PIERPAOLO BATTIGALLI October 2021

Contact Information

Address	Bocconi University, Dept. Decision Sciences, via Roentgen 1, 20136 Milano, Italy.
WEBSITE	http://www.igier.unibocconi.it/battigalli.
Phone	$+39\ 02\ 58365402.$
E-mail	pierpaolo.battigalli@unibocconi.it.

Education

1992	PhD in Economics, PhD School jointly coordinated by Università Bocconi, Università
	Cattolica, and Università di Milano.
1989	M.Sc. in Econometrics and Mathematical Economics, London School of Economics
1987	B.A. in Economics and Social Sciences, Università Bocconi, Milano.

Research interests

Game Theory, Microeconomic Theory, Psychology and Economics.

Academic Career and Affiliations

2000-current	Professor, Bocconi University.
2019-current	Head of the Department of Decision Sciences.
2014-2019	Dean of the PhD School.
2004-2009	Director of PhD in Economics.
1999-2000	Director of Graduate Studies, Department of Economics, EUI.
1998-2000	Professor, European University Institute.
1994 - 1999	Assistant Professor, Princeton University.
1992 - 1994	Assistant Professor (Ricercatore), Politecnico di Milano.

Visiting positions

2011-2012	Visiting Scholar, New York University, Stern School of Business.
2005	Visiting Scholar, European University Institute.
2004	Visiting Scholar, New York University, Stern School of Business.
1997	Visiting Assistant Professor, Caltech, Pasadena.
1996	Visiting Fellow, IGIER, Milano.

Honors and Awards

2017	Elected <i>Economic Theory</i> Fellow.
2017	Elected Fellow of the <i>Game Theory Society</i> .
2013	Excellence in Refereeing Award, American Economic Review.
2012	Teaching award, Università Bocconi.
2011	Elected Fellow of the <i>Econometric Society</i> .
2000	IGIER Fellow.
1988 - 1989	Scholarship "Luciano Jona," Istituto Bancario San Paolo di Torino.
	-

Grants

2013-2017	Principal investigator ERC Advanced Grant "Reasoning About Strategic Interaction
	and Emotions." (ERC grant no. 324219)
2006-2008	Collaborator of M. Dufwenberg, NSF research project "Psychological Games and
	Communication."
2006-2008	Coordinator of MIUR research project "Applications of infinite games and their
	finite approximations."

2004-2005	Collaborator of G. Maggi, NSF research project "Modes of governance in
	international organizations."
2002-2003	MIUR research project "Heterogeneous beliefs, uncertainty and strategic interaction."
	(Head of Bocconi Unit)
2001-2003	Collaborator of G. Maggi, NSF research project "Complexity costs and contract
	incompleteness."
2000-2003	Collaborator of M. Siniscalchi, NSF research project "Studies in the foundations
	of game and auction theory."

Books

• Restrizioni razionali su sistemi di probabilitá soggettive e soluzioni di giochi ad informazione completa. Milano: EGEA, 1993.

Edited Books

• Decisions, Games and Markets. Dordrecht: Kluwer Academic Publishers, 1997 (with A. Montesano and F. Panunzi).

Articles and Notes in Refereed Journals

- "Belief-Dependent Motivations and Psychological Game Theory" (with M. Dufwenberg), *Journal of Economic Literature*, forthcoming.
- "Beliefs, Plans, and Perceived Intentions in Dynamic Games" (with N. De Vito), *Journal of Economic Theory* (2021), **195**, 105283.
- "Frustration and Anger in the Ultimatum Game: An Experiment" (with C. Aina, and A. Gamba), *Games and Economic Behavior* (2020), **122**, 150-167.
- "Behavioral Equivalence of Extensive Game Structures" (with P. Leonetti and F. Maccheroni), Games and Economic Behavior (2020), **121**, 533-547.
- "Epistemic Game Theory Without Type Structures. An Application to Psychological Games" (with R. Corrao, and F. Sanna), *Games and Economic Behavior* (2020), **120**, 28-57.
- "Incorporating Belief-Dependent Motivation in Games" (with R. Corrao, and M. Dufwenberg), Journal of Economic Behavior & Organization (2019), 167, 185-218.
- "Belief-Dependent Preferences and Reputation: Experimental Analysis of a Repeated Trust Game" (with G. Attanasi, E. Manzoni, and R. Nagel), Journal of Economic Behavior & Organization (2019), 167, 341-360.
- "Interactive Epistemology in Simple Dynamic Games with a Continuum of Strategies" (with P. Tebaldi), *Economic Theory* (2019), **68**, 737-763.
- "Learning and Self-Confirming Long-Run Biases" (with A. Francetich, G. Lanzani, and M. Marinacci), *Journal of Economic Theory* (2019), **183**, 740-785.
- "Frustration, Aggression, and Anger in Leader-Follower Games" (with M. Dufwenberg and A. Smith), *Games and Economic Behavior* (2019), **117**, 15-39.
- "Ambiguity Attitudes and Self-Confirming Equilibrium in Sequential Games" (with G. Lanzani, E. Catonini, and M. Marinacci), *Games and Economic Behavior* (2019), **115**, 1-29.
- "Cooperation Across Disciplines: A Multilevel Perspective on Cooperative Behavior in Governing Interfirm Relations" (with C. Salvato and J. Reuer), *Academy of Management Annals* (2017), **11**, 1-45.

- "Mixed Extensions of Decision Problems under Uncertainty" (with S. Cerreia Vioglio, F. Maccheroni, M. Marinacci), *Economic Theory* (2017), **63**, 827-866.
- "Analysis of Information Feedback and Selfconfirming Equilibrium" (with S. Cerreia Vioglio, F. Maccheroni, M. Marinacci), Journal of Mathematical Economics (2016), **66**, 40–51.
- "A Note on Comparative Ambiguity Aversion and Justifiability" (with S. Cerreia Vioglio, F. Maccheroni, and M. Marinacci), *Econometrica* (2016), **84**, 1903-1916.
- "Incomplete Information Models of Guilt Aversion in the Trust Game" (with G. Attanasi and E. Manzoni), *Management Science* (2016), **62**, 648-667.
- "Self-Confirming Equilibrium and Model Uncertainty" (with S. Cerreia Vioglio, F. Maccheroni, M. Marinacci), *American Economic Review* (2015), **105**, 646–677.
- "Deception: The Role of Guilt" (with G. Charness and M. Dufwenberg), Journal of Economic Behavior & Organization (2013), 93, 227-232.
- "Transparent Restrictions on Beliefs and Forward Induction Reasoning in Games with Asymmetric Information" (with A. Prestipino), *The B.E. Journal of Theoretical Economics* (2013), 13: Iss. 1 (Contributions), 1-53.
- "Forward Induction Reasoning Revisited" (with A. Friedenberg), *Theoretical Economics* (2012), 7, 57-98.
- "Interactive Epistemology and Solution Concepts for Games with Asymmetric Information" (with A. Di Tillio, E. Grillo and A. Penta), *The B.E. Journal of Theoretical Economics* (2011), 11 : Iss. 1 (Advances), Article 6.
- "Dynamic Psychological Games" (with M. Dufwenberg), Journal of Economic Theory (2009), 144, 1-35. [lead article, included in the 50th Anniversary special issue of the JET.]
- "Costly Contracting in a Long-Term Relationship" (with G. Maggi), *RAND Journal of Economics* (2008), **39**, 352-377.
- "Interactive Epistemology in Games with Payoff Uncertainty" (with M. Siniscalchi), *Research in Economics* (2007), **61**, 165-184.
- "Guilt in Games" (with M. Dufwenberg), American Economic Review (P&P), 97 (2007), 170-176.
- "Buyer Power and Quality Improvement" (with C. Fumagalli and M. Polo), *Research in Economics* (2007), **61**, 45-61.
- "Rationalization in Signaling Games: Theory and Applications," International Game Theory Review, 8 (2006), 1-27.
- "Rationalizable Bidding in First Price Auctions" (with M. Siniscalchi), Games and Economic Behavior, 45 (2003), 38-72.
- "Rationalization and Incomplete Information" (with M. Siniscalchi), Advances in Theoretical Economics, **3** (2003) (1), Article 3.
- "Rationalizability in Infinite, Dynamic Games of Incomplete Information," Research in Economics, 57 (2003), 1-38.
- "Strong Belief and Forward Induction Reasoning" (with M. Siniscalchi), *Journal of Economic Theory*, **106** (2002), 356-391.

- "Rigidity, Discretion and the Cost of Writing Contracts" (with G. Maggi), American Economic Review, **92** (2002), 798-817.
- "A Note on Rationalizability and Reputation with Two Long-Run Players," *RISEC (International Review of Economics and Business)*, **48** (2001), 383-393.
- "Hierarchies of Conditional Beliefs and Interactive Epistemology in Dynamic Games" (with M. Siniscalchi), Journal of Economic Theory, 88 (1999), 188-230.
- "Interactive Beliefs, Epistemic Independence and Strong Rationalizability" (with M. Siniscalchi), *Research in Economics*, **53** (1999), 247-273.
- "Recent Results on Belief, Knowledge and the Epistemic Foundations of Game Theory" (with G. Bonanno), *Research in Economics*, **53** (1999), 149-225.
- "Synchronic Information and Common Knowledge in Extensive Games" (with G. Bonanno), *Research in Economics*, **53** (1999), 77-99.
- "Dynamic Consistency and Imperfect Recall," *Games and Economic Behavior*, **20** (1997), 31-50.
- "On Rationalizability in Extensive Games," Journal of Economic Theory, 74 (1997), 40-61.
- "On 'Reputation' Refinements with Heterogeneous Beliefs" (with J. Watson), *Econometrica*, **65** (1997), 369-374.
- "The Logic of Belief Persistence" (with G. Bonanno), *Economics and Philosophy*, **13** (1997), 39-59.
- "Strategic Independence and Perfect Bayesian Equilibria," *Journal of Economic Theory*, **70** (1996), 201-234.
- "A Note on Stochastic Independence without Savage-Null Events" (with P. Veronesi), *Journal of Economic Theory*, **70** (1996), 235-248.
- "Strategic Rationality Orderings and the Best Rationalization Principle," Games and Economic Behavior, 13 (1996), 178-200.
- "Structural Consistency and Strategic Independence in Extensive Games," *Ricerche Economiche*, **48** (1994), 357-376.
- "A Comment on Strategic Rationality Orderings and Computation Trembles," *Economic Notes*, **23** (1994), 19-25.
- "Learning and Convergence to Equilibrium in Repeated Strategic Interaction" (with M. Gilli and C. Molinari), *Ricerche Economiche*, **46** (1992), 335-378.
- "Implementable Strategies, Prior Information and the Problem of Credibility in Extensive Games," *RISEC (International Review of Economics and Business)*, **35** (1988), 705-733.
- "Il concetto di equilibrio nei modelli strategici e parametrici," Il Giornale degli Economisti e Annali di Economia, 47 (1988), 99-118.

Reviews in Refereed Journals

• "Four Textbooks on Game Theory" (with M. Li Calzi), *Ricerche Economiche*, **47** (1993), 93-103.

Articles and Notes in Books

- "Strategies and Interactive Beliefs in Dynamic Games" (with A. Di Tillio and D. Samet), in D. Acemoglu, M. Arellano, E. Dekel (eds.) Advances in Economics and Econometrics, Tenth World Congress, Vol. 1 Economic Theory (Econometric Society Monographs No. 49), Cambridge: CUP, 2013, 391-422.
- "Giochi, teoria dei" in Dal XX al XXI secolo: problemi e prospettive (Enciclopedia del Novecento, Supplemento III, Volume A-G, 2004).
- "Games with Observable Deviators," in P. Battigalli, A. Montesano and F. Panunzi (eds.) *Decisions, Games and Markets*, Dordrecht: Kluwer Academic Publishers, 1997, 57-96.
- "Conjectural Equilibria and Rationalizability in a Game with Incomplete Information" (with D. Guaitoli), in P. Battigalli, A. Montesano and F. Panunzi (eds.) *Decisions, Games and Markets*, Dordrecht: Kluwer Academic Publishers, 1997, pp. 97-124.
- "Synchronic Information and Common Knowledge in Extensive Games" (with G. Bonanno), in M. Bacharach, L.A. Gerard-Varet, P. Mongin, and H. Shin (eds.) *Epistemic Logic and the Theory of Games and Decisions*, Dordrecht: Kluwer, 1997, pp. 235-263.
 [Also published in *Research in Economics* (1999), see above.]
- Comment to "On the Decision Theoretic Foundation of Game Theory" by M. Mariotti, in K.J. Arrow, E. Colombatto, M. Perlman, and C. Schmidt (eds) *The Foundations of Rational Economic Behavior*, London: McMillan, 1996.
- "Giochi ad informazione incompleta con aspettative soggettive mutuamente incoerenti," in A. Montesano (ed.) *Teoria economica dell'organizzazione*, Bologna: Il Mulino, 1996, pp. 211-233.
- "Algorithmic Solutions for Extensive Games," in G. Ricci (ed.) *Decision Processes in Economics*, Lecture Notes in Economics and Mathematical Systems, Berlin: Springer Verlag, 1991.

Work-in-Progress

- "Belief Change, Rationality, and Strategic Reasoning in Sequential Games" (with E. Catonini and J. Manili), mimeo.
- "Information Flows and Memory in Games" (with N. Generoso), mimeo.
- "Games with Noisy Signals about Emotions" (with N. Generoso), mimeo.
- "The Epistemic Spirit of Divinity" (with E. Catonini), mimeo.
- "Path Agreements and Off-Path Uncertainty" (with E. Catonini), mimeo.
- Strategic Uncertainty: An Epistemic Approach to Game Theory, Book in Preparation for MIT Press (with A. Friedenberg and M. Siniscalchi).
- "Learning and Selfconfirming Equilibria in Network Games" (with F. Panebianco, and P. Pin), IGIER working paper 637; arXiv:1812.11775 [econ.TH].
- "M&A Negotiations with Limited Information: How Do Opaque Firms Buy and Get Bought?" (with C. Chiarella, S. Gatti, and T. Orlando) IGIER working paper 596.
- "A Framework for the Analysis of Self-Confirming Policies" (with S. Cerreia Vioglio, F. Maccheroni, M. Marinacci, and T. Sargent), IGIER working paper 573.
- "Disclosure of Belief-Dependent Preferences in a Trust Game" (with G. Attanasi and R. Nagel), IGIER working paper 506.

Other Working Papers and Unpublished Papers

- "Context-Dependent Forward Induction Reasoning" (with A. Friedenberg), Università Bocconi, IGIER working paper 351 (2009).
 [An abridged version of this paper is published in *Theoretical Economics* under the title "Forward Induction Reasoning Revisited."]
- "International Agreements on Product Standards: An Incomplete-Contracting Theory" (with G. Maggi), NBER working paper #9533, IGIER working paper 229 (2003).
- "Contracting Over Time When Writing is Costly," Working Papers in Economic Theory, No. 00F5 (2001), Princeton University.
 [Working paper versions of "Costly Contracting..." RAND J.Econ.]
- "Imperfect Contracting" (with G. Maggi), Working Papers in Economic Theory, No. 00S11 2000, Princeton University.
 [Working paper version of "Rigidity, Discretion and the Cost of Writing Contracts," American Econ. Rev.]
- "Rationalizable Bidding in General First Price Auctions" (with M. Siniscalchi), IGIER Working Paper No. 190, (2000).
 [Working paper version of "Rationalizable Bidding in First Price Auctions," *Games Econ.Behavior*]
- "A Comment on Non-Nash Equilibria," typescript, 1999.
- "Rationalizability in Incomplete Information Games," E.U.I., Working Paper ECO 99/17.
- "Interactive Beliefs and Forward Induction," European University Institute, Working Paper ECO 99/15.

[Working paper version of "Strong Belief and Forward Induction Reasoning" *J.Econ. Theory* (2002); most of the results omitted from the published version have been collected in "Interactive Epistemology in Games with Payoff Uncertainty" *Research in Economics.*]

- "An Epistemic Characterization of Extensive Form Rationalizability," Social Sciences Working Paper 1009, Caltech 1997 (with M. Siniscalchi).
 [Earlyversion of "Strong Belief and Forward Induction Reasoning" J.Econ. Theory.]
- "Strategic Independence, Generally Reasonable Extended Assessments and Consistent Assessments," mimeo, IEP U. Bocconi, 1991.
 [Early version of "Strategic Independence...," *J.Econ. Theory*, 1996).]
- "A Note on Structural Consistency, Strategic Independence and Rationality," working paper #1991-03, IEP Università Bocconi.
 [Early version of "Structural Consistency, Strategic Independence...," *Ricerche Economiche*, 1994.]
- "Conjectural Equilibria and Rationalizability in a Macroeconomic Game with Incomplete Information" (with G. Guaitoli), Quaderni di Ricerca 1988-6, I.E.P., Università Bocconi. [Working paper version of Battigalli and Guaitoli, 1997.]

Unpublished Dissertation

• Comportamento razionale ed equilibrio nei giochi e nelle situazioni sociali, Università Bocconi, Milano, 1987.

Recent Professional Activities

Charter member of the *Game Theory Society*.

Member of the Council of the *Game Theory Society*.

Organizer

2001-2003

- 2018 Co-organizer, LOFT 2018, Milan, Bocconi University.
- 2018 Co-organizer, "Summer School and Workshop on Psychological Games," Otranto.
- 2015 Local co-organizer, RUD (Risk, Uncertainty and Decision), Bocconi University.

2007, '17, '18 Co-organizer, "CSEF-IGIER Symposium on Economics and Institutions," Anacapri.

2005 Co-organizer, PIER-IGIER conference on Economic Theory, Philadelphia.

2005 Organizer, "Interactive Epistemology and Game Theory" session, SAET, Vigo.

2005 Co-organizer, workshop on "Stochastic Methods in Game Theory," Erice.

- 2005 Co-organizer, conference on "Economic Theory and Experimental Economics," Milano.
- Program Committee Member
- 2001, '03, '13, '18 Program Committee Member for the European Meeting of the Econometric Society. 2012, 2003 Member of the Scientific Committees of RUD (workshop on Risk, Uncertainty and Decision).
 - 2008 Member of the Local Arrangements Committee for the EEA-ESEM conference, Milano.
 - 2005, 2019 Program Committee Member for TARK (Theoretical Aspects of Rationality and Knowledge)
 - 2005 Conference on "Economic Theory and Experimental Economics," Milano.
 - 2004 Member of the Scientific Committees of SMGTP (Spanish Meeting on GT and Practice).

Editorial Board Member

Journal of Economic Theory, Editor, 2021-

 $Econometrica,\ 2009\mathchar`2017$

Games and Economic Behavior, 2001-

International Journal of Game Theory, 2000-2018

International Review of Economics, 2015-

Research in Economics, 1998-2016

Theoretical Economics, open-access journal of the Econometric Society, 2006-2015

Advisory Board Member

Texts in Logic and Games, Amsterdam University Press.

Invited 1	plenary and semi-plenary lectures (2007-present)
2020	Conference on Mechanism Design and Institutions 2020, Klagenfurt (moved online)
2019	EDEEM Doctoral Summer Workshop in Economics, Venice.
2019	"Social Interactions in Epistemology and in Economics," CIBS, Copenhagen.
2019	1^{st} CoCoLab "Workshop in Economics and Psychology," Nice.
2017, 2018	"Workshop on Psychological Game Theory" (Norwich 2017, Soleto 2018).
2017	"Theoretical Aspects of Reasoning about Knowledge" (TARK), Liverpool.
2017	"Microfoundation of Expectations" Max Plank Institut, Leipzig.
2016	"Logic, Decision and Interaction," Lorentz Center, Leiden.
2015	Summer School "New Approaches to Political Economy," Canazei (Trento).
2015	Workshop "Knightian Uncertainty in Strategic Interactions and Markets," Bielefeld.
2014	Tutorial at the "Games and Decisions 2," workshop, Scuola Normale Superiore, Pisa.
2014	The 11th Conference on "Logic and the Foundations of Game and Decision Theory," Bergen.
2014	Workshop on "Communication, Reciprocity, and Beliefs," Rome.
2013	"Psychology in Game Theory," EEA conference, Gotheborg.
2013	Tutorial at the "Games and Decisions" workshop, Scuola Normale Superiore, Pisa.
2013	"Workshop on Bounded Rationality," Paris.
2012	Roundtable on Knowledge and Rationality, conference on "The Constructive in Logic
	and Applications," CUNY, New York.
2011	"Game Theory Festival," SUNY at Stony Brook.
2010	Tenth World Congress of the Econometric Society, Shangai.
2010	"Game Theory Festival, Workshop on Epistemic Game Theory," Stony Brook.
2009	Tutorial at the "Decisions, Games and Logic Workshop 2009," Lousanne.
2008	Lecture on "Regret and psychological games," Center for Behavioral Economics,
	University of Arizona, Tucson.
2008	Third World Congress of the Game Theory Society, Evanston IL.
2008	Workshop "Understanding Moral Emotions," Istituto di Scienze e Tecnologia della
	Cognizione, Roma.
2008	"Workshop on Game Theory," Università Milano Bicocca, March.
2007	"Game Science Conference in Honor of Ehud Kalai," Jerusalem.
2007	Conference "Reciprocity: Theories and Facts," Verbania.

Invited planamy and some planamy lastures (2007 progent)

Invited seminars (2007-present)

Economics & Psychology Seminars (Paris School of Economics); One World Mathematical Game Theory Seminar (Gamenet); Queen Mary University of London, Institute of Mathematical Economics, Bielefeld University (two times); University of Oxford; University of Gothemburg; UCLA; UC Davis (two times); UC San Diego; Georgetown University; MIT and Harvard University (joint theory seminar); Columbia University; Duke University; University of Arizona; New York University (three times); Princeton University; University of Pennsylvania; Yale University; University of Wisconsin, Madison; University of Zurich; HSS, California Institute of Technology, Pasadena; University of Arizona, Tucson; Paris Game Theory Seminars, Institute Poincarè, Paris; University of Oslo; Paris School of Economics, Paris; London School of Economics; Universidad Carlos III de Madrid; Universitat Pompeu Fabra, Barcelona; Università di Milano Bicocca; Boston University; UC Berkeley; Arizona State University, Phoenix; Brunel, London; Northwestern University (two times); Université des Sciences Sociales, Toulouse (two times); Université Paul Sabatier, Toulouse; University of Essex; Dept. Economics, MIT, Cambridge MA; "Collegio Carlo Alberto," Torino; University of Leicester; CORE, University of Louvain; University of Brescia; University of Lausanne (series of lectures on "Interactive Epistemology"); University of Paris 1; University of Southampton; University of Bilbao; Università di Siena; Politecnico di Milano; University of Nottingham;

University of Copenhagen; University of Southern Denmark, Odense; LUISS, Rome, University of Venice Ca Foscari, Nazarbayev University.

Presentations at Conferences (2007-present)

2020	Twelfth World Congress of the Econometric Society, Bocconi U. (moved online).
2019	The Economics of Social Interactions, Venice.
2017, 2018	EEA-ESEM Conference (Lisbon, Cologne).
2017	EUI Alumni Conference, Fiesole (Florence).
2006 - 2019	"CSEF-IGIER Symposium on Economics and Institutions," Anacapri.
2017	Stochastic Methods in Game Theory, Erice.
2016, 2017	D-TEA (Decisions: Theory, Experiments, and Applications)," Paris.
2016	SIE conference, Milan.
2016	"Advances in Decision Making," Politecnico di Milano.
2016	40th Anniversary of the EUI Economics Department, Fiesole (Florence).
2015	Eleventh World Congress of the Econometric Society, Montreal.
2013	SAET conference on "Advances in Economic Theory," Paris.
2013	"Game Theory at the Universities of Milano III," Milan.
2012	Fourth World Congress of the Game Theory Society," Istanbul.
2011	RUD conference, Torino.
2011	SAET conference on "Advances in Economic Theory," Faro.
2011	IMEBE conference, Barcelona.
2009	SAET conference on "Advances in Economic Theory," Ischia.
2008	EEA-ESEM conference, Milano.
2007	ESA world conference, Roma.
2007	IMEBE conference, Malaga.
2007	Invited presentation, Winter Meeting of the American Economic Association.

Reviewing Activity

American Economic Review, Economic Journal, Economic Theory, Economics and Philosophy, Econometrica, European Economic Review, Games and Economic Behavior, International Economic Review, Journal of Economic Behavior and Organization, Journal of Economic Literature, Journal of Economic Theory, Journal of the European Economic Association, Journal of International Economics, Journal of Mathematical Economics, Journal of Political Economy, Management Science, Mathematical Social Sciences, Proceedings of the National Academy of Sciences, Quarterly Journal of Economics, The Rand Journal of Economics, Review of Economic Studies, Theory and Decision, AXA, ERC, FNS, NSF, MIUR, Israel Science Foundation.