Bruno Buonaguidi
CURRICULUM VITAE

PERSONAL INFORMATION

Date of birth	6 August 1986
Citizenship	Italian
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Address	Piazzale Cuoco 5, 20137, Milan, Italy

EDUCATION

17 January 2014 — **PhD Statistics,** Bocconi University, Milan, Italy.
Thesis: *"Optimal stopping procedures and Bayes theory."*
Final grade: Excellent. Thesis advisor: Prof. Pietro Muliere.

4 March 2009 — **MSc Finance,** University of Pisa, Italy.
Thesis: "*Applied analysis on Italian pension funds.*"
Final grade: 110 cum laude. Thesis advisor: Prof. Luca Spataro.

18 October 2017 — **BSc Economics,** University of Pisa, Italy.
Final grade: 110 cum laude.

EMPLOYMENT HISTORY

Nov. 2018 - . — **Assistant Professor in Statistics,** Università Cattolica del Sacro Cuore, Department of Statistical Science, Milan.

Oct. 2016 - Oct. 2018 — **Research Fellow,** Università della Svizzera italiana, InterDisciplinary Institute of Data Science, Lugano. Principal researcher in a project for the development of early detection techniques of fraud in credit card transactions, funded by the AXA Research Foundation. Advisor: Prof. Antonietta Mira.

Jul. 2014 - Sep. 2016 — **Business Analyst,** Unicredit Business Integrated Solutions, Milan. Part of the development team in the Credit and Counterparty Risk Division focusing on back-testing procedures used by the bank to assess internal forecast and simulation models.

Sep. 2013 - Aug. 2014 — **Post Doctoral Research Fellow,** Bocconi University, Milan. Deepened understanding of sequential decision making problems. Advisor: Prof. Pietro Muliere.

Sep. 2009 - Aug. 2013 — **PhD Fellow,** Bocconi University, Milan. PhD dissertation dealt with optimal stopping problems and sequential decisions in statistics and finance.

APPROVED RESEARCH PROJECTS

June 2016 — **AXA Research Fund,** "Controlling cybersecurity risk: fast fraud detection using sequential and optimal stopping techniques" with complete responsibility on this research project without co-applicants including managing test data from major Swiss financial services company.

TEACHING ACTIVITIES

Sep. 2020 - Nov. 2020 — **Teaching Assistant,** "Statistical Inference", MSc in Data Analytics for Business (20h), Università Cattolica del Sacro Cuore, Milan.

Sep. 2020 - Dec. 2020 — **Teaching Assistant,** "Statistica", BSc course (30h), Università Cattolica del Sacro Cuore, Milan.

Feb. 2020 - Apr. 2020	**Principal Instructor,** “Statistica Applicata”**,** BSc course (35h), Università Cattolica del Sacro Cuore, Milan.
Sep. 2019 - Nov. 2019	**Teaching Assistant,** “Statistical Inference”, MSc in Statistical and Actuarial Sciences (20h), Università Cattolica del Sacro Cuore, Milan.
Sep. 2019 - Dec. 2019	**Teaching Assistant,** “Statistica”, BSc course (30h), Università Cattolica del Sacro Cuore, Milan.
May 2019	**Teaching Assistant,** “Metodi Quantitativi per il Management”, BSc course (9h), Università Cattolica del Sacro Cuore, Milan.
Feb. 2019 - Apr. 2019	**Principal Instructor,** “Statistica Applicata”**,** BSc course (30h), Università Cattolica del Sacro Cuore, Milan.
Nov. 2018 - Dec. 2018	**Teaching Assistant,** “Statistica”, BSc course (15h), Università Cattolica del Sacro Cuore, Milan.
Oct. 2017 - Dec. 2017	**Co-Instructor, “**Advanced Statistics”, MSc in Finance (14 h), with complete responsibility and autonomy for part of this course, Università della Svizzera italiana, Lugano.
May 2017	**Co-Instructor, “**An Introduction to Lévy Processes”, PhD in Mathematics (6h), with complete responsibility and autonomy for part of this course, Università dell’Insubria, Como.
Oct. 2016 - Dec. 2016	**Co-Instructor, “**Advanced Statistics”, MSc in Finance (14h), with complete responsibility and autonomy for part of this course, Università della Svizzera italiana, Lugano.
Oct. 2013 - Feb. 2014	**Teaching Assistant,** “Statistica”, BSc course (15h), Bocconi Unversity, Milan.
Oct. 2012 - Feb. 2013	**Teaching Assistant,** “Statistica”, BSc course (15h), Bocconi Unversity, Milan.
Nov. 2008 - Feb. 2009	**Teaching Assistant,** “Matematica Generale”, BSc course (15h), Faculty of Economics, University of Pisa.
Apr. 2008 - Jul. 2008	**Teaching Assistant,** “Microeconomia”, BSc course (15h), Faculty of Economics, University of Pisa.

SCIENTIFIC REVIEWING ACTIVITIES

Reviewer for:	Communication in Statistics – Simulation and Computation, European Journal of Operational Research, Italian Statistical Society (49th scientific meeting - 2018), Journal of Applied Probability, Journal of Statistical Computation and Simulation, Stochastic Processes and Their Applications.

PRIZES, AWARDS, FELLOWHIPS

June 2016	Winner of the AXA Research Fund post-doctoral fellowship for the research project “Controlling cybersecurity risk: fast fraud detection using sequential and optimal stopping techniques”. Duration: 2 years.
March 2014	Winner of the research fellowship for “Mathematical methods in Economics and Finance”, Scuola Superiore Sant’Anna, Pisa.
September 2013	Winner of the post-doctoral fellowship for “Candidate PhD”. Scientific sector: Statistics. Bocconi University, Milan. Duration: 1 year.
September 2013	PhD student Bocconi award for research activity, Bocconi University, Milan.
September 2009	Winner of a PhD fellowship in Statistics. Bocconi University, Milan. Duration: 4 years.
March 2009	“Excellence Path”, MSc in Finance, University of Pisa.

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ACADEMIC CAREER BREAKS

Jul. 2014 - Sep. 2016 **Business Analyst,** Unicredit Business Integrated Solutions, Milan.
After earning a PhD and working for one year as a post-doctoral researcher, I accepted a full-time job as a Business Analyst for a leading world bank to integrate my background in quantitative methods with the practical understanding of real risks that financial institutions face. As part of this high-performance team in the risk division of the bank, I gained valuable skills in problem solving, dialogue, cooperation, and collaboration to achieve results under pressure. This experience has been useful in providing an industry perspective for pursuing research problems inspired by real problems. During this break in my academic career, I continued to conduct research, write, and publish scientific articles.

CONFERENCES AND SEMINARS

25 - 29 June 2018 Invited speaker at the "Symposium on Optimal Stopping", Houston (Texas). Talk title : "Recent developments on optimal variance stopping problems".

10 January 2017 Seminar: "A collocation method for sequential testing problems" at the Institute of Computational Science, Università della Svizzera italiana, Lugano.

16 - 19 June 2014 Invited speaker at the "International Workshop on Applied Probability", Antalya (Turkey). Talk title: "A Collocation Method for the Sequential Testing of a Gamma Process".

17 - 21 July 2013 Invited speaker at the "Fourth International Workshop in Sequential Methodologies", University of Georgia, Athens (USA). Talk title: "Recent Developments on Sequential Testing for Lévy Processes".

PEER-REVIEWED PUBLICATIONS

Buonaguidi, B., Mira, A., Bucheli, H. and Vitanis, V. (2020+). Bayesian quickest detection of credit card fraud. *Bayesian Analysis*, to appear.

Buonaguidi, B. (2020). The disorder problem for purely jump Lévy processes with completely monotone jumps. *Journal of Statistical Planning and Inference*, 205 : 203-218.

Buonaguidi, B. (2018). Dynamic optimality in optimal variance stopping problems. *Statistics & Probability Letters,* 141: 103 - 108.

Buonaguidi, B. and Mira, A. (2018). Some optimal variance stopping problems revisited with an application to the Italian Ftse-Mib Stock Index. *Sequential Analysis,* 37: 90-101.

Buonaguidi, B. (2017). Discussion on "An effective method for the explicit solution of sequential problems on the real line" by Sören Christensen. *Sequential Analysis,* 36: 24-26.

Buonaguidi, B. and Muliere, P. (2016). Bayesian sequential testing for Lévy processes with diffusion and jump components. *Stochastics,* 88: 1099-1113.

Buonaguidi, B. and Muliere, P. (2016). Optimal sequential testing for an inverse Gaussian process. *Sequential Analysis,* 35: 69 - 83.

Buonaguidi, B. (2015). A remark on optimal variance stopping problems. *Journal of Applied Probability,* 52: 1187 - 1194.

Buonaguidi, B. and Muliere, P. (2015). A collocation method for the sequential testing of a gamma process. *Statistica Sinica,* 25: 1527-1546.

Buonaguidi, B. and Muliere, P. (2015). On the disorder problem for a negative binomial process. *Journal of Applied Probability,* 52: 167-179.

Buonaguidi, B. and Muliere, P. (2014). On the martingale and free-boundary approaches in sequential detection problems with exponential penalty for delay. *Stochastics,* 86: 865-869.

Buonaguidi, B. and Muliere, P. (2013). On the Wald's sequential probability ratio test for Lévy processes. *Sequential Analysis*, 32: 267-287.

Buonaguidi, B. and Muliere, P. (2013). Sequential testing problems for Lévy processes. *Sequential Analysis*, 32: 47-70.

Buonaguidi, B. and Muliere, P. (2012). A note on some sequential problems for the equilibrium value of a Vasicek process. *Pioneer Journal of Theoretical and Applied Statistics*, 4: 101-116.

OUTREACH PUBLICATIONS

Buonaguidi, B. and Mira, A. (2018). A Bayesian optimal stopping approach to credit card fraud detection. *Indian Bayesian Society Newsletter*, 15: 2-6.

Buonaguidi, B. (2017). Credit card fraud: what you need to know. *The Conversation* and reproduced, among others, by the *BBC*.