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Sant'Anna School of Advanced Studies,
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PERSONAL DETAILS

- Date and place of birth: 2 April 1970, Mantova, Italy
- Nationality: Italian

CURRENT APPOINTMENT (since January 2009)

- Associate Professor of Economic History, Sant'Anna School of Advanced Studies, Pisa, Italy

RESEARCH INTERESTS

- Economic growth and industrialisation (XVIII-XX centuries; England, Italy)
- Innovation and Technical change (XVIII-XX centuries)
- Patents and inventive activities

PREVIOUS APPOINTMENTS

- 2004-2008: Universitair Docent, Faculty of Industrial Engineering and Innovation Sciences, Eindhoven University of Technology, Eindhoven, the Netherlands

VISITING APPOINTMENTS AND FELLOWSHIPS

- Marie Curie Fellow, SPRU (Science and Technology Policy Research), University of Sussex (June 2001-December 2001)
- Visiting Research Fellow, Department of Historical Studies, University of Bristol (October 2005)
- Jemolo Fellow, Nuffield College, University of Oxford (October 2011-December 2011)
- Visiting Fellow, Nuffield College, University of Oxford (January 2013)

EDUCATION

- Graduate studies:
1999-2004: Eindhoven University of Technology, Eindhoven, The Netherlands.
PhD in Economics (fields: Economic History, Economics of Innovation):
 - Dissertation: The Making of Steam Power Technology. A Study of Technical Change during the British Industrial Revolution
Supervisors: Bart Verspagen, Nick von Tunzelmann
- Undergraduate studies:
1990-1996: Università Commerciale "Luigi Bocconi", Milan, Italy:
"Laurea" in Economics and Social Sciences (110/110 cum laude).

PUBLICATIONS

Articles:

- Nuvolari, A. (2002), 'The "Machine Breakers" and the Industrial Revolution', Journal of European Economic History, vol. 31, pp. 393-426.
- Nuvolari, A. (2004), 'Collective Invention during the British Industrial Revolution: the Case of the Cornish Pumping Engine', Cambridge Journal of Economics, vol. 28, pp. 347-363.

- Frenken, K. and Nuvolari, A. (2004), 'The Early Development of the Steam Engine: An Evolutionary Interpretation using Complexity Theory', Industrial and Corporate Change, vol. 13, pp. 419-450.
- Nuvolari, A. (2004), 'The Emergence of Science Based Technology: Comments on Floris Cohen's paper', History of Technology, vol. 25, pp. 133-136.
- Nuvolari, A. (2005), 'Open Source Software Development: Some Historical Perspectives', First Monday, Vol 10, n. 10, available at <<http://www.firstmonday.org/issues/issue10_10/nuvolari/index.html>>
- MacLeod, C. and Nuvolari, A. (2006), 'The Pitfalls of Prosopography: Inventors in the *Dictionary of National Biography*', Technology and Culture, vol. 47, pp. 757-776.
- Nuvolari, A. and Verspagen, B. (2007), '*Lean's Engine Reporter* and the Development of the Cornish Engine. A Reappraisal', Transactions of the Newcomen Society, vol.77, pp. 167-189.
- Fontana, R., Nuvolari, A. and Verspagen, B. (2009), 'Mapping Technological Trajectories as Patent Citation Networks. An Application to Data Communication Standards', Economics of Innovation and New Technology, vol. 18, pp. 311-336.
- Nuvolari, A. and Verspagen, B. (2009), 'Technical Choice, Innovation and British Steam Engineering, 1800-1850', Economic History Review, vol. 62, pp. 685-710.
- Castaldi, C., Fontana, R. and Nuvolari, A. (2009), '“Chariots of Fire”: the Evolution of Tank Technology, 1915-1945', Journal of Evolutionary Economics, vol. 19, pp. 545-566.
- MacLeod, C. and Nuvolari, A. (2009), '“Glorious Times”: the Emergence of Mechanical Engineering in Early Industrial Britain, c. 1700-1850', Brussels Economic Review, vol. 52, pp. 215-237.
- Nuvolari, A. (2010), 'The Theory and the Practice of Steam Engineering in Britain and in France, 1800-1850', Documents pour l'histoire des techniques, hors-série n.1 (Les techniques et la technologies entre France et Grande-Bretagne, XVIe-XIXe siècle (Bret, P., Gouzèvitch, I. and Pérez, L., eds.)), pp. 155-163.
- Nuvolari, A. and Tartari, V. (2011), 'Bennet Woodcroft and the Value of English Patents, 1617-1841', Explorations in Economic History, vol. 48, pp. 97-115.
- Bekkers, R., Bongard, R. and Nuvolari, A. (2011), 'An Empirical Study on the Determinants of Essential Patent Claims in Compatibility Standards', Research Policy, vol. 40, pp. 1001-1015.
- Nuvolari, A., Verspagen, B. and Von Tunzelmann, G. N. (2011), 'The Early Diffusion of the Steam Engine in Britain, 1700-1800. A Reappraisal', Cliometrica, vol. 5, pp. 291-321.
- Fontana, R., Nuvolari, A., Shimizu, H. and Vezzulli, A. (2012), 'Schumpeterian Patterns of Innovation and the Sources of Breakthrough Inventions: Evidence from a Data-set of R&D Awards', Journal of Evolutionary Economics, vol. 22, pp. 785-810.
- Bodas Freitas, I. and Nuvolari, A. (2012), 'Traditional versus Heterodox Motives for Academic Patenting: Evidence from the Netherlands', Industry and Innovation, vol. 19, pp. 671-695.
- Nuvolari, A. and Ricci, M. (2013), 'Economic Growth in England, 1250-1850: Some New Estimates using a Demand Side Approach', Rivista di Storia Economica, vol. 29, pp. 31-54.
- Nuvolari, A. and Sumner, J. (2013), 'Inventors, Patents and Inventive Activities in the English Brewing Industry, 1634-1850', Business History Review, vol. 87, pp. 95-120.

- Fontana, R., Nuvolari, A., Shimizu, H. and Vezzulli, A. (2013), 'Reassessing Patent Propensity: Evidence from a Dataset of R&D Awards, 1977-2004', Research Policy, vol. 42, pp. 1780-1792.
- Nuvolari, A. and Vasta, M. (2014), 'The Italian National Innovation System: A Long Term Perspective, 1861-2011', History of Technology, vol. 32, pp. 313-341.
- Campi, M. and Nuvolari, A. (2015), 'Intellectual Property Protection in Plant Varieties: a Worldwide Index (1961-2011)', Research Policy, vol. 44, pp. 951-964.
- Nuvolari, A. and Vasta, M. (2015), 'The Ghost in the Attic? The Italian National Innovation System in Historical Perspective, 1861-2011', Enterprise & Society, vol. 16, pp. 270-290.
- Yu, X., Dosi, G., Lei, J. and Nuvolari, A. (2015), 'Institutional Change and Productivity Growth in China's Manufacturing: the Microeconomics of Knowledge Accumulation and "Creative Restructuring"', Industrial and Corporate Change, vol. 24, pp. 565-602.
- Nuvolari, A. and Vasta, M. (2015), 'Independent Invention in Italy during the Liberal Age, 1861-1913', Economic History Review, vol. 68, pp. 858-886.
- Ciccarelli, C. and Nuvolari, A. (2015), 'Technical Change, Non-Tariff Barriers and the Development of the Italian Locomotive Industry, 1850-1913', Journal of Economic History, vol. 75, pp. 860-888.

Book chapters:

- Frenken, K. and Nuvolari, A. (2004), 'Entropy Statistics as a Framework to Analyse Technological Evolution': in Foster, J. and Holz, W. (eds.), Applied Evolutionary Economics and Complex Systems, Cheltenham: Edward Elgar, pp. 95-132.
- Nuvolari, A., Verspagen B. and Von Tunzelmann, N. (2006), 'The Diffusion of the Steam Engine in Eighteenth Century Britain': in Pyka, A. and H. Hanusch (eds.), Applied Evolutionary Economics and the Knowledge-Based Economy, Cheltenham: Edward Elgar, pp. 166-200.
- Nuvolari, A. (2007), 'Data for Engineering Design: *Lean's Engine Reporter* and Early Nineteenth Century Steam Power Technology': in Corcy, M., Douyere-Demeulenaere, C. and Hilaire-Perez, L. (ed.), Les Archives de l'Invention. Ecrits, Objets et Images de l'Activite Inventive, Toulouse: CNRS-Universite de Toulouse II-Le Mirail, pp. 211-226.
- Nuvolari, A. and Rullani, F. (2007), 'Curious Exceptions? Open Source Software and "Open Technology"': in St. Amant, K. and Still, B. (eds.), Handbook of Research on Open Source Software: Technological, Economic and Social Perspectives, Hershey: Idea Group Publishing, pp. 227-239.
- MacLeod, C. and Nuvolari, A. (2012), 'Technological Change': in Doyle, W. (ed.), The Oxford Handbook of the Ancien Régime, Oxford: Oxford University Press, pp. 448-466.
- Nuvolari, A. and Tartari, V. (2014), 'Innovation, Appropriability and Productivity Growth in Agriculture: A Broad Historical Viewpoint': in Cimoli, M., Dosi, G., Maskus, K., Okediji, R., Reichman, J. and Stiglitz, J. (eds.), Intellectual Property Rights. Legal and Economic Challenges for Development, Oxford: Oxford University Press, pp. 242-263.
- Nuvolari, A. and Tartari, V. (2015), 'Innovations and Patents during the Industrial Revolution: a Reappraisal using Multiple Indicators': in Wrigley, C. (ed.), The Industrial Revolution. Cromford, the Derwent Valley and the Wider World, Cromford, The Arkwright Society, pp. 131-149.
- Bessen, J. and Nuvolari, A. (2015), 'Knowledge Sharing among Inventors: Some Historical Perspectives' in Harhoff, D. and Lakhani, K. (eds.), Revolutionizing Innovation: Users, Communities and Open Innovation, Cambridge (MA): MIT Press, forthcoming.

Books:

- Nuvolari, A. (2004), The Making of Steam Power Technology. A Study of Technological Change during the British Industrial Revolution, Eindhoven: Eindhoven University Press.

Book reviews:

- Dosi, G., Nelson, R. and Winter, S. (eds.), *The Nature and Dynamics of Organizational Capabilities*, Oxford, Oxford University Press, 2000: in Organization Studies, 2001, vol. 22, pp.1061-1063.
- Bailey, M. (ed.), *Robert Stephenson. The Eminent Engineer*, Aldershot, Ashgate,2001: in Business History, 2004,vol. 46, pp. 654-655.
- Murmann, J., *Knowledge and Competitive Advantage. The Coevolution of Firms, Technologies and National Institutions*, Cambridge, Cambridge University Press: in Technovation, 2007, vol. 27, pp. 414-415.
- Galambos, L.,Hikino, T. and Zamagni, V. (eds.), *The Global Chemical Industry in the Age of the Petrochemical Revolution*, Cambridge, Cambridge University Press, 2007: in EH.net, available at http://eh.net/book_reviews/global-chemical-industry-age-petrochemical-revolution
- Friedel, R., *A Culture of Improvement. Technology and the Western Millennium*, Cambridge, MIT Press: in Review of Policy Research, 2007, vol. 25, pp. 582-584.
- Davids, K., *The Rise and Decline of Dutch Technological Leadership. Technology, Economy and Culture in the Netherlands, 1350-1800*, Leiden, Brill, 2008: in Economic History Review, 2009, vol. 62, pp. 1026-1028.
- Dutfeld, G., *Intellectual Property Rights and the Life Science Industries: Past, Present and Future*, Singapore, World Scientific Publishing, 2009: in Economic History Review, 2010, vol. 63, pp. 1206-1207.
- Hunt, B. J., *Pursuing Power and Light. Technology and Physics from James Watt to Albert Einstein*, Baltimore, John Hopkins University Press, 2010: in Centaurus. An International Journal of the History of Science and its Cultural Aspects, 2011, vol. 53, pp. 251-252.
- Thomson, R., *Structure of Change in the Mechanical Age. Technological Innovation in the United States*, Baltimore, John Hopkins University Press, 2009: in Nuncius. Journal of the Material and Visual History of Science, 2012, vol. 27, pp. 228-230.
- Rosen, W., *The Most Powerful Idea in the World: A Story of Steam, Industry and Invention*, New York, Random House, 2010: in EH.net, available at http://eh.net/book_reviews/most-powerful-idea-world-story-steam-industry-and-invention
- Velkar, A., *Markets and Measurements in Nineteenth Century Britain*, Cambridge, Cambridge University Press, 2012: in Economic History Review, 2014, vol. 67, pp. 302-304.
- Sumner, J., *Brewing Science, Technology and Print, 1700-1880*, London, Pickering & Chatto, 2013: in SHARP News, 2015, vol. 24, n. 3, pp. 31-32.
- Bottomley, S., *The British Patent System during the Industrial Revolution, 1700-1852. From Privilege to Property*, Cambridge, Cambridge University Press, 2014: in Journal of British Studies, vol. 54, pp. 1004-1006.

Grey literature:

- MacLeod, C. and Nuvolari, A. (2010), 'Patents and Industrialization: An Historical Overview of the British Case, 1624-1907', a report to the Strategic Advisory Board for Intellectual Property Policy (SABIP), UK

AWARDS, FELLOWSHIPS, RESEARCH GRANTS, etc.

- “Marie Curie” Fellowship (TMR Programme, European Union): June 2001 – December 2001 (fellowship for a research stay at SPRU, University of Sussex, UK).
- British Council – NWO Partnership Programme in Science. Grant (n. PPS 833) for a research stay (October 2005) at the Department of Historical Studies, University of Bristol, UK. (€ 2,400)
- Nominee for the 2005 “A. Gerschenkron” prize for the best dissertation in economic history (European, Asian and comparative topics) awarded by the Economic History Association (see, Journal of Economic History, 2006, vol. 46, pp. 472-476 for a summary of the dissertation).
- Member of DIME (Dynamics of Institutions and Markets in Europe). DIME is a Network of Excellence sponsored by the 6th Framework Programme of the European Union.
- NWO (Dutch Council for Scientific Research) Veni Research Grant 2006-2009 for the project “Inventive activities, patents and the Industrial Revolution” (€ 208,042).
- Project Leader for the Work Package 9 of the CID (Cultural and Innovation Dynamics) Project (2007-2010). This project was sponsored by the NEST (New and Emerging Science and Technology) Activity of the 6th Framework Programme of the European Union (budget for WP 9, € 147,000).
- Winner of the prize as the best teacher of all Master programmes of the Eindhoven University of Technology for the academic year 2007/2008 (€ 5,000)
- Jemolo Fellowship, Nuffield College, University of Oxford (Michaelmas Term 2011)
- Visiting Fellow, Nuffield College, University of Oxford (January 2013)

SELECTION OF CONFERENCE PRESENTATIONS, SEMINARS, INVITED LECTURES, etc.

2015

- Seminar, BETA, University of Strasbourg
- 11th European Historical Economics Society Conference, Pisa
- Seminar, Department of Economics, University of Tor Vergata, Rome
- Seminar, Universitat Autònoma, Barcelona

2014

- Economic History Society Conference (Warwick)
- Workshop, “Intellectual Property: from History to Policy and Entrepreneurial Concerns”, National Hellenic Research Foundation, Athens
- New York University, School of Law, Colloquium on Innovation Policy
- 15th International Schumpeter Society Conference (Jena)
- Workshop, “International Diversity in Patent Cultures. A Historical Perspective”, University of Leeds.

2013

- Economic History Seminar, Bank of Italy, Rome
- 10th European Historical Economics Society Conference, London
- 7th World Congress of Cliometrics, University of Hawaii, Honolulu
- FRESH (Frontier Research in Economic and Social History) workshop, University of Valencia, Spain
- Economic History Society Conference (York)
- Economic and Social History Seminar, Nuffield College, Oxford

2012

- Economic History Seminar, Department of Economics, University of Mannheim
- Economic History Seminar, Universidad Autònoma, Madrid
- 16th World Economic History Congress, Stellenbosch
- Workshop “Population cliometrics and unified growth theory”, University of Strasbourg
- FRESH (Frontier Research in Economic and Social History) workshop, Sant’Anna School of Advanced Studies, Pisa
- All-UC Group in Economic History Conference “Science, Intellectual Property and Innovation”, University of California-Berkeley

2011

- Workshop “Innovation in the Modern Economy: Indicators and Analysis”, University of Lund
- Economic and Social History Seminar, All Souls College, Oxford
- 9th European Historical Economics Society Conference, Dublin

- Workshop "Innovation and Internationalization in the Defence Industry", NUPI (Norwegian Institute of International Affairs), Oslo
 - Seminar, Department of Economics, Maastricht University
 - Workshop "Italian Economic History towards 2020: Debates and Trajectories", University of Siena
 - DIME Final Conference, Maastricht University
 - Economic and Social History Seminar, Nuffield College, Oxford
- 2010
- 13th International Schumpeter Society Conference (Aalborg)
 - Workshop "Communication of technical knowledge", Boston School of Law
 - Workshop "Cliometrics of creativity: R&D, patents, etc.", University of Strasbourg
 - Conference in honour of Nick von Tunzelmann, "Technical change: history, economics and policy", Brighton, UK
 - Seminar, Centro Internazionale per la Storia dell'Università e della Scienza, University of Bologna
 - Economic and Social History of the Premodern World (1500-1800) Seminar, Institute of Historical Research, London
 - Cambridge Quantitative History Seminar, Cambridge, UK
- 2009
- Society for the History of Technology Conference (Pittsburgh)
 - European Meeting on Applied Evolutionary Economics (Jena)
 - Economic History Society Conference (Warwick)
- 2008
- FRESH (Frontier Research in Economic and Social History) workshop, University of Strasbourg
 - Seminar, Department of Economic History, University of Geneva
 - DIME Scientific Conference, University of Strasbourg
 - Seminar, Department of Economic History, University of Lund
 - Society for the History of Technology Conference (Lisbon)
 - Workshop "Modelling Technological Innovation", Santa Fe Institute (Santa Fe)
 - Social Science History Association Meetings (Miami)
 - Seminar, CESPRI Bocconi University (Milan)
- 2007
- Economic and Social History Seminar, St. Antony College, Oxford
 - Economic History Society Conference (Exeter)
 - European Social Science History Conference (Lisbon)
 - Druid Conference (Copenhagen)
 - 7th European Historical Economics Society Conference (Lund)
- 2006
- Workshop "Patents in the Past", Maison de Sciences de l' Homme, Paris
 - Druid Conference (Copenhagen)
 - 11th International Schumpeter Society Conference (Nice)
 - Seminar, CESPRI, Bocconi University (Milan)
- 2005
- 6th European Historical Economics Society Conference (Istanbul)
 - Economic History Society Conference (Leicester)
 - Druid Conference (Copenhagen)
 - European Meeting on Applied Evolutionary Economics (Utrecht)
- 2004
- Society for the History of Technology Conference (Amsterdam)
 - 10th International Schumpeter Society Conference (Milan)
 - Economic History Association Meetings (San Jose)

PRESS MENTIONS

- "Watts octrooi stond innovatie in de weg", *de Volkskrant*, 25 September 2004.
- "Octrooien remden innovatie", *Intermediair*, 16 September, 2004.
- "Patenten slecht voor innovatie", *Technisch Weekblad*, 16 December 2006

EDITORIAL ACTIVITIES

Associate editor: *Scandinavian Economic History Review* (since 2012)

Associate editor: *Industrial and Corporate Change* (since 2015)

Scientific Board: *Revue d'Economie Industrielle* (since 2015)

REFEREEING

Journals:

- *Agricultural History*
- *Australian Economic History Review*
- *Bulletin of Economic Research*
- *Business History*
- *Business History Review*
- *Cliometrica*
- *Economic History Review*
- *Economics of Innovation and New Technology*
- *Economic Journal*
- *Estudios Economicos*
- *European Review of Economic History*
- *Evaluation Review*
- *Explorations in Economic History*
- *History of Technology*
- *Homo Oeconomicus*
- *Industrial and Corporate Change*
- *Information Economics and Policy*
- *Italian Economic Journal*
- *Journal of Development Studies*
- *Journal of Economic History*
- *Journal of Evolutionary Economics*
- *Journal of Interdisciplinary History*
- *Law and History Review*
- *Management and Organizational History*
- *Mind & Society. Cognitive Studies in Economics and Social Sciences*
- *PLOS ONE*
- *R&D Management*
- *Research Evaluation*
- *Research Policy*
- *Scandinavian Economic History Review*
- *Structural Change and Economic Dynamics*
- *Technological Forecasting and Social Change*
- *Transactions of the American Philosophical Society*
- *World Patent Information*

Academic publishers:

- Edward Elgar
- Routledge

Research Agencies:

- Danish Council for Independent Research – Social Sciences (DFF)
- Research Foundation Flanders -(Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)
- Netherlands Organization for Scientific Research (NWO) – Humanities
- European Research Council (ERC)

ORGANIZATION OF CONFERENCES, WORKSHOPS, etc.

- Workshop ‘The Italian Variety of Capitalism, 1861-2011: Wealthy by Accident?’, 28 September 2012, Sant’Anna School of Advanced Studies, Pisa, Italy (organized jointly with Michelangelo Vasta)
- World Economic History Congress, Stellenbosch, 2012, session ‘Innovation and the modern economy’ (organized jointly with Jonas Liunberg)

- FRESH (Frontier Research in Economic and Social History) workshop, 19-20 April, 2012, Sant'Anna School of Advanced Studies, Pisa, Italy (organized jointly with Jacob Weisdorf, Rowena Gray, Paul Sharp)
- 7th European Meeting on Applied Evolutionary Economics (EMAAE), 14-16 February 2011, Sant'Anna School of Advanced Studies, Pisa, Italy (organized jointly with G. Bottazzi, G. Dosi, G. Fagiolo, and L. Marengo)
- DIME Workshop 'Modelling, measuring and mapping technical change', Pisa, Sant'Anna School of Advanced Studies, 6-7 May 2010.
- World Economic History Congress, Utrecht, 2-7 August 2009, session 'Innovation without patents (XVIII-XIX centuries)' (organized jointly with Christine MacLeod and Liliane Perez)
- ESTER-Globaleuronet Workshop for PhD Students on 'The Economic History of Patents and Innovation', 23-26 June 2009, Eindhoven University of Technology (organized jointly with Astrid Kander and Ben Gales)

TEACHING EXPERIENCE

Eindhoven University of Technology 2002-2010

Bachelor (courses): Industrial Dynamics; Research Methods

Master (courses): Research Methods; Industrial Organization; European Science Policy

PhD level (courses): Economic History of Technical Change

Supervision of M.Sc. Theses in the M.Sc Programme in "Technology and Policy"

Winner of the prize for the best teacher in M.Sc. in Technology and Policy in the academic year 2006-2007 [The prize is based on a survey self-administered by the students]

Winner of the prize as the best teacher of all Master programmes of the Eindhoven University of Technology for the academic year 2007/2008 (€ 5,000)

Sant'Anna School of Advanced Studies 2009-present

Bachelor (courses): History of Technology; Economic History; Italian Economic History

Master (courses): Economic Growth in History; Economics of Patents;

PhD level (courses): Economic History; History of Economic Thought

Other teaching activities (PhD level):

Ester (European Graduate School for Training in Economic and Social Historical Research), Research Design Course (Frankfurt, October 2014; Goteborg, October 2015).

Dimetic PhD Summer School (Maastricht, October 2005, October 2006):

- Historical Perspectives on Innovation

UNU-Merit course on Design and Evaluation of Innovation Policies in Developing Countries (Maastricht, October 2007):

- Innovation, Intellectual Property Rights and Economic Development

European Summer School on Industrial Dynamics (September 2008):

- Collective inventions

Jena Summer School on "The economics of innovative change" (Jena, July, 2009):

-Innovative change in historical perspective