalet, Oslo, Norway, in the analysis of electroencephalograms (EEG) from patients with epilepsy (the collaboration initiated on the same topic in the period 1993 – 1999). The collaboration was realized also in the frame of two research projects funded by the Greek Secretariat of Research and Technology.

2013 – 2017   Collaboration with Prof. George Koufos, Department of Geology AUTh in the analysis of data in paleontology.

2014 – to date   Collaboration with Assoc. Prof. Kostas Mihalakis, Department of Odontology AUTh, in the statistical analysis of data from experiments on materials for tooth implants.

Conferences:
- Co-organizer (vice president) of the International Workshop of Applied Probability (IWAP), Thessaloniki, Greece, 7-10 June 2023 (moved from 22-25 June 2020 due to covid-19 pandemic).
- Organizing committee member of three international conferences: 1) Econophysics Colloquium 2020 (was to be held in Thessaloniki, Greece, 28-20 May 2020 but cancelled due to covid-19 pandemic); 2) Conference on Complex Systems (CCS2018), Thessaloniki, Greece, September 2018; 3) the International Conference Nonlinear Dynamics and Complexity: Theory, Methods and Applications (in honor of Tassos Bountis on the occasion of his 60th birthday), Thessaloniki, Greece, July 2010.
- Main organizer of one national conference and summer school ("Dynamical Systems and Complexity", Chalkidiki, Greece, August 2016) and in the organizing committee of a number of national conferences.
- Organization of workshops, minisymposia and sessions in a number of international conferences.
- Key-note speaker and invited speaker in a number of international and national conferences; participated with oral presentation in over 60 international conferences and over 20 national conferences.

Publications: (Sum of times cited without self-citations: 1938, *h*-index: 27, source Web of Science: http://apps.webofknowledge.com as of 18 July 2023)
- 95 papers in international peer-reviewed journals
- 24 papers in international peer-reviewed conference proceedings
- 29 papers in national conference proceedings (most of them applying peer-reviewing, and 3 accepted)
- 3 chapters in books and 6 Research or Technical Reports
The full list of publications may be found in http://users.auth.gr/dkugiu/ (Publications)

The journal publications in **the last five years**:
 1. A. Fotiadis, **D. Kugiumtzis**, "Information-based estimation of causality networks from high-dimensional multivariate time series", Journal of Complex Networks, Vol 11(3), cnad015, 2023
 2. A. Evangelidis, **D. Kugiumtzis**, "Adaptive Decomposition of Multicomponent Signals and Estimation of Phase Synchronization", IEEE Transactions on Signal Processing, Vol 71, pp 1586-1598, 2023
 3. C. Barà, L. Sparacino, R. Pernice, Y. Antonacci, A. Porta, **D. Kugiumtzis**, L. Faes, "Comparison of discretization strategies for the model-free information-theoretic assessment of short-term physiological interactions", Chaos, Vol 33, 033127, 2023
 4. A. Fotiadis, I. Vlachos, **D. Kugiumtzis**, "Detecting Nonlinear Interactions in Complex Systems: Application in Financial Markets", Entropy, *25*(2), 370, 2023
 5. K. Pastiadis, I. Vlachos, E. Chatzikyriakou, Y. Roth, S. Zibman, A. Zangen, **D. Kugiumtzis**, V. K. Kimiskidis, "Auditory Fine-Tuned Suppressor of TMS-clicks (TMS-click AFTS): a novel, perceptually driven/tuned approach for the reduction of AEP artifacts in TMS-EEG studies", Applied Sciences, Vol 13(2), ArtNo 1047, 2023.
 6. M. Papapetrou, E. Siggiridou, **D. Kugiumtzis**, Adaptation of Partial Mutual Information from Mixed Embedding to Discrete-Valued Time Series, Entropy, Vol 24, art no 1505, 2022
 7. A. Papana, C. Kyrtsou, **D. Kugiumtzis**, C. Cees, Identification of causal relationships in non-stationary time series with an information measure: Evidence for simulated and financial data. Empirical Economics, pp. 1-22, 2022

8. I. Vlachos, M. Tzirini, E. Chatzikyriakou, J. Markakis, M. A. Rouni, Th. Samaras, Y. Roth, A. Zangen, A. Rotenberg, **D. Kugiumtzis**, V. K. Kimiskidis, "The relation between induced electric field and TMS-Evoked Potentials: a deep TMS-EEG study", Applied Sciences, Vol 12, ArtNo 7437, 2022.

9. I. Vlachos, **D. Kugiumtzis**, M. Paluš, "Phase-based ausality analysis with partial mutual information from mixed embedding", Chaos, Vol.32 (5), Art No 053111, 2022

10. J.C. Hernandez-Pavon, D. Kugiumtzis, C. Zrenner, V.K. Kimiskidis, J. Metsoma, "Removing artifacts from TMS-evoked EEG: A methods review and a unifying theoretical framework", Journal of Neuroscience Methods, Art No 109591, 2022.

11. I. Vlachos, **D. Kugiumtzis**, D. Tsalikakis, V. K. Kimiskidis, "TMS-induced brain connectivity modulation in Genetic Generalized Epilepsy", Clinical Neurophysiology, Vol 133, oo 83-93, 2022

12. E. Siggiridou, **D. Kugiumtzis**, "Dimension Reduction of Polynomial Regression Models for the Estimation of Granger Causality in High-Dimensional Time Series", IEEE Transactions on Signal Processing, Vol 69, pp 5638 - 5650, 2021

13. C. Koutlis, V. K. Kimiskidis, **D. Kugiumtzis**, "Comparison of Causality Network Estimation in the Sensor and Source Space: Simulation and Application on EEG", Frontiers in Network Physiology, Vol 1, 2021

14. D. Chorozoglou, **D. Kugiumtzis**, E. Papadimitriou, "Investigation of the correlation of successive earthquakes preceding main shocks in the Greek territory", Journal of Applied Statistics, accepted, 2021

15. C. Koutlis **D. Kugiumtzis**, "The Effect of a Hidden Source on the Estimation of Connectivity Networks from Multivariate Time Series". Entropy Vol *23*, 208, 2021

16. A. Tsouknidas, E. Karaoglani, N. Michailidis, **D. Kugiumtzis**, A. Pissiotis, M. Konstantinos, "Influence of Preparation Depth and Design on Stress Distribution in Maxillary Central Incisors Restored with Ceramic Veneers: A 3D Finite Element Analysis", Journal Of Prosthodontics-Implant Esthetic And Reconstructive Dentistry, Vol 9(2): 151-160, 2020

17. I. Lazarou, K. Georgiadis, S. Nikolopoulos, V. P. Oikonomou, A. Tsolaki, I. Kompatsiaris, M. Tsolaki, **D. Kugiumtzis**, "A Novel Connectome-based Electrophysiological Study of Subjective Cognitive Decline Related to Alzheimer's Disease by Using Resting-state High-density EEG EGI GES 300", Brain Sciences, Vol 10, art no 392, 2020

18. M. Papapetrou, **D. Kugiumtzis**, "Tsallis conditional mutual information in investigating long range correlation in symbol sequences", Physica A, Vol 540: 123016, 2020

19. E. Siggiridou, Ch. Koutlis, A. Tsimpiris, **D. Kugiumtzis**, "Evaluation of Granger Causality Measures for Constructing Networks from Multivariate Time Series", Entropy, Vol 21 (11): 1080, 2019

20. C. Kyrtsou, **D. Kugiumtzis**, A. Papana, "Further Insights on the Relationship Between SP500, VIX and Volume: a New Asymmetric Causality Test", The European Journal of Finance, pp 1-18, 2019

21. S. Tremblay, N. C. Rogasch, I. Premoli, D. M. Blumberger, S. Casarotto, R. Chen, V. Di Lazzaro, F. Farzan, F. Ferrarelli, P. B. Fitzgerald, J. Hui, R. J. Ilmoniemi, V. K. Kimiskidis, **D. Kugiumtzis**, P. Lioumis, A. Pascual-Leone, M. Concetta Pellicciari, T. Rajji, G. Thut, R. Zomorrodi, U. Ziemann, Z. J. Daskalakis, "Clinical utility and prospective of TMS–EEG", Clinical Neurophysiology, Vol 130, pp 802-844, 2019

22. D.Chorozoglou, E.Papadimitriou, **D.Kugiumtzis**, "Investigating small-world and scale-free structure of earthquake networks in Greece", Chaos, Solitons & Fractals, Vol 122, pp 143-152, 2019

23. Ch. Koutlis, V. K. Kimiskidis, **D. Kugiumtzis,** "Identification of Hidden Sources by Estimating Instantaneous Causality in High-Dimensional Biomedical Time Series", *International Journal of Neural Systems*, doi: 10.1142/S012906571850051X.

24. R. Grigoriou, T. Nikodelis, **D. Kugiumtzis**, I. Kollias, "Classification Methods Can Identify External Constrains in Swimming", Journal of Biomechanics, 2018

25. D. Chorozoglou, **D. Kugiumtzis**, "Testing the randomness of correlation networks from multivariate time series", Journal of Complex Networks, cny020, 2018

26. I. Xygonakis, A. Athanasiou, N. Pandria, **D. Kugiumtzis**, P.D. Bamidis, "Decoding Motor Imagery through Common Spatial Pattern Filters at the EEG Source Space", Computational Intelligence and Neuroscience, Vol 2018, Article ID 7957408

27. D. Chorozoglou, **D. Kugiumtzis**, E. Papadimitriou, "Testing the structure of earthquake networks from multivariate time series of successive main shocks in Greece", Physica A, Vol 499, pp 28-39, 2018

Editor / Associate Editor

- Academic editor of PLOSOne as from 7/2018 and of Entropy as from 9/2019. Associate Editor for Frontiers in Physiology (sections Fractal Physiology), Frontiers in Network Physiology (sections Fractal Physiology and Networks in the Brain Systems).

- Guest editor of special issue "Complex Networks from Information Measures" of the journal Entropy (open until 31/7/2019).
- Guest editor for the Special Session on "Methodological Advances in Brain Connectivity" of the journal Computational and Mathematical Methods in Medicine, 2012.

Reviewer:
Reviewing over 20 papers per year in various journals in the disciplines of physics, statistics, engineering, informatics, neuroscience, and less frequently geophysics and finance. Regular reviewer of Physical Review and IOP journals, Annals of Biomedical Engineering, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Neural Systems and Rehabilitation Engineering. Reviewer in several IEEE conference proceedings.

Evaluator:
Evaluator of proposals under the EU program "EIC Pathfinder pilot (FET-Proactive) Boosting emerging technologies" (2020), the INTAS EU program (2003-2007), Marie-Curie EU program (2006, 2018), National Research of Hungary (2019), Research Promotion Foundation of Cyprus (2011–2013, 2018), Ministry of Education, Universities and Research of Italy (2018), Epilepsy Research UK (2018), the Netherlands Organisation for Scientific Research (2016), National Centre for Research and Development of Poland (since 2013), National Centre of Science and Technology Evaluation of Kazakhstan (2015), Russian Science Foundation (RSF) (2015-2017) and Research Foundation Flanders of Belgium (2014-2015). Evaluator of proposals in several national research programs in Greece (Pythagoras, Synergasia, IKY, Business Support, since 2009) and member of ELIDEK committee for the discipline of engineering and technology (July - October 2018).

Supervising:
- Main supervisor of 10 PhD (8 obtained, 2 in progress), member of the supervising committee of PhD (13 obtained, 6 in progress) and member of the examining committee of PhD (over 25) for the period 2004 – to date.
- Main supervisor of over 50 MSc (6 in progress) for the period 2003 – to date. Main supervisor of Diploma Thesis in the Department of affiliation (approximately 10 per year).

Teaching experience:
- Lecturing a number of undergraduate courses in the Faculty of Engineering, Aristotle University of Thessaloniki (October 2001 – to date). Currently lecturing three undergraduate courses at the Department of affiliation (no co-lecturing): 1) Probability and Statistics, 2) Data Analysis, 3) Time series.
- Lecturing postgraduate courses at the Department of Mathematics (2003 – to date), the Department of Physics (2005 – to date), the Department of Civil Engineering of the Aristotle University of Thessaloniki (October 2002 – 2019), two interdepartmental postgraduate programs at AUTh (2018 – to date and 2021 – to date, respectively), and in interdepartmental postgraduate program at the University of Thessaly (2017 – to date),
- Lectured undergraduate and postgraduate courses on Statistics at the Department of Statistics and the Department of Computer Science, University of Glasgow, Scotland, U.K. (January 2000 – June 2001).
- Lectured postgraduate courses on Dynamics and Times Series at the Department of Informatics, University of Oslo, Norway (1993 – 1997).
- Lecturer of Erasmus course "Time series analysis", University of Galway, Ireland, June 2013, University of Palermo, Italy, March 2019, October 2021.
The full list of courses may be found in http://users.auth.gr/dkugiu/ (Teaching, not updated)

Administrational experience:
- Head of the Informatics Lab of the Dept of Electrical and Computer Engineering, AUTh, (September 2018 – to date).
- Founding member and Director of the interdepartmental postgraduate program "Biomedical Engineering" at AUTh, AUTh (September 2021 – to date).
- Vice director of the inter-departmental and interdisciplinary postgraduate program "Advanced Computer and Communication Systems", and responsible for the program Web Technologies and Internet of Things (September 2018 – to date).

- Head of the Division of Electronics and Computing, Department of Electrical and Computer Engineering, AUTh (September 2018 – August 2020).
- Member of the Steering Committee of the IT Center of AUTh (2017 – October 2019, December 2021 – to date).
- Member of the Steering Committee of the AUTh University campus (2014 – October 2019).
- Founding member and member of the Council of the Center of Complexity, AUTh (2017 – todate).
- Administration tasks and member of several committees at all Institutes I served as staff member. Member of steering committee of three inter-departmental post-graduate programs in AUTh as to date.

Real World Applications:
Analysis of data from physiology (EEG, ECG), geophysics (magnetosphere, global climate, earthquakes), engineering (shear strain), finance (exchange rates, market indices) and biology (DNA). Software development, e.g. Matlab toolkit MATS (http://eeganalysis.web.auth.gr (Software))

Language Skills:
Greek (mother language) and English: fluent; Norwegian: reading fluent, writing functional, speaking fluent.