CURRICULUM VITAE

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EDUCATION

Undergraduate and Postgraduate Studies

1997: Ph.D. in **Statistics**, Department of Statistics, University of Glasgow, U.K. The thesis focuses on the estimation of the number of components in Mixture Distributions, and adopts techniques arising in theoretical statistics as well as Monte-Carlo based types of approach. In summary, it hinges around the theory and properties of the EM algorithm and some of its variants, the theory of stationary processes and, more generally, the asymptotic theory of time series and the theory of asymptotic statistical inference. The programming language used for simulations is FORTRAN.

1988: Diplome D'etudes Approfondies (one-year Msc. degree) in **Mathematics applied to Economics**, Department of Mathematics of Decision, University Paris 9 -Paris Dauphine, France (in collaboration with the Ecole Nationale de la Statistique et de L'administration Economique and the Ecole des Mines). Main courses I attended are: Stochastic Processes, Stochastic Differential Equations, Non-Parametric Statistics, Information Theory for Financial Markets, Dynamic Models in Economics.

1987: Diplome D'etudes Approfondies (one-year Msc. degree) in **Models, Algorithms and Software of Decision**, Department of Informatics, University Paris 6 -Pierre et Marie Curie, France. Main courses I attended are : Programming with Fortran, Mathematical programming, Graph theory, Theory of algorithmic complexity.

1986: Maitrise (one-year complementary degree) in **Applied Mathematics**, University Paris 7 -Paris Diderot, France. Main final year courses are : Probability &Statistics, Optimisation Theory, Numerical Analysis, Differential Geometry applied to Mechanics.

1984: Licence (three-year Bsc. Degree) in **Mathematics**, University Paris 7 -Paris Diderot, France.

Further Education and Training

2001: Attended TES course in **Advanced Sampling Techniques** within the European Statistical Training Programme of Eurostat, held in Neuchatel, Switzerland.

1997: Attended a three-week Splus course with illustrations from different topics of statistics, in the Department of Statistics, University of Glasgow, U.K. Furthermore, I also attended two postgraduate courses, concerning incomplete data problems, and advanced regression techniques, in the same department.

1996: Attended EPSRC funded course in **Computer Intensive Methods in Statistics**, held in Glasgow, U.K. Main syllabus for the course is Neural networks, Spatial Modelling, MCMC methods, Resampling and Simulation Methods.

RESEARCH INTERESTS

Mixture Distributions, Multivariate Analysis, Missing Data Problems and the EM Algorithm, Statistical Inference, Stochastic Processes, Statistics in Medicine.

PUBLICATIONS & RESEARCH WORK

2022:

1. *Implementation of a validity test associated with the stochastic EM algorithm in mixture* analysis, by Polymenis, A. In **Advances and Applications in Statistics, Vol. 74.**

2021:

2. *A neutrosophic Student's t-type of statistic for AR(*1*) random processes*, by Polymenis, A. In **Journal of Fuzzy Extension and Applications, Vol. 2, No. 4.**
3. *An application of the geometric distribution for assessing the risk of infection with SARS-CoV-2 by* location, by Polymenis, A. In **Asian Journal of Medical Sciences, Vol. 12, No. 10.**
4. *Relationship between a central limit theorem and Hotelling's* T^2*- statistic in the context of the stochastic EM algorithm used in mixture analysis*, by Polymenis, A. In **Communications in Mathematics and Applications, Vol. 12, No. 3.**

2020:

5. *Type I error concerning the asymptotic distribution of Hotelling's T^2 for autoregressive processes of order* 1, by Polymenis, A.. In **Research Journal of Mathematical and Statistical Sciences, Vol. 8, No. 1.**
6. *An application of a mixture of exponential distributions for assessing hazard rates from COVID*-19, by Polymenis, A. In **Journal of Population Therapeutics and Clinical Pharmacology, Vol. 27(SP1)- Special Issue: The Era of the Coronavirus (Covid-19) Pandemic.**

2019:

7. *Some comments on the performance of information ratios for assessing numbers of components in finite mixtures*, by Polymenis, A. In **International Journal of Applied Mathematics and Statistics, Vol. 58, No. 1.**
8. *A note on the asymptotic distribution of Student's t for AR*(1) *processes.*, by Polymenis, A. In **Advances and Applications in Statistics, Vol. 56, No. 1.**

2018:

9. *Asymptotic results for a stationary random process generated by the stochastic EM algorithm in mixture analyses*, by Polymenis, A. In **Journal of Statistics and Management Systems, Vol. 21, No. 2**.
10. *Performance of the stochastic EM algorithm for estimating mixture parameters*, by Polymenis, A. In **International Journal of Computational and Theoretical Statistics, Vol. 5, No. 2. (ed. University of Bahrain).**
11. *Modelling reliability: a practical application from industry.* Chapter 22 of **Advanced Engineering Research and Applications, Vol. 9, ed. Hongseok Choi**.

2017:

12. *Asymptotic relationship between sample mean and sample variance for an autoregressive process of order* 1, by Polymenis, A. In **Journal of Statistical and Econometric Methods, Vol. 6, No. 1.**
13. *Modelling reliability: a practical application from industry.* In International Journal of Statistics and Systems, Vol. 12, No. 3.

2016:

14. *The multivariate central limit theorem and its relationship with univariate Statistics*, by Polymenis, A. In **International Journal of Advanced Mathematics and Statistics, Vol. 2, No. 1.**

2014:

15. *A combined likelihood ratio/information ratio bootstrap technique for estimating the number of components in finite mixtures*, by Polymenis A. In **Computational Statistics and Data Analysis, Vol. 71**.

2012:

16. *Evaluation of Some Statistical Methods for Assessing the Number of Components in Mixtures of Endothelin-1 Concentration Levels*, by Polymenis A. & Grigoriadou G. In **J P Journal of Biostatistics, Vol. 7, No. 2**.

2011:

17. *Applying Finite Mixtures for Modelling Endothelin-1 Levels in Children with Congenital Heart Disease*, by Polymenis A. & Grigoriadou G. In the **Abstracts Booklet** of **the 2nd International Workshop on Biostatistics, Bio-Si.** The conference was hosted by the Ecole Nationale de la Statistique et de L'analyse Informatique /ENSAI– France.

18. *Bootstrap Techniques for Estimating the Number of Components in Mixture Analyses*, by Polymenis A. In the **Book of Abstracts** of the **5th Conference on Computational and Financial Econometrics (CSDA)** and the **4th International Workshop on Computing and Statistics (ERCIM)**, hosted by the University of London.

19. *An Application of Univariate Statistics to Hotelling's* T^2 , by Polymenis A. In **Journal of Mathematics and Statistics, Vol. 7, No. 1.**

20. *Combining Bootstrap Techniques for Assessing the Number of Components in Finite Mixtures*, by Polymenis A. In the **Abstracts Booklet** of the **Conference of Applied Statistics in Ireland (CASI).**

2009:

21. *Using the Stochastic EM Algorithm to Validate Mixture Analyses*, by Polymenis A. In the **Abstracts Booklet of the International Conference of the Royal Statistical Society**. The Conference was hosted by the University of Edinburgh, U.K.

22. *An Application of a Stochastic Version of the EM algorithm to Mixture Analyses*, by Polymenis A. In the **Conference Proceedings of The Young Statisticians' Meeting.** The Conference was hosted by the University of Strathclyde in Glasgow, U.K.

2008:

23. *A note on a Validity Test using the Stochastic EM Algorithm in order to assess the Number of Components in a Finite Mixture Model*, by Polymenis A. In **Statistics: a Journal of Theoretical and Applied Statistics, Vol. 42, No. 3.**

1999:

24. *A Note on the Distribution of the Likelihood Ratio Statistic for Normal Mixture Models with Known Proportions*, by Polymenis A. & Titterington D.M. In **Journal of Statistical Computation and Simulation, Vol. 64, No. 2.**

1998:

25. *On the Determination of the Number of Components in a Mixture*, by Polymenis A. & Titterington D.M. In **Statistics and Probability Letters, No. 38.**

1997:

26. *Contribution to the Discussion of Richardson & Green's article* "*On Bayesian Analysis of Mixtures with an Unknown Number of Components*", by Polymenis A. In **J. R. Statist. Soc B59, No. 4 (pp. 769-770).**

27.

Postgraduate Theses

1997: *Aspects of the Statistical Analysis of Data from Mixture Distributions*, by Polymenis A. **Ph.D. thesis submitted to the Department of Statistics, University of Glasgow, U. K**. (Supervisor: Professor Titterington)

1988: *Comparison of Convergence Theorems of the Density Estimator according to the Norms L_1 and L_2*, (in French), by Polymenis A. **Thesis submitted to the University Paris 9- Paris Dauphine (France) for the partial fulfilment of the Msc. degree in Mathematics Applied to Economics.** (Supervisor: Professor Piednoir)

1987: *Graph Theory*, (in French), by Polymenis A. **Thesis submitted to the University Paris 6- Pierre et Marie Curie (France) for the partial fulfilment of the Msc. degree in Models, Algorithms and Software of Decision.** (Supervisor: Professor Berge)

28.

Working Papers and Technical Reports

1999:

1. *Statistical Model- Decisions, Data Requirements and Reliability Measures*, by Mowbray P., Polymenis A., Quigley J., &Walls L, Reliability Enhancement Methodology and Modelling project, Department of Management Science, University of Strathclyde, U. K., **Tasks 3.2, 3.3, 3.4**
2. *Statistical Process Control - General Principles and Applications to Electronics Manufacturing*, by Polymenis A., Hodge R., & Walls L., Reliability Enhancement Methodology and Modelling project, Department of Management Science, University of Strathclyde, U. K., **Task 6.2**

1997:

1. *On the Determination of the Number of Components in a Mixture*, by Polymenis A. & Titterington D. M., **Technical Report No. 97-7,** Department of Statistics, University of Glasgow, U. K.

CITATIONS OF PUBLISHED WORK

1. Two citations in the book "Finite Mixture Models" by G. McLachlan and D. Peel (Wiley Series in Probability and Statistics, 2000), and one citation in the book "Medical Applications of Finite Mixture Models" by P. Schlattmann (Springer, 2009).
2. Fifty Eight citations for the published articles appearing in the list of "publications and research work", except for the article no. 26.
3. Article no. 26 appeared in an article that has more than 1500 scopus citations.

CONFERENCES AND WORKSHOPS

2011: 1. 31st Conference on Applied Statistics in Ireland (CASI), hosted by the Statistics Group, School of Mathematics, Statistics and Applied Mathematics, NUI Galway, Ireland.

2. 2nd International Workshop on Biostatistics, Bio-Si, organised by the Ecole Nationale de la Statistique et de L'analyse

Informatique /ENSAE– France, the University of Limerick and the National University of Ireland at Galway – Ireland.

3. 5th International Conference on Computational and Financial Econometrics (CSDA) and 4th International Workshop on Computing and Statistics (ERCIM), organised by the University of London.

2009: 1. International Conference of the Royal Statistical Society, University of Edinburgh, U.K.

2. Young Statisticians' Meeting, University of Strathclyde in Glasgow, U.K.

2002: ICS International Conference in Improving Surveys, Copenhagen, Denmark.

1998: Financial Econometrics, London, U.K.

1997: Image Analysis, Leeds, U.K., and Young Statisticians Meeting, Lancaster, U.K.

1996: Scottish & Northumbrian Statisticians Meeting, Aberdeen, U.K.

1995: Mixture Models, Aussois, France.

1994-97: Yearly Research Students Conferences in Probability & Statistics, U.K.

RESEARCH PAPERS REVIEWS

Acted as reviewer for the Journals:

2010: **Communications in Statistics-Simulation and Computation.**
2012, 2014: **Computational Statistics and Data Analysis.**
2015: **Communications in Statistics-Theory and Methods.**
2018: **The 4th International Conference on Fuzzy Systems and Data Mining.**
2019: **ACS Omega.**
2021: **Journal of Health Science and Development.**
2021: **REVSTAT-Statistical Journal**
2022: **The 8th International Conference on Fuzzy Systems and Data Mining (for two papers).**
2022: **Journal of Biopharmaceutical Statistics.**
2022: **Asian Journal of Probability and Statistics.**
2023: **Hacettepe Journal of Mathematics and Statistics.**
2023: **International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems.**

WORK EXPERIENCE

1.
At the **Department of Statistics**, **University of Glasgow**, U.K., 1994-1996: Demonstrating duties during the academic years 1994-95, 1995-96 and the first term 1997. Demonstrations corresponded to different courses at various levels, including undergraduate honours courses for statistics specialists and service courses for students from other disciplines, including biology, psychology, economics and

management. Courses consisted of illustrations of the statistical theory using practical examples. Main duties included assisting students during lab sessions by answering theoretical questions, by helping them in any difficulty with the statistical package in hand (mainly Minitab and Splus), and by supervising them while they were working on different projects. Some typical topics handled were Analysis of Variance & Covariance, Multivariate Linear Regression, Logistic Regression, Survival Analysis, and Incomplete Data among others.

2.
At the **Department of Management Science**, **University of Strathclyde in Glasgow**, U.K., 1998-1999:
Research Fellow, working on an industrial project called "Reliability Enhancement Methodology & Modelling", concerning reliability of complex electronic systems within the aerospace industry. I was involved in research as well as in administrative activities. More specifically, main duties consisted in conducting literature review concerning methodology and finding ways forward, interviewing engineers, collecting and analysing company data, collaborating with other project partners taking into consideration technical documents they produced. Main statistical research I focused on, concerned Reliability Data Analysis and Statistical Process Control.

3.
At the **Department of Statistics, Athens University of Economics & Business**, Greece, 2000-2001:
Temporary lectureship. Undergraduate honours courses which were assigned to me mainly concentrated on Multivariate Regression, Statistical Inference and Reliability Analysis. I also supervised some labs where statistical techniques pertaining to the above mentioned courses were presented to students, using the statistical package Minitab.

4.
At the **National Statistical Service of Greece (N.S.S.G.) Department of Methodology**, Greece, 2001-2002:
Research fellow. Duties mainly included data treatment using sampling methods and managing long run projects with different partners. Collaboration with other departments of the N.S.S.G. was of utmost importance, since, in many occasions, they needed assistance on statistical methodology. The job also had an international flavour since I attended many meetings at the E.U. level, usually held in Luxembourg.

5.
At the **Department of Economics, University of Patras**, Greece, 2002-2010:
Lecturer of Econometrics and Quantitative Methods. I taught several quantitative courses, at an undergraduate level, including Mathematics for Economists, Probability Distributions & Statistics, Econometrics, and Sampling Theory. I also presented seminar sessions, at the postgraduate level, in "Statistical Forecasting Techniques". Further teaching duties include supervision and examination of postgraduate theses. On the other hand, I was also assigned with some administrative duties, like supervision of the Socrates/Erasmus student exchange programme. Main duties of this programme were: welcome and support incoming foreign students, send local students abroad, and in general keep in touch and have a close collaboration with the departmental Socrates/Erasmus partners.

6.
At the **Department of Regional Economic Development, University of Central Greece,** Greece, 2011-2012:
Part-time teaching fellow. Teaching duties mainly concerned a specialised course entitled Special Topics in Statistics, which consisted of an overview of different statistical topics, encompassing Survey Sampling, Time Series, and Non-Parametric Statistics.

7.
At the **Department of Economics, University of Patras**, Greece, 2012-today:
Assistant Professor of Econometrics and Quantitative Methods. Courses which are assigned to me at an undergraduate level are Mathematics for Economists, Statistics, and a more advanced course in Mathematical Economics.

LANGUAGES

English, French, Greek (excellent)
German (at a lower level), Arabic (only spoken).

LEISURE ACTIVITIES

Chess, Football, Basketball, Table Tennis.
Theatre, Cinema.