Vlad Stefan BARBU

Curriculum Vitae

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Vlad Stefan BARBU

42 ans, born August 14, 1974 in Bucureşti, Romania
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CV

PRESENT POSITION

	ASSOCIATE PROFESSOR of Mathematics (Statistics) with the Laboratory of Mathematics Raphaël Salem UMR 6085, University of Rouen, Faculty of Mathematics, France
Address	Laboratory of Mathematics Raphaël Salem (LMRS), University of Rouen, Avenue de l'Université, BP.12, 76801 Saint-Étienne-du-Rouvray, France
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PROFESSIONAL EXPERIENCE

2006–	**ASSOCIATE PROFESSOR**, LMRS, University of Rouen, France
2004–2006	**TEACHING ASSISTANT OF MATHEMATICS**, University of Technology of Compiègne, France (UTC)
2001–2004	**PHD STUDENT IN STATISTICS**, UTC, France
1998–2001	**TEACHING ASSISTANT OF MATHEMATICS**, University POLITEHNICA of Bucureşti, Romania

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EDUCATION

2001-2005	**PHD IN STATISTICS**	
	Thesis	*Estimation of semi-Markov chains and Hidden semi-Markov Chains towards Applications in Reliability and Biology* (supervisor Nikolaos Limnios)
	Institution	University of Technology of Compiègne, France
1997 - 1998	**MASTER IN APPLIED STATISTICS AND OPTIMIZATION** (admissions exam)	
	Thesis	*Ordering the Risks in Actuarial Mathematics*

	Institution	University of Bucureşti, Faculty of Mathematics, Romania

1992 - 1997 **BA in Mathematics (Bac + 5)** (admissions exam)

	Thesis	*Deformation of Complex Structures following Kodaira*
	Institution	University of Bucureşti, Faculty of Mathematics, Romania

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Languages

French	Bilingual
English	Excellent Command (First Certificate Cambridge, Classes thought in English; Translation of a book from French into English; Scientific documents in English)
Romanian	Mother tongue

Softwares

`R`, `Matlab`, `Scilab`, `Mathematica`, `SAS`, `SPSS`, `Prism`, `ReliaSoft's Weibull++`, `Statgraphics Centurion`, `Microsoft Excel`, `Openoffice Calc`

Research and Scientific Activities

Research Topics

- *semi-Markov and Hidden semi-Markov processes*: publications [1], [2], [7], [12], working paper [20]; collaborations with N. Limnios, University of Technology of Compiègne, France; G. D'Amico, University *G. D'Annunzio* of Chieti-Pescara, Italy; R. Manca, University *La Sapienza* of Rome, Italy; P. Petroni, University of Cagliari, Italy; N. Vergne, University of Rouen, France

- *Markov and Hidden Markov processes*: submitted paper [16], working papers [18], [25], [19]; collaborations with G. D'Amico, University *G. D'Annunzio* of Chieti-Pescara, Italy; N. Vergne, University of Rouen, France; A. Karagrigoriou, University Aegean, Samos, Greece; A. P. Ulmeanu, V. Tanasiev, University Politehnica of Bucureşti, Romania

- *statistical inference for stochastic processes, parametric and nonparametric estimation*: publications [1] and [9], submitted papers [14] and [15], working papers [17], [28], [20] and [26]; collaborations with S. Trevezas, University of Athens, Greece; G. D'Amico, University *G. D'Annunzio* of Chieti-Pescara, Italy; R. Manca, University *La Sapienza* of Rome, Italy; S. Beltaief, S. Pergamenchtchikov, C. Bérard, D. Cellier, M. Sautreuil and N. Vergne, University of Rouen, France

- *hypotheses testing for stochastic processes*: working papers [22], [23], [27]; collaborations with G. Gayraud, University of Technology of Compiègne, France; A. Karagrigoriou, University Aegean, Samos, Greece; C. Bérard, D. Cellier, M. Sautreuil and N. Vergne, University of Rouen, France

- *stochastic methods in reliability and survival analysis*: publications [1], [3], [4], [8], [9], [11], [12], [13], submitted paper [15], working papers [18] and [19]; collaborations with A. P. Ulmeanu and V. Tanasiev, University POLITEHNICA of Bucureşti, Romania; N. Limnios, University of Technology of Compiègne, France; N. Vergne, University of Rouen, France; A. Karagrigoriou, University Aegean, Samos, Greece

- *biostatistics, stochastic methods for DNA modelling*: publications [1], [10], working paper [20]; collaborations with N. Limnios, University of Technology of Compiègne, France; N. Vergne and D. Cellier, University of Rouen, France

- *financial mathematics*: submitted paper [16]; collaboration with G. D'Amico, University *G. D'Annunzio* of Chieti-Pescara, Italy

- *entropy and divergence measures for Markov type stochastic processes*: working papers [25], [23]; collaboration with A. Karagrigoriou, University Aegean, Samos, Greece

- *experimental design*: publication [5], working paper [21]; collaborations with O. Arkoun, University of Rouen, France; S. Hassani-Taibi, ESITPA - UniLaSalle, Rouen, France; F. Jia, The Co-operators, Toronto, Canada; D. Laroutis, School of Management of Normandy, Le Havre, France

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RESEARCH GRANTS

- 2016–2019: participant in the structuring project *Random Models and Statistical Tools, Informatics and Combinatorics (In French: MOUSTIC–Modèles aléatoires et Outils Statistiques, Informatiques et Combinatoires)*, within the Large Scale Research Network *Logistics - Mobility - Digital Information* from the Region of Normandy, France; project coordinators Jean-Gabriel Luque (LITIS–University of Rouen, France) and Jean-Baptiste Bardet (LMRS–University of Rouen, France); 6 research organisms involved. This project is the framework of the collaboration between the federations Normandy Mathematics and NORM@STIC. The main purpose is to structure and organize the collaborations between the main research institutions in the region of Normandy studying the following fields: probability and statistics, statistical physics, discrete structures, theoretical informatics, cryptography. These five research fields have natural interactions that this project intends to develop. The working directions have the objectives to reinforce the synergy between the main laboratories in the Upper Normandy working on these topics: LMRS, LITIS, LMI, GPM, IRSEEM, as well as their connexions with firms working in these fields.

- 2015–2018: participant in the structuring project *Complex Systems, Territorial Intelligence and Mobility (In French: XTERM–Systèmes complexes, intelligence territoriale et mobilité)* within the Large Scale Research Network *Logistics - Mobility - Digital Information* from the Region of Normandy, France; project coordinators Cyrille Bertelle (LITIS, University of Le Havre) and Patricia Sajous (IDEES, University of Le Havre); 14 research organisms from 8 institutions.

  In this project we are interested in modelling territorial systems and associated mobility, with respect to the new society and economic challenges. The systemic approach considers that the multitude of individual behaviours (actors and/or agents), of their mobility, of their intentions end up by "making" territory, obtaining thus a final result that does not necessarily correspond to the choices, representations or intentions of any

of these actors. This type of approach needs therefore the integration of the organisational complexity existing within these systems, as it has to take into account as well the dynamics, of the territorial and societal evolutions.

The main objective of this multidisciplinary project is the study of systems and interaction networks and associated modelling. The idea behind is to propose a centre for theoretical and conceptual study that will develop and investigate analytic and/or behaviour models, allowing the description, the study and the control of real phenomena.

- 2014–2016: participant in the project *Inference under Dependent Observations and Applications (In French: ISODA–Inférence Statistique sous Observations Dépendantes et Applications)* within the Large Scale Research Network *Logistics - Mobility - Digital Information* from the Region of Normandy, France; project coordinator Serge Pergamenchtchikov (LMRS, University of Rouen, France); 3 research organisms.

The main theme of this project was the development of statistical methods for models with dependent observations, such as autoregressive systems, systems with spherical symmetry, with heteroscedastic regression or semi-Markov models. These models are used in econometrics, in pharmacokinetics, in survival analysis, in medecine, DNA analysis, in reliability, for calibration problems in finance or for seismic prediction. The main research line deals with identification methods of stochastic systems, starting from samples, based on restricted information; the objective was to develop methods of asymptotic or non-asymptotic statistical analysis for continuous or discrete time systems, including also unstable systems containing random parameters.

- 2014–2015: coordinator of the project *Mathematical Methods for System Reliability and Survival Analysis (In French: MMATFAS–Méthodes Mathématiques pour la Fiabilité des Systèmes et l'Analyse de Survie)*, within the Large Scale Research Network *Logistics - Mobility - Digital Information* from the Region of Normandy, France; 3 research laboratories involved (Group of Physics of Materials, Laboratory of Microbiology - Signals and Microenvironment, Laboratory of Mathematics Raphaël Salem).

This was a pluridisciplinary project that gathered a large span of competences in probability, statistics, biology, mechanics and electronics. The project had two main directions: one theoretical and another one applied, with two fields of applications, system reliability and survival analysis.

- 2010–2013: team leader for LMRS of the structuring project *Interaction Networks and Complex Systems (In French: RISC–Réseaux d'Interaction et Systèmes Complexes)* within the Large Scale Research Network *Transport, Logistics and Technology of Information* from the Region of Normandy, France; coordinators of the project Cyrille Bertelle (LITIS, Le Havre, France) and M.A. Aziz-Alaoui (LMAH, Le Havre, France); 11 research organisms involved.

The purpose of this pluridisciplinary project is the study of interaction systems and networks and associated modelling topics. The main idea was to propose a theoretical and conceptual framework for developing and analysing models that allow the description, study and control of real phenomena.

- 2011–2012: team leader for LMRS of the project *Monetary Evaluation of the Impact of Erosive Runoff (In French: EMIRE–Évaluation Monétaire des Impacts du Ruissellement Érosif)* within the Large Scale Research Network *Vegetal, Agronomics and Transformation of Agro-resources* from the Region of Normandy, France; coordinators of the project Dimitri Laroutis (ESITPA - UniLaSalle - Site Rouen; nowadays with the School of Management of Normandy, Le Havre, France).

The objective of this project was to form a multidisciplinary team (statisticians, economists, geographers) in order to elaborate a monetary evaluation of the impact of erosive runoff of the Seine river valley in the Normandy area.

- 2006–2007: participant in the project *ECO-NET, Dynamics - Inter-connexions - Environment* (French Ministry of Foreign Affairs); coordinators of the project Silviu-Iulian Niculescu (L2S, Supélec, France), Vladimir Rasvan (University of Craiova, Romania); 4 countries involved: France, Romania, Czech Republic and Hungary. The main objective of this project was to gather together researchers from various horizons in order to better understand, formalise and exploit phenomena specific to inter-connexions.

- 2003–2006: participant in the program PLATON *Semi-Markov models for the study of form detection*, bilateral project between University of Technology of Compiègne, France-and University of Athens, Greece; coordinators of the project N. Limnios (University of Technology of Compiègne, France) and O. Chryssaphinou (University of Athens, Greece). The purpose of this project was to gather the two corresponding research teams in order to carry out a probabilistic and statistical study on word occurrence in DNA analysis.

Scientific Responsibilities

- 16/12/2016: member of the PhD committee of Andreas Makrides, University of Cyprus, Department of Mathematics and Statistics; thesis *Statistical inference for multi-state reliability systems*; PhD supervisor A. Karagrigoriou, University Aegean, Samos, Greece

- 25/06/2014: member of the PhD committee of Selma Belgacem; thesis *Characterisation and Gesture Recognition in Videos by Means of Markov Models*; supervisors C. Chatelain and T. Paquet, LITIS, University of Rouen, France

- 2010–2012: elected member of the Consultative Commission of Specialists at University of Rouen, France, sections CNU 25 (Mathematics) - 26 (Applied Mathematics and Applications of Mathematics)

- starting from 2010: elected member of the Selection Committees for the positions of Associate Professors (In French: Maître de Conférences = MCF): MCF no. 0978 (sections CNU 25/26, University of Rouen, France, 2010), MCF no. 0048 (section CNU 26, University of Technology of Compiègne, France, 2011), MCF no. 1026 (sections CNU 26/64, University of Rouen, France, 2011), MCF no. 0486 (section CNU 26, University of Rouen, France, 2014)

- 2008–2014: coordinator of the Working group in Statistics of Laboratory of Mathematics Raphaël Salem of University of Rouen, France (two meetings per month, in average)

- starting from 2009: elected member of the Council of the Laboratory of Mathematics Raphaël Salem, University of Rouen, France

- 2009–2012: appointed member of the Council of the Research Federation Normandy Mathematics

- 2007–2009: coordinator of the 1st year of Professional Master in Financial and Actuarial Mathematics

- 2007–2012: member of the Council of the Department of Mathematics (appointed member during 2007–2008, elected member during 2008–2012)

Participation in the Organization of Conferences

- 2017: member of the organizing committee of the conference Mathematical Meetings in Rouen - The Sixth International Workshop in Sequential Methodologies, University of Rouen, France, 20-23/06/2017 (`http://lmrs.univ-rouen.fr/RMR17/`)

- 2017: member of the scientific committee of the conference Applied Stochastic Models and Data Analysis, London, United-Kingdom, 6-9/06/2017 (`http://www.asmda.es/asmda2017.html`)

- 2016: member of the scientific committee of the conference Stochastic Modeling Techniques and Data Analysis, Valletta, Malta,1-4/06/2016 (`http://www.smtda.net/`)

- 2016: co-organiser (with the Department of Mathematical Methods and Models and the Department of Power Generation and Use, Laboratory of Reliability, University POLITEHNICA of Bucureşti, Romania) of the workshop Research Challenges in Intelligent Energy Systems-Mathematical Models and Applications, University POLITEHNICA of Bucureşti, Romania, 7/05/2016 (`http://www.fiab.pub.ro/index_files/Page05.htm`)

- 2015: member of the scientific committee of the conference Applied Stochastic Models and Data Analysis, Piraeus, Greece, 30/06-4/07/2015 (`http://www.asmda.es/asmda2015.html`)

- 2014: member of the scientific committee of the conference Stochastic Modeling Techniques and Data Analysis, Lisbon, Portugal, 11-14/06/2014 (`http://www.smtda.net/smtda2014.html`)

- 2013: member of the scientific committee of the conference Applied Stochastic Models and Data Analysis, Mataró, Spain, 25-28/06/2013 (`http://www.asmda.es/asmda2013.html`)

- 2013: member of the organizing committee of the workshop IEEE Workshop on Integration of Stochastic Energy in Power Systems, University POLITEHNICA of Bucureşti, Romania, 7/11/2013

- 2012: member of the scientific committee of the conference Stochastic Modeling Techniques and Data Analysis, Chania, Crete, Greece, 5-8/06/2012 (`http://www.smtda.net/smtda2014/smtda2012proceedings.html`)

- 2012: member of the organizing committee of the conference Mathematical Meetings in Rouen - An International Workshop on Sequential Methods and Their Applications, University of Rouen, France, 4-8/06/2012 (`http://www.univ-rouen.fr/LMRS/RMR12/`)

- 2011: member of the scientific committee of the conference Markov and Semi-Markov Processes & Related Fields, Thessaloniki, Greece, 20-23/09/2011; organizer of a session (`www.msmconference2011.gr/`)

- 2011: member of the scientific committee of the conference Applied Stochastic Models and Data Analysis, Rome, Italy, 7-10/06/2011 (`http://www.asmda.eu`)

- 2010: co-organizer (with N. Limnios, University of Technology of Compiègne, France) of a session in the conference International Workshop in Applied Probability, Madrid, 5-8/07/2010 (`www.fundacion.uc3m.es/IWAP2010/`)

- 2010: member of the scientific committee of the conference Stochastic Modeling Techniques and Data Analysis, Chania, Crete, Greece, 8-11/06/2010 (http://www.smtda.net/smtda2014/smtda2010proceedings.html)

- 2010: member of the organizing committee of the conference Mathematical Meetings in Rouen - Statistics under Dependent Observations and Applications,University of Rouen, France, 1-2/06/2010 (http://www.univ-rouen.fr/LMRS/RMR10/)

- 2010: organizer of a session in the conference Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management, Beer Sheva, Israel, 8-11/02/2010 (http://www.sce.ac.il/smrlo/)

- 2009: member of the scientific committee of the conference Third International Symposium on semi-Markov Models - Theory and Applications, Cagliari, Italy, 17-19/06/2009

- 2008: member of the organizing committee of the conference International Workshop on Applied Probability, University of Technology of Compiègne, France, 7-10/07/2008 (http://www.lmac.utc.fr/IWAP2008/)

Expertise

- reviewer for a project of the French National Research Agency (2014)

- reviewer for several international scientific journals: Applied Stochastic Models in Business and Industry, Communications in Statistics, Econometrics, European Journal of Control, IEEE Transactions on Reliability, IEEE Transactions on Signal Processing, International Journal of Applied Mathematics and Statistics, International Journal of Performability Engineering, Journal of Applied Probability/Advances in Applied Probability, Journal of Probability and Statistics, Journal of the Romanian Society of Industrial and Applied Mathematics, Journal of Statistics Application and Probability, Journal of Statistical Planning and Inference, Methodology and Computing in Applied Probability, Quality Engineering, RAIRO-Operations Research, Reliability Engineering & System Safety, Socio-Economic Planning Sciences, Springer (books)

Research Visits and Sabbatical Leave

- visit of the *University Aegean*, Samos, Greece (Avril 2016), work with A. Karagrigoriou, Professor

- visit of the *University* Politehnica *of Bucureşti*, Romania (January 2013, March 2014, October - November 2014, January 2015, October 2015), work with P.A. Ulmeanu, Professor and V. Tanasiev, Associate Professor

- visit of the *Polytechnic University of Athens* and of the *University of Athens*, Greece (June 2013, December 2013, September 2015); work with A. Karagrogoriou, Professor and S. Trevezas, Assistant Professor

- visit of the *University La Sapienza* of Rome, Italy (January 2012, December 2012, September 2014); work with R. Manca, Professor

- visit of the *University G. D'Annunzio* of Chieti-Pescara, Italy (December 2011, January 2012); work with G. D'Amico, Researcher

- visit of the *University of Chyprus*, Nicosia, Chyprus (October 2012, October 2013); work with A. Karagrogoriou, Professor

- 2012-2013: Sabbatical leave granted by the French National Centre for Scientific Research (In French: CNRS–Centre national de la recherche scientifique)

Students Supervised – PhD and Master

- **PhD**

  - starting from December 2013: co-supervisor (50%) with Serge Pergamenchtchikov of the PhD thesis of Slim Beltaief; topic *Optimal algorithms for data treatment for complex information and telecommunication systems in a random environment*; financed by a research grant from the Region Upper Normandy within the framework of the project *Interaction Networks and Complex Systems (In French: RISC– Réseaux d'Interaction et Systèmes Complexes)* within the Large Scale Research Network *Transport, Logistics and Technology of Information* from the Region Upper Normandy, France; 2 articles submitted for publication [14], 1 article in the final proofreading stage [17], other working papers; PhD defence planned for June 2017

- **Master 2 research theses in Mathematics**

2013-2014 supervisor of the thesis *Estimation problems of semi-Markov chains*, student Marion Sciauveau; currently PhD student in Probability in CERMICS Laboratory, Ponts ParisTech School, Paris, France

2011-2012 supervisor of the research/professional thesis *Study of the work against the Erosive Runoff along the Valley of Commerce*, student Fan Jia; nowadays an analyst in an insurance company (The Co-operators, Toronto, Canada); 1 article resulted from this thesis [21]

2010-2011 co-supervisor (with Serge PERGAMENCHTCHIKOV) of the thesis *Estimations on Markov and semi-Markov chains*, students Dorothée Godard and Matthieu Siroy; currently teachers of mathematics at secondary level

- **Research projects of 1st year Professional Master in Financial and Actuarial Mathematics**

2013-2014 *Reliability and survival analysis of Markov systems*, students Didier Bourdon and Antoine Péné

2011-2012 *Statistical problems for discrete time Markov models*, students Florian Dubois and Yidan Zheng

2009-2010 *Estimation of accelerated life models*, students Christophe Deshayes and David Dévé

2008-2009 *Statistical problems for Markov models*, students Malik Gasmi and Laurent Jassaud

2007-2008 *Censored data and nonparametric estimation in life insurance*, student Frederic dos Santos

2007-2008 *Semi-parametric estimation in survival analysis*, student Fabien Millet

2006-2007 *Statistical problems in survival analysis*, student Amandine Bel

2006-2007 *Markov modelling for survival analysis*, student Pauline Davion

- **Final Projects of Professional Master in Financial and Actuarial Mathematics**: supervisor of more than 40 projects starting from 2006

Other Scientific Activities

- 2008–2009: translation from French into English of the book *Modèles Stochastiques*, by M. Iosifescu, N. Limnios, G. Oprisan, Hermès - Lavoisier, 2007 (*Introduction to Stochastic Models*, ISTE - Wiley, 2010)

- February–June 2007: presentations within the Working group in Statistics of Laboratory of Mathematics Raphaël Salem of University of Rouen, France (two meetings per month, in average)

- Participation to the editorial process of *Communications in Statistics-Theory and Methods*, 33 (3), 2004, Special issue, Semi-Markov Processes: Theory and Applications (ed. N. Limnios)

Affiliations

- member of the *French Statistical Society*

- member of the *Romanian Society of Probability and Statistics*

- member of the *Romanian Society of Applied and Industrial Mathematics–ROMAI*

- member of the *SMTDA International–Stochastic Modeling Techniques and Data Analysis*

- member of the *Institute of Complex Systems in Normandy*

Summers Schools and Student Mobility

- 6-15/04/2016: Erasmus mobility to Department of Mathematics of the University Aegean, Samos, Greece; course *Statistical problems for Markov and semi-Markov processes*; duration one week (10h of lectures), around 20 participants (Master and PhD level, permanent Professors)

- 7-11/09/2015: Course within the framework of the Doctoral School of Mathematics, organized by the Department of Mathematics of University the Mentouri Brothers (Frères Mentouri) of Constantine, Algeria; course *Markov Processes, Semi-Markov Processes and Hidden (Semi-) Markov Models - Statistical Topics and Applications*, duration one week (15h of lectures), around 10 participants (Master and PhD level, permanent Professors)

- 1-9/07/2015: Regional Romanian-French Summer School in Applied Mathematics, co-organised by the University of Bucureşti, ENS-Cachan, ENS-Bucureşti, Institute of Mathematics of the Romanian Academy, Mathematical Foundation Jacques Hadamard, Francophone University Association; course *Markov Processes, Semi-Markov Processes and Hidden (Semi-)Markov Models - Statistical Topics and Applications*, duration one week (20h of lectures), more than 20 participants (level 3rd year undergraduate students, Master and PhD students and young researchers)

- 2014: implementation of an Erasmus program between the Department of Mathematics of the University of Rouen, France, and the Department of Mathematics of the University Aegean, Samos, Greece

- 2013: implementation of an Erasmus program between the Department of Mathematics of the University of Rouen, France, and the Department of Mathematics of the University of Cyprus

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PUBLICATIONS

BOOK

[1] V. S. Barbu, N. Limnios, *Semi-Markov Chains and Hidden Semi-Markov Models toward Applications – Their use in Reliability and DNA Analysis*, Lecture Notes in Statistics, vol. 191, Springer, New York, 2008

Referee par Martin Crowder (London Imperial College) : "... *Overall, this is a stimulating book. As it says, the discrete-time framework has been underused in the past in view of the fact that much real data in practice (I would even say most) is recorded in discrete time. Also, the applications listed, particularly the DNA sequencing, are important and timely.*" (International Statistical Review, 77, 2, page 307, 2009)

ARTICLES

[2] V. S. Barbu, G. D'Amico, R. Manca, P. Petroni, *Step semi-Markov models and application to manpower management*, to appear in ESAIM: Probability and Statistics (DOI: http://dx.doi.org/10.1051/ps/2016025), 2016

[3] V. S. Barbu, A. Karagrigoriou, A. Makrides, *Semi-Markov modelling for multi-state systems*, to appear in Methodology and Computing in Applied Probability (DOI: 10.1007/s11009-016-9510-y), 2016

[4] A. P. Ulmeanu, V. S. Barbu, A. Budu, *Improving the fault tree analysis with uncertainties for the assessment of power systems dependability*, In Statistical, Stochastic and Data Analysis Methods and Applications, eds. Alex Karagrigoriou, Teresa Oliveira et Christos Skiadas, ISAST (International Society for the Advancement of Science and Technology), 63-82, 2015

[5] R. Crastes, O. Beaumais, O. Arkoun, D. Laroutis, P.-A. Mahieu, B. Rulleau, S. Hassani-Taibi, V. S. Barbu, D. Gaillard, *Erosive runoff events in the European Union: Using discrete choice experiment to assess the benefits of integrated management policies when preferences are heterogeneous*, Ecological Economics, 102, 105-112, 2014

[6] V. S. Barbu, J. Bulla, A. Maruotti, *Estimation of the stationary distribution of a semi-Markov chain*, Journal of Reliability and Statistical Studies, 5, 15-26, 2012

[7] V. S. Barbu, N. Limnios, *Some algebraic methods in semi-Markov processes*, In Algebraic Methods in Statistics and Probability, volume 2, series Contemporary Mathematics edited by AMS, eds. Marlos A.G. Viana and Henry P. Wynn, Urbana, 19-35, 2010

[8] V. S. Barbu, N. Limnios, *Reliability of semi-Markov systems in discrete time: modeling and estimation*, Handbook on Performability Engineering, ed. Krishna B. Misra, Springer,

369-380, 2008

[9] V. S. Barbu, N. Limnios, *Empirical estimation for discrete time semi-Markov processes with applications in reliability*, Journal of Nonparametric Statistics 18 (7-8), 483-498, 2006

[10] V. S. Barbu, N. Limnios, *Maximum likelihood estimation for hidden semi-Markov models*, Comptes rendus de l'Académie des sciences, Paris, Ser. I, 342, 201-205, 2006

[11] V. S. Barbu, N. Limnios, *Nonparametric Estimation for failure rate functions of discrete time semi-Markov processes*, Probability, Statistics and Modelling in Public Health, eds. Mikhail Nikulin, Daniel Commenges and Catherine Huber-Carol, Springer, 53-72, 2006

[12] V. S. Barbu, M. Boussemart, N. Limnios, *Discrete time semi-Markov model for reliability and survival analysis*, Communications in Statistics-Theory and Methods 33 (11), 2833-2868, 2004

[13] V. S. Barbu, N. Limnios, *Discrete time semi-Markov processes for reliability and survival analysis - a nonparametric estimation approach*, Parametric and Semiparametric Models with Applications to Reliability, Survival Analysis and Quality of Life, eds. Narayanaswamy Balakrishnan, Mikhail Nikulin, Mounir Mesbah, Nikolaos Limnios, Birkhäuser, Collection Statistics for Industry and Technology, Boston, 487-502, 2004

Submitted Papers

[14] V. S. Barbu, S. Beltaief, S. Pergamenshchikov, *Robust adaptive efficient estimation for a semi-Markov nonparametric regression models*, submitted, https://arxiv.org/abs/1604.04516, 2016

[15] V. S. Barbu, A. Karagrigoriou, *Modeling and inference for multi-state systems*, submitted, 2016

[16] V. S. Barbu, G. D'Amico, *Novel advancements in the Markov chain stock model: analysis and inference*, submitted, 2016

Working Papers

[17] V. S. Barbu, S. Beltaief, S. Pergamenshchikov, *Robust adaptive efficient estimation for a semi-Markov continuous time regression from discrete data*, working paper, 2016

[18] V. S. Barbu, N. Vergne, *Reliability and survival analysis for drifting Markov models: modelling and estimation*, working paper, 2016

[19] V. Tanasiev, P. A. Ulmeanu, V. S. Barbu, A. Badea, *Hidden Markov models revealing the household thermal profiling from smart meter data*, working paper, 2016

[20] V. S. Barbu, N. Vergne, *Drifting semi-Markov models*, working paper, 2016

[21] O. Arkoun, V. S. Barbu, J. Fan, S. Hassani-Taibi, D. Laroutis, *Sampling methods applied to choice experiments*, working paper, 2016

[22] V. S. Barbu, G. Gayraud, *Testing hypotheses for semi-Markov processes*, working paper, 2016

[23] V. S. Barbu, A. Karagrigoriou, *Testing statistical hypothesis for Markov chains based on divergence rates*, working paper, 2016

[24] V. S. Barbu, A. Karagrigoriou, A. Makrides, *Statistical inference for a general class of distributions with time varying parameters*, working paper, 2016

[25] V. S. Barbu, A. Karagrigoriou, *Entropy and divergence rates for Markov chains*, working paper, 2016

[26] V. S. Barbu, C. Bérard, D. Cellier, M. Sautreuil, N. Vergne, *Parametric estimation of discrete time semi-Markov process*, working paper, 2016

[27] V. S. Barbu, C. Bérard, D. Cellier, M. Sautreuil, N. Vergne, *Discrete time semi-Markov models - an* R *package*, working paper, 2016

[28] V. S. Barbu, S. Trevezas, *Asymptotic behaviour of functionals of the discrete-time semi-Markov kernel*, working paper, 2016

[29] V. S. Barbu, S. Beltaief, S. Pergamenshchikov, *Robust adaptive efficient estimation for a semi-Markov discrete time regression model*, working paper, 2016

Conferences and Seminars

Invited Conferences with Proceedings

- August 2016, *Survival analysis for semi-Markov processes*, The 22nd International Conference on Computational Statistics (Compstat 2016), Oviedo, Spain

- February 2016, *On semi-Markov modelling and inference for multi-state systems* (avec A. Karagrigoriou, A. Makrides), Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management, Beer Sheva, Israel; article IEEE, DOI: 10.1109/SMRLO.2016.20

- February 2016, *Entropy and divergence rates for Markov chains* (with A. Karagrigoriou), Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management, Beer Sheva, Israel

- June-July 2015, *Failure analysis with uncertainties in electrical power systems* (with A.P. Ulmeanu), Applied Stochastic Models and Data Analysis, Piraeus, Greece

- June-July 2015, *Semi-Markov modelling on multi-state systems* (with A. Karagrigoriou and A. Makrides), Applied Stochastic Models and Data Analysis, Piraeus, Greece

- June 2013, *Estimation of the entropy of semi-Markov chains* (with V. Girardin), Applied Stochastic Models and Data Analysis, Mataró, Spain

- May 2013, *Reliability modeling with hidden Markov and semi-Markov chains*, Seventh International Workshop on Simulation, Rimini, Italy

- June 2011, *Mean hitting times for semi-Markov systems*, Applied Stochastic Models and Data Analysis, Rome, Italy

- May 2011, *Estimation of the stationary distribution of a discrete-time semi-Markov process* (with J. Bulla and A. Maruotti), International Conference on Risk Assessment, Limassol, Cyprus

- July 2010, *Testing hypotheses for semi-Markov processes* (with G. Gayraud), Workshop in Applied Probability, Madrid, Spain

- February 2010, *Some algebraic methods in semi-Markov processes* (with N. Limnios), Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management, Beer Sheva, Israel

- July 2007, *Reliability of semi-Markov systems in discrete time: modeling and estimation* (with N. Limnios), Mathematical Methods in Reliability, Glasgow, Scotland, United Kingdom

- June 2007, *Discrete-time semi-Markov and hidden semi-Markov models*, Applied Stochastic Models and Data Analysis, Chania, Crete, Greece (plenary conference)

- May 2005, *Maximum likelihood estimation for hidden semi-Markov models* (with N. Limnios), Applied Stochastic Models and Data Analysis, Brest, France

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International Conferences with Proceedings

- September 2016, *Reliability for semi-Markov systems: modelling and estimation*, The 24th conference of the Romanian Society of Applied and Industrial Mathematics, Craiova, Romania

- mai 2016, *Robust estimation for a semi-Markov nonparametric regression model* (with S. Beltaief and S. Pergamenchtchikov), 19th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- May 2015, *Entropy and divergence rates for Markov chains* (with A. Karagrigoriou), 18th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- September 2014, *Semi-Markov modelling for multi-state systems* (with A. Karagrigoriou and A. Makrides), 9th International Conference on Availability, Reliability and Security (ARES), Fribourg, Switzerland; article IEEE Computer Society (CPS), Proceedings ARES2014, ISBN-14: 978-1-4799-4223-7/14, 397-402, doi10.1109/ARES.2014.60

- May 2014, *Reliability modeling with hidden Markov and semi-Markov chains*, 17th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- April 2013, *Hidden semi-Markov models*, 16th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- June 2012, *Reliability estimation of semi-Markov processes*, International Workshop in Applied Probability, Jerusalem, Israel

- April 2011, *The stationary distribution of a semi-Markov chain*, 14th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- April 2010, *Some algebraic methods in semi-Markov chains* (with N. Limnios), 13th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- April 2008, *Maximum likelihood estimation for hidden semi-Markov chains* (with N. Limnios), 11th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- April 2007, *Estimation of semi-Markov and hidden semi-Markov chains*, 10th conference of the Romanian Society of Probability and Statistics, Bucureşti, Romania

- June 2004, *Failure rate estimation for semi-Markov chains* (with N. Limnios), Mathematical Methods in Reliability, Santa Fe, United States

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Invited Conferences without Proceedings

- November 2009, *Reliability of semi-Markov systems*, Advances on Degradation and Accelerated Life-Testing Models with Applications to Reliability and Survival Analysis, Workshop in Honour of W.Q. Meeker, Paris, France

- September 2005, *Research of patterns in DNA by hidden semi-Markov models* (with N. Limnios), Conference in Honour of Niels Keiding, University Victor Segalen Bordeaux 2, France

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International Conferences without Proceedings

- September 2016, *Step semi-Markov models and application to manpower management* (with G. D'Amico, R. Manca and P. Petroni), 40th conference of the Italian Association of Applied Mathematics to Economy and Social Sciences (AMASES), Catania, Italy

- May 2016, *Hidden Markov and semi-Markov models and their use in energy systems*, workshop Research Challenges in Intelligent Energy Systems-Mathematical Models and Applications, University Politehnica of Bucureşti, Romania

- September 2012, *Novel advancements in the Markov chain stock model: analysis and inference* (with G. D'Amico), 36th conference of the Italian Association of Applied Mathematics to Economy and Social Sciences (AMASES), Vieste, Italy

- June 2009, *Estimation of the stationary distribution of a semi-Markov chain*, Third International Symposium on semi-Markov Models - Theory and Applications, Cagliari, Italy

- May 2007, *Discrete-time semi-Markov model applied to breast cancer* (with C. Gras-Aygon and N. Limnios), Second International Conference on Cancer Risk Assessment, Santorini, Greece

- January 2005, *Maximum likelihood estimation for hidden semi-Markov chains*, Statistics for Dependent Data (STATDEP 2005), CREST, Paris, France (Poster)

National French Conferences

- November 2012, *Sampling and factorial plans applied to choice experiments* (with O. Arkoun, R. Crastes, F. Jia, D. Laroutis, S. Taibi-Hassani), 7th French Conference on Surveys, Rennes, France

- June 2003, *Nonparametric esimation of semi-Markov processes in discrete time and applications to reliability* (with N. Limnios), 35th Days of Statistics of the French Statistical Society, Lyon, France

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Seminars

- April 2016, *On Semi-Markov modelling and inference for multi-state systems* (with A. Karagrigoriou and A. Makrides), seminar of the Department of Mathematics of University Aegean, Samos, Greece

- March 2015, *Hidden semi-Markov models: statistical problems and applications*, Institute of Mathematics of the Romanian Academy, Bucureşti, Romania

- September 2012, *Survival analysis for semi-Markov systems*, seminar of the Department of Mathematics for Economic Decisions, University *La Sapienza*, Rome, Italy

- September 2012, *The use of statistical techniques in experimental sciences*, seminar of University *G. D'Annunzio* of Chieti-Pescara, Italy

- May 2012, *Reliability/survival analysis of semi-Markov systems: modeling and estimation*, seminar of the Institute of Advanced Mathematical Research (IRMA), University of Strasbourg, France

- January 2012, *Hidden semi-Markov models*, seminar of the Department of Mathematics for Economic Decisions, University *La Sapienza*, Rome, Italy

- September 2011, *Hidden semi-Markov Models*, Working group *Entropy, words, statistics*, University of Caen, France

- March 2007, *Semi-Markov and Hidden semi-Markov Models*, Statistics seminar, University of Liège, Belgium

- November 2006, *Semi-Markov and Hidden semi-Markov Models*, seminar of LMRS, University of Rouen, France

- March 2006, *Hidden semi-Markov models*, European seminar "Mathematical Methods for Survival Analysis, Reliability and Quality of Life", Pierre-and-Marie-Curie University, France

- February 2005, *Nonparametric estimation of semi-Markov chains and hidden semi-Markov chains*, seminar Mathematics for Genome, University of Evry, France

- March 2004, *Nonparametric estimation for semi-Markov chain with application to reliability*, European seminar "Mathematical Methods for Survival Analysis, Reliability and Quality of Life", Paris Descartes University, France

Teaching

Activity	Courses, Tutorials, Labs; use of softwares `R`, `SAS`, `Scilab`, SPSS, `Prism`, `ReliaSoft's Weibull++`, `Statgraphics Centurion`, `Exel`
Public	from 1st undergraduate university year to PhD students
Universities	University of Rouen, France (since 2006; Associate Professor)
	ESITPA-UniLaSalle – School of Agriculture Engineering, Rouen, France (since 2008; collaborator)
	Neoma Business School, Rouen, France (since 2016; collaborator)
	University of Technology of Compiègne, France (2001-2004: collaborator; 2004-2006: Teaching Assistant)
	MINES ParisTech, France (2005-2007; collaborator)
	University POLITEHNICA of Bucureşti, Romania (1998-2001; Assistant Professor)

Topics

Biostatistics (2nd and 3rd year in Biology) – Courses and tutorials in `R` and `Prism`
Reliability (Master in Mechanics) – Courses, tutorials and Labs in `ReliaSoft's Weibull++`
Mathematical Statistics (3rd year and Master in Mathematics) – Courses and tutorials
Time Series (Professional Master in Financial and Actuarial Mathematics) – Courses and tutorials in `SAS`
Survival Analysis (Professional Master in Financial and Actuarial Mathematics) – Courses and tutorials in `R` and `SAS`
Probability and Statistics (PhD) – Courses
Statistical Models and Data Mining for Sequence Analysis in Bioinformatics–Data Analysis, Markov and Hidden Markov Models (Master in Bioinformatics) – Courses, Tutorials and Labs in `R`
Sequence Alignment in Bioinformatics (Master in Bioinformatics) – Courses, Tutorials and Labs in `R`
Programming in Bioinformatics (3rd year in Biology) – Courses and Labs in `R`
Data Analysis (Professional Master in Financial and Actuarial Mathematics) – Tutorials in `SAS`
Mathematical Methods for Insurance (Professional Master in Financial and Actuarial Mathematics) – Tutorials
Probability and Statistics (Schools of Engineering, Business School) – Courses, Tutorials and Labs in `R`, SPSS and `Statgraphics Centurion`
Analysis of Functions of Several Variables (Schools of Engineering) – Courses and Tutorials
Analysis of Functions of One Real Variable (Schools of Engineering) – Tutorials
Numerical Analysis (Schools of Engineering) – Tutorials and Labs in `Scilab`
Revision of Analysis and Algebra (Schools of Engineering) – Course-Tutorials
Linear Algebra and Differential Equations (Schools of Engineering) – Tutorials

Algebra and Geometry (Schools of Engineering) – Tutorials
Quantitative Methods in Business Administration (Business School) – Courses and Tutorials