GEORGIOS I. PAPAYIANNIS

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PERSONAL & CONTACT INFORMATION

Date of birth:	December, 3, 1986
Marital Status:	Married (1 child)
Military Obligations:	Fulfilled (21/01/2016 - 21/10/2016, MTS)
Tel. (office):	+30 210 4581642

EDUCATION

PhD in Statistics, Athens University of Economics & Business — 2015
School of Information Sciences and Technology, Department of Statistics
Thesis: *"Robust Decision Theory under Uncertainty and Convex Risk Measures Computation"*
Supervisor: Professor A.N. Yannacopoulos

MSc in Statistics, Athens University of Economics & Business — 2011
School of Information Sciences and Technology, Department of Statistics
Thesis: *"Backward Stochastic Differential Equations and their Applications in Finance"*

BSc in Statistics, Athens University of Economics & Business — 2009
School of Information Sciences and Technology, Department of Statistics

PROGRAMMING SKILLS

Packages	MS Excel, E-views, SPSS
Languages	MATLAB/Octave, R, Python
Text Writing	LaTEX, MS Office

PROFESSIONAL EXPERIENCE

Hellenic Naval Academy (HNA), Greece
Department of Naval Sciences, Section of Mathematics
Lecturer (*Computational mathematics & their applications*) — 05/2020 - Present
Adjunct Lecturer (*Operational Research*) — 11/2016 - 05/2020

Teaching: ⋄ Game Theory & Decision Making (2018-22) ⋄ Linear Algebra (2022) ⋄ Operational Research - Linear Programming (2016-22) ⋄ Statistical Modelling (2018-22) ⋄ Numerical Analysis (2020-22) ⋄ Optimization - Nonlinear Programming (2018-22) ⋄ Statistics (2016-2020)

National & Kapodistrian University of Athens (NKUA), Greece
School of Science, Department of Digital Industry Technologies
Adjunct Lecturer — 03/2020 - 09/2020

Teaching: ⋄ Probability & Statistics

Athens University of Economics & Business (AUEB), Greece
School of Information Sciences and Technology, Department of Statistics
Adjunct Lecturer — 10/2016 - 06/2019

Teaching: ⋄ Estimation Theory and Hypothesis Testing (2018-19) ⋄ Measure and Integration Theory (2017-18) ⋄ Numerical Methods in Statistics (2016-19) ⋄ Probability Theory (2016-17)

RESEARCH INTERESTS

⬦ Convex risk measures for actuarial, financial and environmental risk
⬦ Fréchet mean and its applications in economics, finance and statistics
⬦ Functional statistics and semiparametric variants through shape deformation models
⬦ Learning under multiple information sources and construction of optimal aggregation models
⬦ Numerical optimization schemes based on variational techniques
⬦ Probabilistic scenarios building, generation and robust decision making
⬦ Risk modelling and risk quantification under model uncertainty
⬦ Robust decision making and control under uncertainty in economics and finance
⬦ Supervised and unsupervised statistical learning methods for complex data structures

PARTICIPATION IN RESEARCH PROGRAMS

⬦ AWESOME (H2020), Athens University of Economics & Business   2021-22
Managing Water, Ecosystems and food across sectors and Scales in the South Mediterranean
Role: Socio-economic scenarios building and simulation using probabilistic approaches and ecosystem services valuation
PI: Prof. P. Koundouri

⬦ DRASI II, AUEB Research Center   2018-19
Statistical shape theory and applications in statistical process monitoring and control
Role: PostDoc Researcher
Academic Advisor: Prof. S. Psarakis

⬦ MULTI-INSULARITY, University of the Aegean   2014-15
Modern migration flows in the Aegean
Role: Database development and quantitative and statistical analysis of the collected data
PI: Prof. E. Petracou

PUBLISHED WORK

In Peer-reviewed Journals

1. Papayiannis, G. I. (2022). Robust policy selection and harvest risk quantification for natural resources management under model uncertainty. *Journal of Dynamics & Games*, **9**(2), 203–217. https://doi.org/10.3934/jdg.2022004

2. Papayiannis, G. I., Domazakis, G. N., Drivaliaris, D., Koukoulas, S., Tsekrekos, A. E. & Yannacopoulos, A. N. (2021). On clustering uncertain and structured data with Wasserstein barycenters and a geodesic criterion for the number of clusters. *Journal of Statistical Computation and Simulation*, **91**(13), 2569–2594. https://doi.org/10.1080/00949655.2021.1903463

3. Kampelis, N., Papayiannis, G. I., Kolokotsa, D., Galanis, G. N., Isidori, D., Cristalli, C. & Yannacopoulos, A. N. (2020). An integrated energy simulation model for buildings. *Energies*, **13**(5), 1170. https://doi.org/10.3390/en13051170

4. Papayiannis, G. I., Galanis, G. N. & Yannacopoulos, A. N. (2018). Model aggregation using optimal transport and applications in wind speed forecasting. *Environmetrics*, **29**(8), e2531. https://doi.org/10.1002/env.2531

5. Petracou, E. V., Domazakis, G. N., Papayiannis, G. I. & Yannacopoulos, A. N. (2018). Towards a Common European Space for Asylum. *Sustainability*, **10**(9), 2961. https://doi.org/10.3390/su10092961

6. Papayiannis, G. I. & Yannacopoulos, A. N. (2018). Convex risk measures for the aggregation of multiple information sources and applications in insurance. *Scandinavian Actuarial Journal*, **2018**(9), 792–822. https://doi.org/10.1080/03461238.2018.1461129

7. Papayiannis, G. I. & Yannacopoulos, A. N. (2018). Numerical computation of convex risk measures. *Annals of Operations Research*, **260**, 417–435. https://doi.org/10.1007/s10479-016-2284-3

8. Papayiannis, G. I. & Yannacopoulos, A. N. (2018). A learning algorithm for source aggregation. *Mathematical Methods in the Applied Sciences*, **41**(3), 1033–1039. https://doi.org/10.1002/mma.4086

9. Papayiannis, G. I., Giakoumakis, E. A., Manios, E. D., Moulopoulos, S. D., Stamatelopoulos, K. S., Toumanidis, S. T. & Yannacopoulos, A. N. (2018). A functional supervised learning approach to the study of blood pressure data. *Statistics in medicine*, **37**(8), 1359–1375. https://doi.org/10.1002/sim.7587

Book Chapters

1. Hazapi, O., Lagopati, N., Pezoulas, V. C., Papayiannis, G. I., Fotiadis, D. I., Skaltsas, D., Vergetis, V., Tsirigos, A., Stratis, I. G., Yannacopoulos, A. N. & Gorgoulis, V. G. (2022). Machine Learning: A Tool to Shape the Future of Medicine. In: Roy, S.S., Taguchi, YH. (eds) *Handbook of Machine Learning Applications for Genomics. Studies in Big Data*, vol 103. Springer, Singapore. https://doi.org/10.1007/978-981-16-9158-4_12

2. Koundouri, P., Papayiannis, G. I. & Yannacopoulos, A. N. (2022). Optimal Control Approaches to Sustainability under Uncertainty, in *Implementing the UN Sustainable Development Goals - Regional Perspectives*, Springer Nature (*Accepted, to appear, temporary link:* https://ideas.repec.org/p/aue/wpaper/2215.html)

Submitted Work

1. Koundouri, P., Papayiannis, G. I., Vassilopoulos, A. & Yannacopoulos, A. N. A general framework for the generation of probabilistic socio-economic scenarios and risk quantification concerning food security with application in the upper river Nile basin (*Under review, temporary link:* https://ideas.repec.org/p/aue/wpaper/2203.html)

2. Papayiannis, G. I., Psarakis, S. & Yannacopoulos, A. N. Functional profiles monitoring using the framework of the deformation models and applications in urban air quality surveillance. (*Submitted, under review, temporary link:* https://doi.org/10.48550/arXiv.2010.02968)

3. Papayiannis, G. I. A Robust Decision Making Framework for Optimal Strategy Selection in Warfare under Model Uncertainty, (*Submitted, Under review, temporary link:* https://doi.org/10.48550/arXiv.2207.00861).

4. Papayiannis, G. I. Static Hedging of Freight Risk under Model Uncertainty (*Submitted, Under review, temporary link:* https://doi.org/10.48550/arXiv.2207.00862).

Working Papers

1. Androulakis, E. A., Papayiannis, G. I. & Yannacopoulos, A. N. Penalized Wasserstein barycenters for aggregating and assessing information from multiple sources. (*Work in progress*).

2. Asensio, P., Leblond, J., Papayiannis, G. I., Stratis, I. G. & Yannacopoulos, A. N. Time-dependent inverse source problems in EEG / MEG (*Work in progress*).

3. Calvia, A., Gozzi, F. Leocata, M. Papayiannis, G. I., Xepapadeas, A. & Yannacopoulos, A. N. AK model on networks (*Work in progress*).

4. Koundouri, P., Papayiannis, G. I., Petracou, E. & Yannacopoulos, A. N. A decision making framework for multiple agents under model uncertainty with applications in environmental policy making (*Work in progress*).

PARTICIPATION IN CONFERENCES

1. A risk quantification framework concerning food security under different probabilistic socio-economic and climate scenarios in *8th Cross-Sector Social Interactions Symposium*, Wageningen University, June 2022.

2. A general framework for the generation of probabilistic socioeconomic scenarios and risk quantification concerning food security with application in the Upper Nile river basin in *10th IAERE Annual Conference*, Cagliari, April 2022.

3. Understanding multi-sectoral Water-Energy-Food trade-offs: Bayesian Scenario Building cross co-designed and validated by Multi-Actor Working Groups in *9th IAERE Annual Conference*, Brescia, April 2021 (jointly with E. Akinsete).

4. Dependence modeling with applications in actuarial practice: A hands on approach in *16th Summer School on Risk, Finance and Stochastics*, AUEB, July 2019, Athens (jointly with A. N. Yannacopoulos).

5. Optimal transport & risk management in *15th Summer School in Stochastic Finance*, AUEB, July 2018, Athens.

6. Convex risk measures for the aggregation of multiple information sources: Applications in Natural Resources Management in *ORCOS 2018*, TU Wien, July 2018, Vienna.

7. Statistical manifolds and Wasserstein spaces for data analysis and environmental applications in *First Congress of Greek Mathematicians*, Hellenic Mathematical Society, June 2018, Athens (jointly with G. Galanis).

8. Fréchet Risk measures and real option pricing in *14th Summer School in Stochastic Finance*, AUEB, September 2017, Athens.

9. Learning under multiple priors in *13th Summer School in Stochastic Finance*, AUEB, July 2016, Athens.

10. Numerical computation of convex risk measures & applications in static hedging in *12th Summer School in Stochastic Finance*, AUEB, July 2015, Athens.

TEACHING IN POST-GRADUATE PROGRAMS

MSc in Maritime Science & Technology (University of Piraeus & HNA)
◇ Theory of Risk and Reliability with Applications in Marine Systems   2021-22
Topic: Reliability Analysis - Models and Assessment Methods for Systems

MSc in Quantitative Management of Actuarial & Financial Risk, (AUEB)
◇ Computational Finance and Applications   2020-22
◇ Nonlinear Optimization Methods and Portfolio Theory   2020-22

LECTURE NOTES

◇ Computational Finance ◇ Estimation theory and hypotheses testing ◇ Game theory and decision making ◇ Linear programming ◇ Numerical methods and applications ◇ Optimization and nonlinear programming ◇ Probability theory ◇ Portfolio theory and optimization approaches ◇ Reliability analysis ◇ Statistics

SUPERVISIONING

Participation in Advisory PhD Committees

C. Kaskouras Department of Statistics, AUEB.   2021 - Current
Topic: *Regime switching models and applications in electricity markets*

Dissertations in Postgraduate Programmes

D. Alexandridis (In progress)   2022
Dependence Modeling with Copula Vines. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

M. Koutsouraki (In progress)   2022
Portfolio Selection under Convex Risk Measures. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

P. Danias (Completed)   2021
Portfolio Optimization with Copulae. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

S. Gkila (Completed)   2019
Convex optimization and applications. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

N. Raptopoulou (Completed)   2019
Stochastic and Statistical Modeling of Financial Risk: A Voyage through its Theoretical, Methodological and Computational Aspects. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

M. Labrinakou (Completed)   2018
Graph theory and applications in clustering financial data. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

D. Dristellas (Completed) 2017
RKHS and applications in functional regression. (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB

Dissertations in BSc Programmes

C. Salis (Completed) 2022
Deep Learning theory and applications in quantitative finance (Jointly with A.N. Yannacopoulos), Department of Statistics, AUEB.

X. Kleniati (Completed) 2022
Warfare dynamics modeling and applications (Jointly with S. Kyritsi-Yiallourou), Department of Naval Sciences, HNA

M. Vythoulkas (Completed) 2022
Projectile trajectory estimation under uncertainty on the environmental conditions. (Jointly with A. Tsapalis), Department of Naval Sciences, HNA

K. Katsaros (Completed) 2021
Mathematical modeling techniques with neural networks and their applications in ship motion modeling and maneuvering prediction. (Jointly with S. Kyritsi-Yiallourou and E. Papaheorgiou), Department of Naval Sciences, HNA

T. Gourgiotis (Completed) 2020
The Cuban missile crisis through a game-theoretic perspective. (Jointly with G. Galanis), Department of Naval Sciences, HNA

P. Michailidou (Completed) 2020
Mathematical models of armed conflicts and applications. (Jointly with S. Kyritsi-Yiallourou), Department of Naval Sciences, HNA

N. Archontoulis (Completed) 2019
Game theory and applications in negotiations. (Jointly with G. Galanis), Department of Naval Sciences, HNA

T. Papageorgiou (Completed) 2019
Game theory and applications in defence. (Jointly with G. Galanis), Department of Naval Sciences, HNA

I. A. Evangelou (Completed) 2018
Statistical optimization methods for simulation models of environmental parameters and applications in wave height forecasting. (Jointly with G. Galanis), Department of Naval Sciences, HNA

F. Kontogiannis (Completed) 2017
Diffusion processes and stochastic differential equations. (Jointly with A. N. Yannacopoulos), Department of Statistics, AUEB

I. Rotous (Completed) 2017
Gaussian processes in Hilbert spaces. (Jointly with A. N. Yannacopoulos), Department of Statistics, AUEB

OTHER ACTIVITIES

Scientific Collaborations
◇ Athena Research and Innovation Center - Sustainable Development Unit
◇ Mathematical Modeling and Applications Laboratory, HNA
◇ Research Laboratory on Socio-Economic and Environmental Sustainability, AUEB
◇ Stochastic Modeling and Applications Laboratory, AUEB

Organization of Conferences & Seminars
◇ Co-organizer of the annual Summer School in Risk, Finance and Stochastics

Refereeing Activities
◇ Mathematical Reviews (AMS), Atmosphere (MDPI), Energies (MDPI), Journal of Numerical Algebra, Control and Optimization (AIMS), Journal of Industrial and Management Optimization (AIMS), Naval Research Logistics, PLOS ONE