ALFRED GALICHON

Work address: NYU Economics, 19 W 4th St., New York, NY 10012, USA
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Citizenship: France (US permanent resident)
Marital status: Married, 3 children
Date of birth: May 4, 1977

ACADEMIC EMPLOYMENT

Permanent positions:

2015- **New York University**, Economics Department and Courant Institute, Professor of Economics and of Mathematics.
2012-2016 **Sciences Po, Paris**, Economics Department, Professor of Economics.
2007-2012 **Ecole polytechnique**, Economics Department, Assistant Professor, then Professor of Economics.

Visiting positions:

2017-2018 **Toulouse School of Economics**, Fondation Jean-Jacques Laffont, Visiting Fellow.
2014-2015 **Massachusetts Institute of Technology**, Economics Department, Visiting Professor of Economics.
Spring 2011 **Columbia University**, Economics Department, Alliance Visiting Professor of Economics.
Spring 2010 **University of Chicago**, Booth School of Business, Visiting Assistant Professor of Econometrics and Statistics.

EDUCATION

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

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).

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.

SOFTWARE

- **“TraME: Transportation Methods for Econometrics,”** econometrics tools for consumer demand and matching problems. https://github.com/TraME-Project.

PATENTS

- **“Systems and Methods for Matching with Affinity Learning”** (2017). U.S. Prov. Pat. App. No. 62/500940.

ACADEMIC RESEARCH

Monographs:

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

Papers in revision:

36. “Like Attract Like: A Structural Comparison of Homogamy Across Same-Sex and Different-Sex Households”. With Edoardo Ciscato and Marion Goussé. Revision requested, ***Journal of Political Economy***.
35. “Cupid's Invisible Hand: Social Surplus and Identification in Matching Models”. With Bernard Salanié. Revision requested (2nd round), ***Review of Economic Studies***.
34. “Costly Concessions: An Empirical Framework for Matching with Imperfectly Transferable Utility”. With Scott Kominers and Simon Weber. Revision requested, ***Journal of Political Economy***.

Published and forthcoming papers:

33. “On Human Capital and Team Stability”. With Pierre-André Chiappori and Bernard Salanié. Forthcoming in the ***Journal of Human Capital***.
32. “Vector quantile regression beyond the specified case”. With Guillaume Carlier and Victor Chernozhukov. Forthcoming in the ***Journal of Multivariate Analysis***.
31. “The econometrics and some properties of separable matching models”. With Bernard Salanié. Forthcoming in the ***American Economic Review: Papers and Proceedings***.
30. “A Survey of Some Recent Applications of Optimal Transport Methods to Econometrics”. Forthcoming in the ***Econometrics Journal***.
29. “Monge-Kantorovich Depth, Quantiles, Ranks and Signs”. With Victor Chernozhukov, Marc Hallin, and Marc Henry. Forthcoming in the ***Annals of Statistics***.
28. “Matching in Closed-Form”. With Raicho Bojilov. Forthcoming in ***Economic Theory***.
27. “Ordinal and Cardinal Solution Concepts for Two-Sided Matching”. With Federico Echenique. Forthcoming in ***Games and Economic Behavior***.
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 #1991460.
2. "Matching with Trade-offs: Revealed preferences over competing characteristics" (2010). With Bernard Salanié. CEPR Discussion Paper #DP7858.
1. "Inference in Incomplete Models" (2006). With Marc Henry. SSRN #886907.

Working papers:

- "A note on the estimation of job amenities and labor productivity". With Arnaud Dupuy. "Yogurts Choose Consumers? Identification of Random Utility Models via Two-Sided Matching". With Odran Bonnet and Matt Shum. SSRN #2928876.
- "Estimating matching affinity matrix under low-rank constraints". With Arnaud Dupuy and Yifei Sun. Arxiv #1612.09585.
- "A theory of decentralized matching markets without transfers, with an application to surge pricing". With Yu-Wei Hsieh. SSRN #2887732.
- "Single-Market Identification of Multi-Attribute Hedonic Equilibrium Models". With Victor Chernozhukov, Marc Henry, and Brendan Pass. SSRN #2392549.

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)

- Yifei Sun (NYU, Mathematics; expected defense 2018).
- Edoardo Ciscato (co-advised with J.-M. Robin; Sciences Po, Economics; since 2015).
- Lucas Vernet (Sciences Po, Economics; expected defense 2018).
- Monty Essid (co-advised with Bob Kohn; NYU, Mathematics; expected defense 2018).
- Mathilde Poulhès (co-advised with Denis Fougère; Sciences Po, Economics; expected defense 2017).
- Odran Bonnet (co-advised with Denis Fougère; Sciences Po, Economics; expected defense 2017).
- Simon Weber (Sciences Po, Economics; expected defense 2017).
- Flavien Léger (co-advised with Nader Masmoudi; NYU, Mathematics; defended May 2017).
- Damien Bosc (Ecole Polytechnique, Economics; defended June 2012).

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 Studie**s, Spring 2018.

- *"Optimal transport for economists."*
  Lecture series, Cowles foundation, **Yale University**, Winter 2018.
- *"CORE Lectures on the Econometrics of matching markets."*
  Lectures 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.

PhD courses*:*

- *"Multinomial Choice and Matching: Theory and Applications."*
  Sciences Po, PhD course, 24h, spring 2018.
- *"Optimal Transport Methods in Economics."*
  Toulouse School of Economics, PhD course, 15h, fall 2017.
- *"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.
- *"Labor Market as a Matching Market: Theory and Empirics."*
  Ensae-CREST OFPR, PhD short course, 10h, spring 2012.
- *"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

- Keynote speaker, 5th annual conference of the International Association of Applied Econometrics, Montreal, 2018.
- 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:

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:

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, LSE, UCL, BU, 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, UCL, UBC.
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 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.