CURRICULUM VITAE
Roxana Dumitrescu

PROFESSIONAL EXPERIENCE

- September 2021 - present: Associate Professor (Senior Lecturer) in Financial Mathematics at King's College London, London, United Kingdom.
- November 2016 - August 2021: Assistant Professor (Lecturer) in Financial Mathematics at King's College London, London, United Kingdom. Tenure in September 2019. Promotion to Associate Professor (Senior Lecturer) in August 2021.
- October 2015 - October 2016 : Associate researcher at Humboldt University and TU Berlin, Berlin, Germany. Member of the Research training group of *Stochastic Analysis with Applications in Finance, Biology and Physics*, Berlin, Germany.

EDUCATION

- October 2012 - September 2015: PhD in Applied Mathematics at the Paris Dauphine University.
  Supervisor: Prof. Bruno BOUCHARD
  Subject: *Contributions to Stochastic Control with nonlinear expectations and backward stochastic differential equations*
  The thesis was defended at Paris-Dauphine University on September 28, 2015.
- September 2011 - August 2012: Research Master MASEF (Master in Mathematics applied to finance, economy and insurance, 2nd year), Paris-Dauphine University, co-accredited with the ENSAE, Paris, France (with honours, Valedictorian).
- September 2010 - August 2011: Master in Applied Mathematics (1st year), Paris-Dauphine University, Paris, France
- October 2007 - July 2010: Bachelor in Pure Mathematics at the A.I. Cuza University of Iasi, Romania (with honours, Valedictorian).

EDITORIAL ACTIVITY: Associate editor for *Mathematics and Financial Economics*, Springer (since January 2024)

PUBLICATIONS AND PREPRINTS

• PUBLICATIONS

27. Mean-field Dynkin games: characterization and convergence (with B. Djehiche), to appear in *Mathematics of Operations Research*, 2024
26. A new Mertens decomposition of $\mathcal{Y}^{g,\xi}$-submartingale systems. Application to BSDEs with weak constraints at stopping times (with R. Elie, W.Sabbagh, C. Zhou), *Stochastic Processes and Their Applications* 164, pg. 183-205, 2023
25. Energy transition under scenario uncertainty: a mean-field game of stopping with common noise (with M. Leutscher and P. Tankov), published online in *Mathematics and Financial Economics*, 2024
24. A mean-field game of electricity market dynamics (with A. Bassière and P. Tankov), to appear in *Quantitative Energy Finance*, vol. 2, Springer, 2024
23. MFG model with a long-lived penalty at random jump times: application to demand side management for electricity contracts (with C. Alasseur, L. Campi and J. Zeng), published online in *Annals of Operations Research*, 2023.
22. Linear programming fictitious play algorithm for Mean-field Games with optimal stopping and absorption (with M. Leutscher and P. Tankov), *ESAIM: Mathematical Modelling and Numerical Analysis* 57 (2), pg. 953-990, 2023.
21. Mean-field BSDEs and Global Dynamic Risk Measures (with R. Chen, A. Minca and A.Sulem), *Probability, Uncertainty and quantitative risk* 8 (1), pg. 33-52, 2023.
20. A Mean-Field Game Approach to Optimal Investment Timing (with G. Bouveret and P. Tankov), *Operations Research Perspectives* 9, 100225, 2022.
19. Control and optimal stopping Mean-Field Games: a linear programming approach (with M. Leutscher and P. Tankov), *Electronic Journal of Probability* 26, pg. 1-49, 2021
18. The entry and exit game in electricity markets: a mean-field game approach (with R. Aïd and P. Tankov), *Journal of Dynamics and Games* 8.4, pg. 331-358, 2021
17. Mean-field games of optimal stopping: a relaxed solution approach (with G. Bouveret and P. Tankov), *SIAM Journal on Control and Optimization* 58 (4), pg. 1795-1821, 2020
16. Approximation schemes for mixed optimal stopping and control problems with nonlinear expectations and jumps (with C. Reisinger, Y. Zhang), *Applied Mathematics and Optimization* 83, pg. 1387-1429, Springer, 2021
15. BSDEs with default jump (with M. Grigorova, M.C. Quenez and A. Sulem), Computation and Combinatorics in Dynamics, Stochastics and Control. Eds. Elena Celledoni, Giulia Di Nunno, Kurusch Ebrahimi-Fard, Hans Munthe-Kaas, *The Abel Symposia book series*, volume 13, Springer, 2018.
14. Stochastic control of mean-field SPDEs with jumps (with B. Oksendal and A. Sulem), *Journal of Optimization Theory and Applications*, Springer, Vol. 176, Issue 3, 2018.
13. American Options in an imperfect complete market with default (with M.C. Quenez and A. Sulem), *ESAIM Proc. and Surveys*, 2018.
12. Game options in an imperfect market with default (with M.C. Quenez and A. Sulem), *SIAM Journal in Financial Mathematics*, Vol. 8, pp. 532-559, 2017.
11. Generalized Dynkin games and doubly reflected BSDEs with jumps (with M.C. Quenez and A. Sulem), *Electronic Journal of Probability*, Vol. 21, paper no. 64, 32 pp., 2016.

10. Mixed Generalized Dynkin Games / Stochastic Control in a Markovian framework (with M.C. Quenez and A. Sulem), *Stochastics*, pp.1-30, 2016.
9. A Weak Dynamic Programming Principle for Combined Optimal Stopping / Stochastic Control with f-expectations (with MC Quenez and A. Sulem), *SIAM Journal on Control and Optimization*, Vol. 54, No. 4, pp. 2090–2115, 2016.
8. Reflected Scheme for DRBSDEs with jumps and RCLL barriers (with Céline Labart), *Journal of Computational and Applied Mathematics*, Elsevier, Volume 296, 827-839, 2016.
7. Numerical approximation for DRBSDEs with jumps and RCLL obstacles (with Céline Labart), *Journal of Mathematical Analysis and Applications*, Elsevier, Volume 442, Issue 1, 206-243, 2016.
6. Optimal stopping for dynamic risk measures with jumps and obstacle problems (with M.C. Quenez and A. Sulem), *Journal of Optimization Theory and Applications*, Volume 167, Issue 1, 219-242, 2015.

- **PREPRINTS**

5. Deep learning algorithms for FBSDEs with jumps: Applications to option pricing and a MFG model for smart grids (with C. Alasseur, Z. Bensaid and X. Warin)
4. A Rank-Based Reward between a Principal and a Field of Agents: Application to Energy Savings (with C. Alasseur, E. Bayraktar and Q. Jacquet)
3. A propagation of chaos result for weakly interacting Snell envelopes (with B. Djehiche and J. Zeng).
2. A dynamic dual representation for the buyer's price of American options in a nonlinear incomplete market.
1. BSDEs with nonlinear weak terminal condition.

SUPERVISION

- **PhD SUPERVISION**
  - 2018 - 2021: Supervisor of the PhD Thesis of JIA ZENG, King's College London (The thesis has been defended on December 10, 2021)
  - 2019 - 2022: Co-supervisor of the PhD Thesis of MARCOS LEUTSCHER, ENSAE PARIS (co-supervision together with P. Tankov, defended in December 2022)
  - 2022 - : Co-supervisor of the PhD Thesis of REDOUANE SILVENTE, ENSAE PARIS (co-supervision together with P. Tankov)
  - 2023 - present: Co-Supervisor of the PhD Thesis of ZAKARIA BENSAID (with A. Matoussi and W. Sabbagh), Université le Mans.
- **Postdoc SUPERVISION**
  - 2023 - : Co-supervisor of the Postdoc of JULIAN GUTIERREZ PINEDA, ENSAE PARIS (co-supervision together with P. Tankov)
- **MASTER THESIS SUPERVISION**

– 2017 - 2023: I have supervised **84 students** on diverse topics in stochastic control and financial mathematics (12 students per summer from the MSc in Financial Mathematics at King's College London).

SELECTED CONFERENCES AND INVITED LECTURES

Invitations lectures at the PhD level

- July 15-26 2024: Course on *Mean field games and applications to modeling of electricity markets* at the *summer school on Forecasting and Mathematical Modeling for Renewable Energy*, The University of British Columbia, Vancouver, Canada (invited by Ayşe Deniz Sezer)
- September 2023: Course on *Mean-field games applied to energy transition* at the Summer School *Stochastics, Statistics and Machine Learning and their Applications to Sustainable Finance and Energy Markets*, Vienna, Austria (invited by Christa Cuchiero, Josef Teichmann, Peter Friz, Almut Veraart, Fred Benth, Oliver Wintenberger and Markus Riedle).
- August 2022: Course on *Mean-field games (theoretical and numerical aspects)* at the *2022 Gene Golub SIAM Summer School* (Gran Sasso Science Institute (GSSI), Italy,invited by Sebastian Jaimungal, Francesca Biagini and Agostino Capponi).

Invitations to conferences as a plenary speaker

- April 2-5, 2024: *The International Conference on Computational Finance*, Amesterdam, Netherlands
- June 26-30, 2023: *11th General AMAMEF Conference*, Bielefeld, Germany.
- September 1-2, 2023: *Conference on stochastic control*, Berlin, Germany.

Other selected invited conferences and seminars

- June 2025: *Conference on Advances in stochastic control and reinforcement learning: theory and application*, Banff International Research Station for Mathematical Innovation and Discovery, Banff, Alberta, Canada.
- October 26-31, 2024: *International conference on Stochastic control and Games for Risk and Regulation*, Hammamet, Tunisia
- September 2-3, 2024: *Risk Mitigation – Climate, Finance and Energy*, Berlin, Germany
- July 8-12, 2024: *12th World Bachelier Congress*, Rio de Janeiro, Brazil.
- June 24-28, 2024: *Conference on new trends and challenges in stochastic differential games*, Banff International Research Station for Mathematical Innovation and Discovery, Banff, Alberta, Canada.
- May 20, 2024: *Le Mans Mathematical Laboratory 30th birthday*, Université Le Mans, France
- April 19, 2024: *Spring Colloquium on Probability and Finance*, Padova, Italy
- November 21, 2023: *Seminar in Probability and Financial Mathematics*, Université Le Mans, France.

- October 25-26, 2023: *Conference on Advances in Stochastic Control*, Stockholm, Sweden.
- September 18-19, 2023: *London-Paris Bachelier workshop*, Imperial College, Royaume-Uni.
- September 14, 2023: *Journées d'atelier FIME*, EDF, Paris, France.
- September 11-15, 2023: Summer School *Stochastics, Statistics and Machine Learning and their Applications to Sustainable Finance and Energy Markets*, Vienna, Austria.
- September 11-15, 2023: *Advances in Stochastic Analysis for Handling Risks in Finance and Insurance*, CIRM, Marseille, France (declined)
- July 26-28, 2023: *Workshop on mathematical modeling and forecasting of renewables*, University of British Columbia, Vancouver, Canada.
- July 6-8, 2023: *Workshop on Numerical Methods for Mean-Field Games*, University College of London, Royaume-Uni.
- July 01-05, 2023: *Congress of Romanian Mathematicians*, Pitesti, Roumanie.
- June 28-30, 2023: *INFORMS APS Conference*, Nancy, France.
- June 6-9, 2023: *SIAM Conference in Financial Mathematics*, Philadephia, USA.
- May 2023: *Seminaire Bachelier*, Paris, France.
- April 24-27, 2023: *Workshop on Stochastic control & Risk*, Hammamet, Tunisia
- March 2023: *Seminar in Stochastic Analysis*, University of Turin, Italie.
- February 2023: *Seminar in Financial Mathematics*, Oxford University, Royaume-Uni.
- February 2023: *Seminar in Probability*, Manchester University, Royaume-Uni.
- July 2022: Satellite Workshop on Financial Mathematics of the *International Congress of Mathematicians*, St. Petersburg, Russia
- June 2022: International Colloquium on BSDEs and Mean-Field Systems, Chambéry, France
- December 2021: Stochastics and Finance Seminar, Warwick University, UK (online).
- December 2021: Workshop on Mathematical Advances in Mean-Field Games, Institute for Mathematical and Statistical Innovation, Chicago (online).
- November 2021: Applications of Mean-Field Games: From Models to Practice, Institute for Mathematical and Statistical Innovation, Chicago (online).
- June 2021: SIAM Conference on Financial Mathematics (online).
- June 2021: Distributed Control: Decentralization and Incentives, CIRM, France.
- December 2020: Bachelier Seminar, Paris, France (online).
- July 2020: SIAM/CAIMS Annual Meeting, Toronto (online).
- June 2020: 9th International Colloquium on BSDEs and Mean-Field Systems, Annecy, France (postponed due to COVID).

- April 2020: Broad Directions in Mathematical Finance, Rutgers University (postponed due to COVID)
- December 2019: Seminar organized by EDF, Paris, France.
- October 2019: Conference on Advances in Stochastic Analysis for Handling Risks in Finance and Insurance, Marseille, France.
- October 2019: Seminar on Stochastic Control and Optimization, Imperial College London, UK.
- September 2019: Dynamics, Equations and Applications (DEA 2019) Conference, Krakow, Poland.
- June 2019: Seminar on Stochastic Analysis and Financial Mathematics, Warwick, UK.
- June 2019: SIAM Conference on Financial Mathematics, Toronto, Canada.
- April 2019: Workshop on Mean-field games, energy systems and other applications, Edinburgh, UK.
- July 2018: 10th World Bachelier Congress, Dublin, Ireland.
- July 2018: Stochastic Processes and Applications Conference (invited, not attended).
- June 2018: Financial Mathematics Seminar, Imperial College London, UK.
- April 2018: Financial Mathematics Seminar, Ecole Polytechnique-ENSAE-ENSTA, France.
- November 2017: Probability Seminar, Edinburgh, UK.
- November 2017: Mathematics and Computational Finance Seminar, Oxford, UK.
- September 2017: Workshop Stochastic Control, BSDEs and new developments, Roscoff, France.
- May 2017: Probability Seminar Universities Paris VI-Paris VII, Paris, France.
- April 2017: Finance and Stochastic Analysis Seminar, Oslo, Norway.
- February 2017: Probability Seminar, King's College London, UK.
- September 2016: Paris-London Bachelier Seminar,Paris, France.
- July 2016: Berlin-Singapore-Princeton Workshop, Princeton, USA.
- March 2016: GT Stochastic Models in Finance, Ecole Polytechnique, CMAP, Paris, France.
- December 2015: Seminar of Stochastic Analysis and Financial Mathematics, Humboldt University, Berlin.
- November 2015: Seminar of Stochastic Analysis, WIAS Institute, Berlin.
- March 2015: Seminar of Stochastic Analysis and Financial Mathematics, University of Evry, Paris.
- March 2015: Seminar of Stochastic Analysis, Imperial College, London.
- January 2015: Working Group Stochastic Methods and Finance, INRIA- ENPC- Paris East University.

- December 2014: Doctoral Day, Paris Dauphine University.
- September 2014: London-Paris Bachelier Seminar, Paris.
- June 2014: Conference Thematic Cycle on Robust management in finance, Paris.
- June 14, 2014: Doctoral Day, Paris Dauphine University.
- June 2014: Brussels, 8th Bachelier World Congress.
- March 2014: Seminar of Young Researchers, Paris Dauphine University.
- May 2013: Seignosse (Landes), SMAI Congress

LONG INVITATIONS

- Academic visits (March 2022, May 2022, March 2023 and December 2023) University of Milan, Department of Mathematics, Milan, Italy (invited by Prof. Luciano Campi)
- The Thematic Semester (1 week in February and 1 week in April 2019) on The Mathematics of energy systems at Isaac Newton Institute for Mathematical Sciences, Cambridge University.
- Academic Visit (July 2019) University of Connecticut, Department of Mathematics, United States of America (invited by O. Mostovy).
- Academic Visit (April 2018) University of Oslo, Department of Mathematics, Oslo, Norway (invited by B. Oksendal).
- Academic Visit (June 2016) University of Chambéry, Department of Mathematics, Chambéry, France (invited by C. Labart).
- Academic visit (October-November 2014, September 2015) Imperial College London, Department of Mathematics Mathematics, London, United Kingdom (invited by D. Crisan).
- Academic Visit (June-July 2014) ETH Zurich, Department of Mathematics, Zurich, Switzerland (invited by M. Soner).

TEACHING

- **LECTURES**
  - 2023- : Risk Neutral Valuation, MSc in Financial Mathematics (compulsory module, **100 students**), Mathematics Department, King's College London, UK
  - 2022- : Stochastic Control and Applications to Finance, MSc in Financial Mathematics (optional module, **60 students**), Mathematics Department, King's College London, UK
  - 2017-2023: Mathematical Finance in Discrete Time, Undergraduate Level, 3rd year (compulsory module, **280 students**), Mathematics Department, King's College London, UK
  - 2020-present: C++, 2nd and 3rd year ENSAE Paris (optional module, **60 students**), France

- 2016-2021: C++ for Financial Mathematics, Master Level (optional module, **100 students**), Mathematics and Computational Finance Masters, Mathematics and Informatics Departments, King's College London, United Kingdom

- **TUTORIALS** During my PhD I was a tutor at the Paris Dauphine University and ENSAE Paris. I delivered the following tutorials:
  - 2012-2015: Evaluation of financial assets in absence of arbitrage opportunities, Research Master 2 MASEF Université Paris Dauphine and 3rd year ENSAE.
  - 2014-2015: Introduction to finance, Undergraduate 2, Université Paris Dauphine, Paris, France.
  - 2012-2014: Linear Algebra 2, Undergraduate 1, Université Paris Dauphine, Paris, France.

AWARDS AND SCHOLARSHIPS

- **AWARDS**
  - Fellow of the British Higher Education Academy, June 2019.
  - Winner of the *International Programme Paris Graduate School of Mathematical Sciences*, the *Foundation Sciences Mathématiques de Paris*, 2010 (10 winners worldwide, the only one from Romania).
  - Price for collaborative actions during doctoral studies, awarded by the *Foundation Sciences Mathématiques de Paris*, October 2014.

- **SCHOLARSHIPS**
  - Junior Fellowship University of Milan, May 2022
  - Postdoctoral Fellowship, Research Training Group 1845 *Stochastic Analysis with Applications in Biology, Finance and Physics*, German Research Foundation (2 scholarships / 19 candidates, the only one in Finance).
  - Doctoral stay abroad funded by the Foundation Sciences Mathématiques de Paris in 2014.
  - PhD grant awarded by the Ile-de-France Region within the program *Major Interest Field in Mathematics* (2012-2015).
  - Master Grant from the *Foundation Sciences Mathématiques de Paris* (2010-2012).
  - Excellence Scholarship granted by the Faculty of Mathematics, University A.I. Cuza, Iasi, Romania (2007-2010).

GRANTS

- Joint research grant King's College London - Université de Paris on *Mean-field reinforcement learning* (2021-2023) - £ 56 000. PI from King's College

- Grant for the Workshop *New trends in stochastic control* (2020, postponed due to COVID) from the London Mathematical Society - £ 4000

- Grant for the Workshop *Mathematics in longevity risk management* (London, 27-28 June 2019) from the London Mathematical Society - £ 3400

- Grant for the Workshop *Mean-field games, energy and environment* (London, 12-14 February 2018) from the London Mathematical Society - £ 5000

- Starting Grant King's College London (2016) - £ 5000

ADMINISTRATIVE ACTIVITIES

- 2019 - present: **Programme Director** of the **MsC in Financial Mathematics**, King's College London.
- 2020 - 2021: Member of the Marketing group of the Mathematics Departement (during the COVID crisis)
- 2020 - 2021: Member of the REF group of the Mathematics Departement, King's College London, United Kingdom
- 2017 - 2019; 2020 - present: Member of the Department Education Committee, King's College London
- 2016 - 2017: Programme Director of the undergraduate degree *Mathematics with Management and Finance*, King's College London
- Organization of conferences, seminars and summer schools
  - 2020 - present: Co-organizer of the *One World Optimal Stopping and Related Topics Online Seminar Series.*
  - 2017 - present: Co-organizer of the *London Mathematical Finance Seminar*
  - 2018 - present: Co-organizer of the *King's College London Financial Mathematics Seminar.*
  - 14-15 October 2021: Co-organizer of the *Mean-Field Reinforcement Learning Workshop*, King's College London - Université de Paris (online).
  - 14-15 March 2021: Co-organizer of the *London-Paris Bachelier Workshop* (online).
  - 27-28 June 2019: Co-organizer of the *Workshop Mathematics in longevity risk management*, London, UK.
  - 1-5 April 2019: Co-organizer of the Workshop *Mean-field games, energy systems and other applications*, Edinburgh, United Kingdom.
  - 12-14 February 2018: Co-organizer of the Workshop *Mean-field games, energy and environment*, London, United Kingdom.
  - 15 March 2018: Co-organizer of the Workshop *Stochastics and Optimization in Energy*, King's College London, United Kingdom.
  - 2018 - 2019: Co-organizer of the *Series Perspectives from Academia and Industry: Synergies in Financial Research*, King's College London, United Kingdom
  - 2-4 November 2016: Co-organizer of the *First Paris-Berlin Young Researchers Workshop in Stochastic Analysis and Applications* , Berlin, Germany.
  - July 2016: Organizer of the *Section Stochastic Control and Applications in Finance*, 6th IMS-FIPS Workshop, University of Alberta, Edmonto, Canada.
  - August 2016: Co-organizer of the *RTG Summer School*, Berline, Germany.
  - 1-4 June 2016: Co-organizer of the *5th Berlin Worskshop on Mathematical Finance for Young Researchers*, Berlin, Germany.
  - 2015 - 2016: Co-organizer of the Berlin RTG Seminar, Berlin, Germany.

- 2013 - 2015: Co-organizer of the Seminar of Young Researchers, CEREMADE, Paris-Dauphine University, Paris, France.
- 2013 - 2015: Participation at the organization of the *Bachelier Paris Seminar*, Paris, France.

PhD JURIES, SCIENTIFIC COMMITTEES AND OTHER ACTIVITIES

- 2021-present: Appointed **External Examiner** (evaluator of the exams) of the *MSc in Financial Mathematics* of the *University of Edinburgh*, United Kingdom.
- PhD committees: CHONG Wing Fung (2017, King's College London), MGUNI David (2019, University College of London), BRIGAULT Philippe (2021, Université Paris 1), SEGURET Adrien (april 2023, University Paris Dauphine), DRISSI Fayçal (May 2023, University Paris 1)
- 2022: Member of the Scientific Committee for the *International PhD Programme of the Foundation des Sciences Mathematiques*, Paris, France.
- 2016: Member of the Scientific Committee for the *5th Berlin Worskshop on Mathematical Finance for Young Researchers.*
- 2016: Member of doctoral recruitment committee within the RTG Berlin
- Activity as a referee for the journals: *Annals of Probability, Finance and Stochastics, Applied Mathematics and Optimization, Bernoulli, Electronic Journal of Probability, Mathematical Finance, Stochastic Processes and Their Applications, SIAM Journal of Financial Mathematics, SIAM Journal on Control and Optimization, Journal of Optimization Theory and Applications, Statistics and Probability Letters, Stochastics, Stochastics and Dynamics, Mathematical Control and Related Fields, Journal of Mathematical Analysis and Applications, Decisions in Economics, Statistics, Mathematics of Operations Research etc.*