Immacolata Oliva

Curriculum Vitae

Dept. Economics,
Via Cantarane, 24
37129, Verona, Italy
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General Information

name	Immacolata
surname	Oliva
place and date of birth	Potenza (Italy), 28 September 1982
citizeship	Italian

Education

2005 – 2008 **Undergraduate student of Mathematics at the University of Basilicata (Italy)**.
Title of the dissertation: *Un approccio algebrico-combinatorio alla teoria delle variabili aleatorie di Poisson*.
Advisors: Prof. D. Senato (University of Basilicata), Prof. Elvira di Nardo (University of Turin)
The thesis was defended on March 2008.

2009 – 2012 **Ph.D. student in Mathematics at the Department of Mathematics of the University of Bologna (Italy)** .
Title of the dissertation: *A moment symbolic representation of Lévy processes with applications*.
Advisors: Prof. Elvira di Nardo (University of Turin), Prof. Marilena Barnabei (University of Bologna)
The thesis was defended on June 2012.

10/2011 – 03/2012 **Corso di Alta Formazione in Finanza Matematica at the Department of Mathematics of the University of Bologna (Italy)**.

Academic Appointments

07/2012 – 06/2013 **Post-doctoral fellow at the Department of Economics of the University of Verona (Italy)**.
SSD: SECS-S/06 – METODI MATEMATICI DELL'ECONOMIA E DELLE SCIENZE ATTUARIALI E FINANZIARIE
Research project: Evaluation of derivatives by using stochastic discount factor.
Duration: one year.
Advisor: Dr. Silvia Centanni (University of Verona)

02/2014 – 06/2014 **Adjunct professor**.
Adjunct professor at the Department of Mathematics, Computer Sciences and Economics of the University of Basilicata.

07/2014 – 06/2015 **Post-doctoral fellow at the Department of Computer Sciences of the University of Verona (Italy)**.
SSD: MAT/06 – PROBABILITA' E STATISTICA MATEMATICA
Research project: "Stochastic differential equations with jumps in Mathematical Finance: applications to pricing, hedging and dynamic risk measure's problems"
Duration: one year.
Advisor: Dr. Luca Di Persio (University of Verona)

03/2015 – 06/2015 **Adjunct professor**.
Adjunct professor at the Department of Computer Sciences of the University of Verona

09/2015 – present **Post-doctoral fellow at the Department of Economics of the University of Verona (Italy).**.
SSD: SECS-S/06 – METODI MATEMATICI DELL'ECONOMIA E DELLE SCIENZE ATTUARIALI E FINANZIARIE
Research project: "Facing credit risk: a mathematical approach to risk measures and their management "
Duration: three years.

09/2015 – present **Adjunct professor**.
Adjunct professor at the Department of Economics of the University of Verona

Visiting positions

04/2018 – 06/2018 **Visiting researcher**.
Visiting researcher at the Department of Mathematics of the Ludwig-Maximilians-Universitat (Monaco di Baviera). Advisor: Prof. Dr. Francesca Biagini.

Other Appointments

01/2012 – 12/2013 **Free-lance partner for a financial mathematics website.**.
Free-lance partner for scientificahiring.com in order to create open-ended and/or multiple–choice tests, for the self-evaluation of Financial Industry and Investment Banking knowledges

05/2012 – 06/2012 **Substitute teacher at High school**.
Mathematics and physics substitute teacher at "IIS Maria Montessori - Leonardo da Vinci", Porretta Terme (Italy)

09/2013 – 02/2014 **Substitute teacher at High school**.
Computer sciences substitute teacher at "IIS Maria Montessori - Leonardo da Vinci", Porretta Terme (Italy)

Teaching experience

a.a. 2013/2014 Statistics - Bachelor's degree in Business Administration (10 ECT)

a.a. 2013/2014 Probability - Bachelor's degree in Mathematics (7 ECT)

a.a. 2014/2015 Probability and Statistics - Bachelor's degree in Computer Sciences (4 ECT)

a.a. 2014/2015 Probability - Bachelor's degree in Applied Mathematics (1 ECT)

a.a. 2015/2016 Computational Methods in Finance - Master's degree in Banking and Finance (4 ECT)

a.a. 2016/2017 Computational Methods in Finance - Master's degree in Banking and Finance (6 ECT)

a.a. 2017/2018 Computational Methods in Finance - Master's degree in Banking and Finance (6 ECT)

a.a. 2015/2016 Supervision of Bachelor's degree theses

a.a. 2016/2017 Supervision of Master's degree theses

a.a. 2017/2018 Supervision of Master's degree theses

Grants

Research grant **Cooperint 2017**.
Research scholarship (4000 €) for visiting scholars at Department of Mathematics – LMU Munich (April–June 2018)

Grant **INDAM**.
Grant INDAM (Italian Institute of High Mathematics) financial support award for the participation to the ICNAAM 2011 Conference, Halkidiki (Greece), 19–25 September 2011

Funding Information

GNAMPA 2018 Participation as Investigator to GNAMPA 2018 research project *Nuovi indicatori di instabilità dei mercati finanziari.* Principal Investigator: Prof. Cecilia Mancini. Financed amount: 3000 €

Prin 2017 Participation as Investigator to Prin 2017 research project *HiDEA: Advanced Econometrics for High-frequency Data.* Principal Investigator: Prof. Roberto Renò

Prin 2015 Participation as Investigator to Prin 2015 research project *Quantitative Methods for Financial Stability.* Principal Investigator: Prof. Roberto Renò

Society memberships

2013–2018 Member of INDAM–GNAMPA Reasearch group

2010–2012 Member of INDAM–GNSAGA Reasearch group

2014–2018 Member of AMASES

Language skills

Italian mother tongue

English Fluent spoken and written English

French Basic spoken and written French

Spanish Basic spoken and written Spanish

Informatic skills

OS: Windows 2007, XP: Windows 2.0 - 98; Unix System V

Program Languages: VBA

Database: SQL

Software packages: Matlab, Mathematica, Maple

Application software: Microsoft Word, Excel, PowerPoint, Outlook

Research

Research Interests **Symbolic methods and stochastic processes**.
Main topics include:

- Lévy processes
- Umbral calculus
- Time-space harmonic polynomials

Mathematical finance.
Main topics include:

- Prediction and filtering
- Monte Carlo methods
- Pricing and hedging
- Counterparty credit risk
- Portfolio optimization

Probability theory and stochastic processes.
Main topics include:

- Stochastic differential equations driven by Lévy processes
- Mathematical models applied in Economics

Publications

Di Nardo E., Oliva I. (2009) *On the computation of classical, boolean and free cumulants.* Appl. Math. Comp., Vol. 208 (2), 347-354, doi: 10.1016/j.amc.2008.11.047, ISSN: 0096-3003.

Di Nardo E., Oliva I. (2011) *On a symbolic version of multivariate Lévy processes.* AIP Conf. Proc. - Vol. 1389, 345-348, doi:10.1063/1.363673 - ISBN: 978-0-7354-0956-9.

Di Nardo E., Oliva I. (2012) *On some applications of a symbolic representation of non-centered Lévy processes.* Comm. Statist. Theory Methods, Vol. 42 (21), 3974-3988, doi:10.1080/03610926.2011.642920, ISSN: 0361-0926.

Di Nardo E., Oliva I. (2012) *A new family of time-space harmonic polynomials with respect to Lévy processes.* Ann. Mat. Pura Appl., Vol. 192 (5), 917-929, doi:10.1007/s10231-012-0252-3, Print ISSN: 0373-3114, Online ISSN: 1618-1891.

Di Nardo E., Oliva I. (2012) *Multivariate Bernoulli and Euler polynomials via Lévy processes.* Appl. Math. Letters, Vol. 25 (9), 1179-1184, doi:10.1016/j.aml-2012-02-033, ISSN: 0893-9659.

Oliva, I. (2012) *Oliva, I. (2012) A moment symbolic representation of Lèvy processes with applications,* PhD thesis.

Di Nardo E., Oliva I. (2013) *Multivariate time-space harmonic polynomials: a symbolic approach*. Mathematical Methods in Economics and Finance - ISSN (print edition): 1971-6419, in press, http://arxiv.org/pdf/1310.4254.pdf.

Oliva I. (2013) *Una rappresentazione simbolica via momenti dei processi di Lèvy ed applicazioni.* Matematica nella Società e nella Cultura, Vol. 6(3), 521–524

Bonollo M., Di Persio L., Oliva, I., Semmoloni A. (2014) *A Quantization Approach to the Credit Exposure Estimation*. SSRN: http://ssrn.com/abstract=2574384

Di Persio L., Oliva, I. (2015) *An interval of no-arbitrage prices for American contingent claims in incomplete markets*. International Journal of Pure and Applied Mathematics Vol. 103(1), 133–153

Bonollo M., Di Persio L., Mammi L., Oliva, I. (2016) *Counterparty Credit Risk Evaluation for Accumulator Derivatives: the Brownian Local Time Approach.* Economics and Management Systems Vol. 1, 188-191

Centanni S., Oliva I., Tardelli, P. (2016) *Credit Risk in an Economy with New Firms Arrivals.* Methodol. Comput. Appl. Probab., Methodol Comput Appl Probab 19(891).

Bonollo M., Di Persio L., Mammi L., Oliva, I. (2017) *Estimating the Counterparty Risk Exposure by using the Brownian motion local time.* International Journal of Applied Mathematics and Computer Science (AMCS) 27(2)

Cordoni F., Di Persio L., Oliva, I. (2017) *A nonlinear Kolmogorov equation for stochastic functional delay differential equations with jumps.* Nonlinear Differential Equations and Applications, Nonlinear Differ. Equ. Appl. 24(16).

Papers submitted to peer-reviewed journals

Bonollo M., Di Persio L., Oliva, I., Semmoloni A. (2018) *A Quantization Approach to the Credit Exposure Estimation,* under review

Oliva I., Renò R. (2018) *Optimal portfolio allocation with volatility and co-jump risk that Markowitz would like,* revised and resubmitted

Work in progress

Optimal portfolio allocation strategies in derivatives markets

Option pricing in a Constant-Proportion Portfolio Insurance framework, with L. Di Persio and K. Wallbaum

BSDEs of counterparty risk and funding under different aggregation levels, with F. Biagini and A. Gnoatto

Energy Finance and Investment Decision, with L. Taschini

Conference proceedings

Di Nardo E., Oliva I. (2011) *Umbral calculus and Lévy processes.* ASMDA11. Contributed paper.

Centanni S., Minozzo M., Oliva I. (2013) *Filtering, smoothing and estimation for a class of marked doubly stochastic Poisson processes* ICSMS 2012 Conf. Proc. – ISBN : 978-81-925286-4-9.

Conference and Seminar Presentations

10th World Congress Bachelier Finance Society, Dublin, 16-20 July 2018 (scheduled)

IRMC2018, Paris, 7-8 June 2018 (scheduled)

XVIII Workshop on Quantitative Finance, Rome, 24-26 January 2018

4th Finance Scholars Conference, University of Sussex–Brighton, 12-13 June 2017

XVIII Workshop on Quantitative Finance, Milan, 25-27 January 2017

Siena Finance Workshop, Siena, 30 September 2016

XVII Workshop on Quantitative Finance – Poster Session, Pisa, 28-29 January 2016

45th Annual Conference of the Italian Operations Research Society, Pisa, 7-10 September 2015

39th Annual Meeting of the Italian Association for Mathematics Applied to Economic and Social Sciences (AMASES) Padua, 10-12 September 2015

Afternoon on Control, Stochastic processes and Financial Mathematics, Povo, 10 March 2015

XVI Workshop on Quantitative Finance – Poster Session, Parma, 29-30 January 2015

Workshop *Dependence in Risk Measurement and Risk Management*, Florence, 18-19 December 2014

Workshop *Recent Advances in Mathematical Finance*, Padua, 20 September 2014

MAF 2014, Vietri sul mare (Italy), 22-24 April 2014

XVIII Incontro Italiano di Combinatoria Algebrica, Matera (Italy), 10-12 September 2012

MAF 2012, Venice (Italy), 10-12 April 2012

ICNAAM 2011, Halkidiki (Greece), 19-25 September 2011

ASMDA 2011, Rome, (Italy) 7-10 June 2011

Young Women in Probability, Bonn, (Germany) 19-21 May 2011

Notte dei Ricercatori in Emilia Romagna, Bologna, (Italy) 24 September 2010

Conferences and Workshops attended

Winter School *Frontiers in Stochastic Models for Finance*, Padua (Italy), 8-12 February 2016.

Workshop *Likelihood, Approximate Likelihood and Nonparametric Statistical Methods for Complex Applications*, Venice (Italy), 8 - 9 October 2012.

Conference in honor of the 70th birthday of Wolfgang J. Runggaldier, Padua (Italy), 21 - 22 September 2012.

67th Seminaire Lotharingien de Combinatoire joint session with XVII Incontro Italiano di Combinatoria Algebrica, Bertinoro (Italy), 18-21 September 2011.

Summer School in *Mathematics Stochastic and Numerical Methods in Finance*, Cortona (Italy), 3-16 July 2011.

XVI Incontro Italiano di Combinatoria algebrica, Bologna (Italy), 7-9 June 2010.

Workshop INdAM *Incontro Nazionale di Algebra moderna*, Rome (Italy), 24-28 May 2010.

Mathematical Foundations of Quantum Information, Seville (Spain), 23-27 November 2009.

63th Seminaire Lotharingien de Combinatoire joint session with XV Incontro Italiano di Combinatoria Algebrica, Bertinoro (Italy), 27-30 September 2009.

Spring School in Finance 2009, Universitá di Bologna, Bologna (Italy), 21-22 May 2009.

The undersigned declares, under her own responsibility, according to articles 46 and 47 of the Presidential Decree No. 445 dated 28th December 2000, that everything stated in the present declaration and in the relevant attachments is true, and that she is aware of the legal sanctions for fraudulent statements in art. 76 of the Presidential Decree No. 445/2000.

The undersigned authorizes the use of her personal data in compliance with Legislative Decree 196/03.

May 29, 2018