

ALFRED GALICHON

Work addresses: NYU Economics, 19 W 4th St., New York, NY 10012 (USA)
NYU Paris, 57 boulevard Saint-Germain, 75005 Paris (France)
E-mail: ag133@nyu.edu
Citizenship: France (US permanent resident)
Marital status: Married, 3 children
Date of birth: May 4, 1977

ACADEMIC EMPLOYMENT

Permanent positions:

2015- **New York University**, professor of economics (Faculty of Arts & Science) and of mathematics (Courant Institute); affiliate faculty, Center for Data Science.
2012-2016 **Sciences Po, Paris**, professor of economics.
2007-2012 **Ecole polytechnique**, assistant professor, then professor of economics.

Visiting positions:

Spring 2018 **Sciences Po**, visiting professor of economics.
Fall 2017 **Toulouse School of Economics**, visiting fellow.
2014-2015 **Massachusetts Institute of Technology**, visiting professor of economics.
Spring 2011 **Columbia University**, Alliance visiting professor of economics.
Spring 2010 **University of Chicago**, visiting assistant professor of econometrics and statistics, Booth School of Business.

LEADERSHIP

2018- Site director, **New York University in Paris**.

EDUCATION

2007 Ph.D. (Economics), **Harvard University**.
2003 M.Sc. (Ingénieur au corps des Mines), **Ecole des Mines de Paris**.
2000 B.Sc. (Mathematics and Economics), **Ecole Polytechnique (X97)**.

RESEARCH FUNDINGS (as principal investigator)

- “Optimal and equilibrium transport: theory and applications to economics and data science.” **National Science Foundation (NSF)** grant DMS-1716489, 2017-2020. Amount awarded: \$299,988.
- “EcoMatch. Matching Markets: Theoretical and Empirical Investigations.” **European Research Council (ERC)** Starting Grant no. 313699, 2013-2016. Amount awarded: €1,119,000.

EDITORIAL BOARDS

- Co-Editor, *Economic Theory* (2016-present).
- Associate Editor, *Review of Economic Studies* (2012-2016), *Economic Theory* (2011-2016), and *Annals of Economics and Statistics* (2009-present).

SOFTWARE

- “TraME: Transportation Methods for Econometrics,” econometrics tools for consumer demand and matching problems. With Keith O’Hara. <https://github.com/TraME-Project>.

ACADEMIC RESEARCH

Monographs:

Optimal Transport Methods in Economics (2016). Princeton University Press, 184 pp.

Papers in revision:

39. “A model of decentralized matching without transfers”. With Yu-Wei Hsieh. Revision requested, *International Economic Review*.
38. “A note on the estimation of job amenities and labor productivity”. With Arnaud Dupuy. Revision requested, *Quantitative Economics*.
37. “Cupid’s Invisible Hand: Social Surplus and Identification in Matching Models”. With Bernard Salanié. Revision requested (2nd round), *Review of Economic Studies*.

Published and forthcoming papers:

36. “Estimating matching affinity matrix under low-rank constraints” (2019) With Arnaud Dupuy and Yifei Sun. Accepted for publication in *Information and Inference*.
35. “Like Attract Like: A Structural Comparison of Homogamy Across Same-Sex and Different-Sex Households”. With Edoardo Ciscato and Marion Goussé. Accepted for publication in the *Journal of Political Economy*.
34. “On Human Capital and Team Stability”. With Pierre-André Chiappori and Bernard Salanié. Forthcoming in the *Journal of Human Capital*.
33. “Costly Concessions: An Empirical Framework for Matching with Imperfectly Transferable Utility”. With Scott Kominers and Simon Weber. Forthcoming, *Journal of Political Economy*.
32. “Vector quantile regression beyond the specified case” (2017). With Guillaume Carlier and Victor Chernozhukov. *Journal of Multivariate Analysis* 161, pp. 96-102
31. “The econometrics and some properties of separable matching models” (2017). With Bernard Salanié. *American Economic Review: Papers and Proceedings* 107(5), pp. 251-255.
30. “A Survey of Some Recent Applications of Optimal Transport Methods to Econometrics” (2017). *Econometrics Journal* 20 (2), pp. C1-C11.
29. “Monge-Kantorovich Depth, Quantiles, Ranks and Signs”. With Victor Chernozhukov, Marc Hallin, and Marc Henry. *Annals of Statistics* 45 (1), pp. 223-256.
28. “Ordinal and Cardinal Solution Concepts for Two-Sided Matching” (2017). With Federico Echenique. *Games and Economic Behavior* 101, pp. 63-77.
27. “Matching in Closed-Form”. With Raicho Bojilov. *Economic Theory* 61(4), pp. 587-609.

26. “Vector Quantile Regression” (2016). With Guillaume Carlier and Victor Chernozhukov. *Annals of Statistics* 44 (3), pp. 1165—1192.
25. “Duality in dynamic discrete choice models” (2016). With Khai Chiong and Matt Shum. *Quantitative Economics* 7(1), pp. 83—115.
24. “Local utility and risk aversion” (2016). With Arthur Charpentier and Marc Henry. *Mathematics of Operations Research* 41(2), pp. 466—476.
23. “The Nonlinear Bernstein-Schrodinger Equation in Economics” (2015). With Scott Kominers and Simon Weber. Proceedings of the Second Conference “Geometric Science of Information,” F. Nielsen and F. Barbaresco, eds. *Springer Lecture Notes in Computer Sciences* 9389, pp. 51-59.
22. “Canonical correlation and assortative matching: a remark” (2015). With Arnaud Dupuy. *Annals of Economics and Statistics* 119-120, pp. 375—383.
21. “Personality traits and the marriage market” (2014). With Arnaud Dupuy. *Journal of Political Economy* 122 (6), pp. 1271-1319. Winner of the 2015 E. Malinvaud prize.
20. “Entropy methods for identifying hedonic models” (2014). With Arnaud Dupuy and Marc Henry. *Mathematics and Financial Economics* 8, pp. 405–416 (special issue in celebration of Ivar Ekeland’s 70th birthday).
19. “Extreme dependence for multivariate data” (2014). With Damien Bosc. *Quantitative Finance* 14(7), pp. 1187-1199.
18. “Variational representations for N-cyclically monotone vector fields”. With Nassif Ghoussoub (2014). *Pacific Journal of Mathematics*, 269 (2), pp. 323-340.
17. “A stochastic control approach to No-Arbitrage bounds given marginals, with an application to Lookback options” (2014). With Pierre Henry-Labordère and Nizar Touzi. *Annals of Applied Probability*, Vol. 24, No. 1, 312-336.
16. “Identification of Matching Complementarities: A Geometric Viewpoint” (2013). *Advances in Econometrics* vol. 31: Structural Econometric Models, edited by E. Choo and M. Shum.
15. “Dilation Bootstrap: A methodology for constructing confidence regions with partially identified models” (2013). With Marc Henry. *Journal of Econometrics* 177 (1), pp. 109–115.
14. “The Housing Problem and Revealed Preference Theory: Duality and an Application” (2013). With Ivar Ekeland. *Economic Theory* 54(3), 425–441.
13. “Ambiguïté, identification partielle et politique environnementale” (2013). With Marc Henry. *Revue économique* 64, 603–613, special issue in the honor of Claude Henry.
12. “Pareto efficiency for the concave order and multivariate comonotonicity” (2012). With Guillaume Carlier and Rose-Anne Dana. *Journal of Economic Theory* 147(1), pp. 207–229.
11. “Dual theory of choice under multivariate risks” (2012). With Marc Henry. *Journal of Economic Theory* 147(4) 1501–1516.
10. “Exponential convergence for a convexifying equation” (2012). With Guillaume Carlier. *Control, Optimisation and Calculus of Variations* 18(3), pp. 611–620.
9. “Set identification in models with multiple equilibria” (2011). With Marc Henry. *Review of Economic Studies* 78(4), pp. 1264-1298.
8. “Comonotonic measures of multivariate risks” (2012). With Ivar Ekeland and Marc Henry. *Mathematical Finance* 22 (1), pp. 109-132.
7. “Quantile and Probability Curves without Crossing” (2010). With Victor Chernozhukov and Ivan Fernandez-Val. *Econometrica* 78(3), pp. 1093-1125.
6. “Rearranging Edgeworth-Cornish-Fisher Expansions” (2010). With Victor Chernozhukov and Ivan Fernandez-Val. *Economic Theory* 42(2) pp. 355-337.
5. “The VaR at Risk” (2010). *International Journal on Theoretical and Applied Finance* 13, No. 4, pp. 503-506.

4. “From Knothe's transport to Brenier's map and a continuation method for optimal transport” (2010). With Guillaume Carlier and Filippo Santambrogio. *SIAM Journal on Mathematical Analysis* 41 (6), pp. 2554-2576.
3. “Optimal transportation and the falsifiability of incompletely specified economic models” (2010). With Ivar Ekeland and Marc Henry. *Economic Theory* 42(2), pp. 419-435.
2. “Improving Point and Interval Estimators of Monotone Functions By Rearrangement” (2009). With Victor Chernozhukov and Ivan Fernandez-Val. *Biometrika* 96, pp. 559-575.
1. “Test of non-identifying restrictions and confidence regions for partially identified parameters” (2009). With Marc Henry. *Journal of Econometrics* 152(2), pp. 186-196.

Technical reports:

3. “The Roommate Problem is More Stable Than You Think”. With Pierre-André Chiappori and Bernard Salanié. SSRN.
2. “Matching with Trade-offs: Revealed preferences over competing characteristics” (2010). With Bernard Salanié. CEPR Discussion Paper.
1. “Inference in Incomplete Models” (2006). With Marc Henry. SSRN.

Working papers:

- “Yogurts Choose Consumers? Identification of Random Utility Models via Two-Sided Matching”. With Odran Bonnet, Keith O’Hara and Matt Shum. SSRN.
- “Taxation in matching markets”. With Arnaud Dupuy, Sonia Jaffe, and Scott Kominers. SSRN.
- “Single-Market Identification of Multi-Attribute Hedonic Equilibrium Models”. With Victor Chernozhukov, Marc Henry, and Brendan Pass. SSRN.

Essays:

2. *Smoke and Mirrors, Inc. Accounting for Capitalism*, with Matthieu Autret and Nicolas Véron, Ithaca: Cornell University Press, 2006.
1. *L'Information financière en crise : Comptabilité et Capitalisme*, with Matthieu Autret and Nicolas Véron, Paris: Odile Jacob, 2004.

DOCTORAL SUPERVISION (as main advisor)

12. Pauline Corblet (Sciences Po, Economics; expected defense 2021).
11. Octavia Ghelfi (NYU, Economics; co-advised with Alessandro Lizzeri; expected defense 2021)
10. Lucas Vernet (Sciences Po, Economics; expected defense January 2019). Initial placement: economist, Banque de France.
9. Keith O’Hara (NYU, Economics; defended September 2018). Initial placement: economist, Amazon.
8. Jean-Baptiste Vilain (co-advised with Philippe Février; Sciences Po, Economics; defended June 2018). Initial placement: data scientist, Veltys.
7. Monty Essid (co-advised with Bob Kohn; NYU, Mathematics; defended June 2018). Initial placement: senior quantitative researcher associate, Morgan Stanley.
6. Mathilde Poulhès (co-advised with Denis Fougère; Sciences Po, Economics; defended June 2018). Initial placement: research scientist, SSP Lab.
5. Odran Bonnet (Sciences Po, Economics; defended June 2018). Initial placement: administrateur, INSEE.

4. Yifei Sun (co-advised with Eero Simoncelli; NYU, Mathematics; defended April 2018). Initial placement: research scientist, Facebook.
3. Simon Weber (Sciences Po, Economics; defended September 2017). Initial placement: research scholar, Becker Friedman Institute, University of Chicago.
2. Flavien Léger (co-advised with Nader Masmoudi; NYU, Mathematics; defended May 2017). Initial placement: postdoctoral scholar, UCLA Mathematics.
1. Damien Bosc (Ecole Polytechnique, Economics; defended June 2012). Initial placement: research engineer, EDF R&D.

TEACHING

Invited lectures, short courses:

- *“Matching models with general transfers.”*
Mini-course, Summer school “Optimal transport and economics,” **Hausdorff Center**, Bonn, July 2018.
- *“Economic applications of optimal transport”*.
Short course, Summer school “Optimal transport: numerical methods and applications,” **Lake Como School of Advanced Studies**, May 2018.
- *“Optimal transport and applications to economics, statistics and finance.”*
CFM-Imperial distinguished lectures, **Imperial College**, London, March 2018.
- *“Optimal Transport Methods in Economics.”*
Lecture series, **Toulouse School of Economics**, November 2017.
- *“CORE Lectures on the Econometrics of matching markets.”*
Lecture series, **CORE, Université Catholique de Louvain**, June 2016.
- *“Matching Models: Theory and Estimation.”*
Lecture series, **CEMFI**, Madrid, July 2015.
- *“Estimation of Matching Models with and without Transferable Utility.”*
Mini-course, thematic workshop on Optimization, Transportation and Equilibrium in Economics, **Fields Institute**, Toronto, September, 2014.
- *“Estimation of Matching Models.”*
Toulouse School of Economics, June 2014.
- *“Labor Market as a Matching Market: Theory and Empirics.”*
Ensae-CREST OFPR, PhD short course, 10h, spring 2012.

PhD courses:

- *“Multinomial Choice and Matching: Theory and Applications.”*
Sciences Po, PhD course, 24h, spring 2018.
- *“Matching models and their applications.”*
NYU Economics and Mathematics Departments, PhD course, 28h, spring 2016, and 2017.
- *“New Econometric Methods, part 2: Optimal Transport Methods in Economics”*
MIT 14.386, PhD course (half), 14h, spring 2015.
- *“Linear Programming and Economic Applications.”*
Sciences Po, PhD short course, 8h, summer 2014.
- *“Matching Markets: Theory and Applications.”*
Sciences Po KECD 2175, PhD course, 24h, spring 2013, spring 2014.
- *“Theoretical and Empirical Aspects of Matching Markets.”*
Columbia University G6232, PhD course, 30h, spring 2011.

Master level courses:

- “*Introduction to causal inference for data scientists.*”
NYU Center for Data Science DS-GA 3001, spring 2017.
- “*Statistical Methods in Economics, part 2.*”
MIT 14.381, MSc course (half), 20h, fall 2014.
- “*Decision Under Risk.*”
Sciences Po KFIN 2655A/16243, Master (M2) level course, 24h, Fall 2013.
- “*Financial Markets.*”
Ecole Polytechnique Eco 559/584, Master (M1) level course, 32h, 2007-2011.
- “*Asset Pricing and Economics of Uncertainty.*”
Ecole Polytechnique Eco 558/550/550A, Master (M1) level course, 32h, 2007-2010.

MBA courses:

- “*Business statistics.*”
Chicago Booth 41000, MBA course, 30h, spring 2010.

Undergraduate courses:

- “*Advanced Econometrics.*”
MIT 14.36, undergraduate course, 26h, spring 2015.
- “*Economics of the Firm.*”
Ecole Polytechnique Eco 433, undergraduate course, 32h, fall 2011.

HONORS, FELLOWSHIPS AND AWARDS

- Young Leaders program of the French-American foundation, 2018.
- Keynote speaker, 5th annual conference of the International Association of Applied Econometrics, Montreal, 2018.
- Keynote speaker, keynote speaker, 9th French econometrics conference, 2017.
- CORE lectures, Louvain-la-Neuve, Belgium, 2016.
- Edmond Malinvaud Prize, Association Française de Science Economique, 2015.
- IZA Research fellow (since 2014).
- CEPR Research fellow (since 2013).
- Nominated for the 2010 *Le Monde*-Cercle des Economistes prize of the Best French Economist under 40.
- Arthur Sachs Fellowship, 2003-2004.
- Harvard Club of France Fellowship, 2003-2004.

OTHER PROFESSIONAL ACTIVITIES

Program committees:

- Program committee (co-chair), 2013 Society for the Advancement of Economic Theory (SAET) Meetings.
- Program committee, European Economic Association (2013, 2014, 2015).
- Program committee, Econometric Society European Meetings (2012, 2013).

Organized conferences and seminars:

16. Co-organizer, “Economics Meets the Mathematical Sciences” workshop, Fields Institute, Toronto, April 10-12, 2019 (with Robert McCann and Xianwen Shi).

15. Co-organizer, “conference on machine learning and optimization in economics,” Cemmap, University College London, March 2018 (with Simon Lee).
14. Co-organizer, “Econometrics Meets Theory,” NYU CRATE Conference, April 7-8, 2017 (with Isabelle Perrigne and Quang Vuong).
13. Co-organizer, “Optimal Transportation, Equilibrium, and Applications to Economics” workshop, New York University, April 29-30, 2016 (with Robert McCann).
12. Co-organizer, “Optimization, Transportation and Equilibrium in Economics” conference, Fields Institute, Toronto, September 15-19 2014 (with Pierre-André Chiappori, Robert McCann, and Xianwen Shi).
11. Co-organizer, “Matching, theory and estimation” Sept 26-27, 2013 (with Jean-Marc Robin).
10. Co-chair, SAET meetings, Paris, 2013 (with Bernard Cornet and Nicholas Yannelis).
9. Co-organizer, workshop “estimation of complementarities in matching and networks”, Sciences Po, October 5-6, 2012 (with Marc Henry and Jean-Marc Robin).
8. Co-organizer, Roy seminar on Economic Theory (with Pierre Fleckinger, Laurent Lamy, and David Martimort, 2011-2012).
7. Co-organizer, conference “The life and work of Maurice Allais, from one century to the next”, May 30, 2011 (with Pierre-Noel Giraud).
6. Co-organizer, “ParisTech-Journal of Economic Theory symposium on Inequality and Risk measurement,” June 25-26, 2010 (with Thibault Gajdos, Jean-Michel Grandmont, Brian Hill, Karl Shell and John Weymark).
5. Co-organizer, summer school “Stats in the Chateau”, HEC (Paris), September 2009 (with P. Alquier, V. Czellar, E. Gautier, G. Stoltz).
4. Co-organizer, workshop “Optimization, Transportation and Equilibrium in Economics”, Ecole des Mines de Paris, July 6-8th 2009 (with G. Carlier, F. Santambrogio, T. Tomala).
3. Co-organizer, workshop “Dynamic and multivariate risk measures”, Institut Henri Poincaré, Paris, Oct 16-17, 2008 (with R.-A. Dana)
2. Co-organizer, X-HEC seminar in Economic Theory (with N. Houy, E. Perez, and T. Tomala, 2008-2011).
1. Co-organizer, weekly workshop "Optimal transport methods for quantitative finance," Institut Henri Poincaré (with R. Cont, 2009-2010).

SEMINAR AND CONFERENCE PRESENTATIONS

Invited seminar presentations:

- 2017-2018:** Toulouse School of Economics, University College London, University of Southern California, CalTech, University of California San Diego, Yale, Princeton, London School of Economics, Séminaire Pluridisciplinaire d’Optimisation de Toulouse, Université libre de Bruxelles, Duke, Wharton, Sciences Po
- 2016-2017:** Sciences Po, Wharton, Duke, SPOT, Université Libre de Bruxelles, London School of Economics, Yale, Princeton, UC San Diego, CalTech, University of Southern California, University College London, TSE.
- 2016-2017:** INRIA Paris, Columbia (Statistics), Microsoft Research New York, Urbana Champaign, Columbia GSB, Penn State University.
- 2015-2016:** University of Toronto, University of Southern California, Penn State University, Fields Institute, Universidade de Lisboa.
- 2014-2015:** Louvain-la-Neuve, Chicago, UPenn, Zurich, London School of Economics, UCL, Boston University, Berkeley, Stanford, Harvard-MIT, UCLA, CalTech, NYU, Carnegie Mellon, Princeton, Yale, Columbia.
- 2013-2014:** Aalto, LSE, Séminaire Malinvaud, Séminaire Roy, EPFL, Austrian Central Bank, Harvard-MIT.

2012-2013: Imperial College, ULB, Chicago, Lugano, Montréal, Queen Mary, ETH.
2011-2012: Stanford GSB, Columbia, Séminaire Malinvaud, Alicante, Tilburg, Imperial College, Aix-Marseille, Séminaire Parisien d'Optimisation, Columbia, University College London, University of British Columbia.
2010-2011: UCLA, UC Riverside, UC San Diego, Northwestern, Chicago, Vanderbilt, Chicago Booth, CalTech.
2009-2010: PSE, Columbia, Séminaire Bachelier, Freiburg, TSE.
2008-2009: Columbia, LUISS, Collegio Carlo Alberto.
2007-2008: TSE, HEC Genève, Séminaire Bachelier, Séminaire Malinvaud.

Invited conference presentations:

- June 26-29, 2018, keynote speaker, 5th annual conference of the International Association of Applied Econometrics (IAAE), Montreal
- June 25, 2018, SWET-EWGET Conference in the honor of Nicholas Yannelis, Paris
- June 12, 2018, Conference on “Insurance, Actuarial Science, Data and Models”, Fédération Française de l’Assurance, Paris
- June 4-6, 2018, Modern mathematical methods for data analysis, Université de Liège
- April 13-14, 2018, Market design conference, Columbia University
- December 13, 2017, Workshop on “Mean Field Games, Spatial Economics, Equilibrium and Collective Decision”, ENS Paris-Saclay
- November 30-December 1, 2017, keynote speaker, 9th French econometrics conference, CREST, Palaiseau, France
- June 26-29, 2018, keynote speaker, 5th annual conference of the International Association of Applied Econometrics (IAAE), Montreal.
- June 25, 2018, SWET-EWGET Conference in the honor of Nicholas Yannelis, Paris.
- June 12, 2018, Conference on “Insurance, Actuarial Science, Data and Models”, Fédération Française de l’Assurance, Paris.
- June 4-6, 2018, Modern mathematical methods for data analysis, Université de Liège.
- April 13, 2018, Market design conference, Columbia University.
- December 13, 2017, Workshop on “Mean Field Games, Spatial Economics, Equilibrium and Collective Decision”, ENS Paris-Saclay.
- November 30, 2017, keynote speaker, 9th French econometrics conference, CREST, Palaiseau, France.
- June 5, 2017, Cowles conference on economic theory, Yale university.
- April 21-22, 2017, “CEMMAP UCL and Vanderbilt conference on Econometrics and Models of Strategic Interactions,” Vanderbilt university.
- April 9-14, 2017, Workshop “Generated Jacobian Equations: from Geometric Optics to Economics,” Banff International Research Station.
- March 31, 2015, *Econometrics Journal* special invited session, Royal Economic Society Conference 2015, Manchester.
- March 6, 2015, “Big Data Finance” Conference, Courant Institute, New York University.
- September 15-17, 2014, Conference on Optimization, Transportation and Equilibrium in Economics, Fields Institute, Toronto.
- June 19, 2014, Conference in honor of Ivar Ekeland’s 70th birthday, Université Paris Dauphine.
- June 11, 2013, Workshop “Advances in Mechanism Design,” Paris School of Economics.
- June 6, 2013, Workshop on Economic Theory, University of Manchester.
- April 22-26, 2013, Workshop “Partial Identification,” Oberwolfach.

- February 19, 2013, Conference in honor of Rose-Anne Dana, Dauphine.
- November 26-30, 2012, Workshop “Frontiers in Quantile Regression”, Oberwolfach.
- May 21-25, 2012, French Statistical Society, Brussels.
- December 7, 2011, ESRC Seminar on testability in game theory, Warwick.
- Nov 25, 2010, Workshop “Recent Advances in Revealed Preference,” Université Paris-Dauphine.
- Sept 24, 2010, Conference on “Partial Identification and Revealed Preference,” Montreal.
- March 16, 2010, Conference on “Large portfolio, Concentration and Granularity,” Paris.
- March 20, 2009, 2nd International Financial Research Forum, Paris.
- Oct 24, 2008, Cireq conference on “Inference with Incomplete Models,” Montreal.
- Oct 17, 2009, Workshop on “Dynamic and Multivariate Risk Measures,” IHP, Paris.
- Jul 18, 2008, Workshop on “Optimization, Transport and Equilibrium,” UBC, Vancouver.
- June 26, 2008, Conference on “Risk, Decision and Uncertainty”, Oxford.
- June 12, 2008, Workshop on “Nonsmooth Inference, Analysis and Dependence,” Goteborg.
- May 20, 2008, Workshop on “New Directions in Quantitative Finance,” Paris.
- March 28, 2008, Conference on “Inference in Partially Identified Models and Applications,” UCL, London.
- Nov 9, 2007, Workshop on “Model Validation, Predictive Ability and Model Risk,” Banque de France, Paris.
- June 25, 2007, Workshop on “Optimization, Transport and Equilibrium,” Columbia University.