

# Curriculum vitae of Fabiola Cristina Del Greco Miglianico

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## Personal Information

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## Research Interests

Statistical genetics (Genetic association studies; Mendelian Randomization) - Biostatistics (Causal analysis; Linear mixed models; Missing data analyses; Bayesian analysis; Machine learning)

## Position

Statistician, Senior researcher - Institute for Biomedicine, Eurac Research, Bolzano (Italy) (from *January* 2009); Italian National Scientific Habilitation (ASN) as Associate Professor in Statistics (from *July* 2017)

## Education

**M.A. in Economics**, July 10, 2003

G. d'Annunzio University, Pescara (Italy)

- Thesis: "Relation between variables and the causal analysis" (in Italian)

**Ph.D. in Statistics**, April 4, 2007

G. d'Annunzio University, Pescara (Italy)

- Thesis: "Estimation problems for dependent data and convergence rates" (in English)

## Publications

1. F Del Greco M, M Di Marzio, A Panzera: A new class of excited random walks on trees. *Statistics and Probability Letters*, 18 : 1981 – 1989, 2008
2. F Del Greco M: Applications of Large Deviations to Hidden Markov Chains estimation. *Advanced Statistical Methods for the Analysis of Large Data-Sets* - Springer, 2011
3. F Del Greco M, Pattaro C, Luchner A, et al.: Genome-wide association analysis and fine mapping of NT-proBNP level provide novel insight into the Role of the *MTHFR-CLCN6-NPPA-NPPB* gene cluster. *Human Molecular Genetics*, 20(8) : 1660 – 71, 2011
4. Wain L et al.: Genome-wide association study identifies six new loci influencing pulse pressure and mean arterial pressure. *Nature Genetics*, 43(10) : 1005 – 1011, 2011
5. F Del Greco M, C Pattaro, C Minelli, P Pramstaller, J Thompson: A multiple imputation procedure of censored values in family-based genetic association studies, ISBN 9788861298828, 46th scientific meeting of the Italian Statistical Society, 2012
6. Franceschini N, et al.: Discovery and Fine Mapping of Serum Protein Loci through Transethnic Meta-analysis. *The American Journal of Human Genetics*, 91(4) : 744 – 753, 2012
7. I Pichler, F Del Greco M, M Gögele, et al.: Serum iron levels and the risk of Parkinson's disease: a Mendelian randomization study. *PLoS Medicine*, 10(6) : e1001462, 2013 (joint first author)
8. F Del Greco M, E Jones, P Pramstaller, N Sheehan, J Thompson: Investigation of pleiotropy in Mendelian randomisation studies with continuous outcome using aggregate genetic data. *Electronic Book Advances in Latent Variables* - ISBN 9788834325568, 2013
9. Moayyeri A, et al.: Genetic determinants of heel bone properties: Genome-wide association meta-analysis and replication in the GEFOS/GENOMOS consortium. *Human Molecular Genetics*, 23(11) : 3054 – 68, 2014
10. Arking D, et al.: Genetic association study of QT interval highlights calcium signaling pathways in myocardial repolarization. *Nature Genetics*, 46(8) : 826 – 36, 2014

11. F Del Greco M, C Minelli, N Sheehan, J Thompson: Detecting pleiotropy in Mendelian randomisation studies with summary genetic data and a continuous outcome. *Statistics in Medicine* 34 : 2926 – 2940, 2015
12. Gorski M, et al.: Genome-wide association study of kidney function decline in individuals of European descent, *Kidney International*, 87(5) : 1017 – 29, 2015
13. J Thompson, C Minelli, F Del Greco M: Mendelian randomization using public data from genetic consortia. *International Journal of Biostatistics*, DOI 10.1515/ijb-2015-0074, 12(2): 2016
14. F Del Greco M, C Pattaro, C Minelli, J Thompson: Bayesian analysis of censored response data in family-based genetic association studies. *Biometrical Journal*- DOI: 10.1002/bimj.201400107, 58(5) : 1039 – 1053, 2016
15. F Del Greco M, L Foco, I Pichler, P Eller, K Eller, B Benyamin, J Whitfield, GIS Consortium, CKDGen Consortium, P Pramstaller, J Thompson, C Pattaro, C Minelli: Serum iron level and kidney function: a Mendelian randomization study. *Nephrology Dialysis Transplantation* - DOI: 10.1093/ndt/gfw215, 32(2) : 273 – 278, 2016
16. P Sekula, F Del Greco M, C Pattaro, A Köttgen: Mendelian Randomization: An approach to assess causality using observational data. *Journal of the American Society of Nephrology*, 27(11) : 3253 – 3265, 2016
17. J Bowden, F Del Greco M, C Minelli, G Davey Smith, N Sheehan, J Thompson: Assessing the suitability of summary data for Mendelian randomization analyses using MR-Egger regression: the role of the  $I^2$  statistic. *International Journal of Epidemiology*, DOI: 10.1093/IJC/dyw220, 2016
18. Kilpeläinen TO, et al.: Genome-wide meta-analysis uncovers novel loci influencing circulating leptin levels. *Nature Communications*, 7 : 10494, 2016
19. Amin N, et al.: Genetic variants in RBFOX3 are associated with sleep latency. *European Journal of Human Genetics* - DOI: 10.1038/ejhg.2016.31, 24(10) : 1488 – 95, 2016
20. van der Harst P, et al.: 52 genetic loci influencing myocardial mass. *Journal of the American College of Cardiology*, 68(13) : 1435 – 48, 2016
21. Jones SE, et al.: Genome-wide association analyses in 128,266 individuals identifies new morningness and sleep duration loci. *PLoS Genetics*, 12(8) : e1006125, 2016
22. Teumer A, et al.: Genome-wide meta-analysis identifies loci associated with circulating levels of IGF-I and IGFBP-3 with impact on metabolic and age related traits. *Aging cell*, 15(5) : 811 – 824, 2016
23. J Bowden, F Del Greco M, C Minelli, G Davey Smith, N Sheehan, J Thompson: A framework for the investigation of pleiotropy in two-sample summary data Mendelian randomization. *Statistics in Medicine*, 36(11) : 1783 – 1802, 2017
24. H Warren, et al.: Genome-wide association analysis identifies novel blood pressure loci and offers biological insights into cardiovascular risk. *Nature Genetics*, DOI: 10.1038/ng.3768 49(3) : 403 – 415, 2017
25. P Wild, et al.: Large-scale genome-wide analysis identifies genetic variants associated with cardiac structure and function. *Journal of Clinical Investigation*, DOI: 10.1172/JCI84840, 2017
26. J Thompson, C Minelli, J Bowden, F Del Greco M, D Gill, E Jones, C Shapland, N Sheehan: Mendelian randomization incorporating uncertainty about pleiotropy. *Statistics in Medicine*, DOI: 10.1002/SIM.7442, 2017
27. D Gill, F Del Greco M, AP Walker, SKS Srari, MA Laffan, C Minelli: The effect of iron status on risk of coronary artery disease: a Mendelian randomization study. *Arteriosclerosis Thrombosis and Vascular Biology*, DOI: 10.1161/ATVBAHA.117.309757, 2017

28. D Gill, F Del Greco M, TM Rawson, P Sivakumaran, A Brown, NA Sheehan, C Minelli: Age at menarche and time spent in education: a Mendelian randomization study. *Behavior Genetics*, 47(2) : 1 – 6, 2017
29. LV Wain, et al.: Novel Blood Pressure Locus and Gene Discovery Using Genome-Wide Association Study and Expression Data Sets From Blood and the Kidney. *Hypertension*, DOI: 10.1161/HYPERTENSIONAHA.117.09438, 2017
30. S Grover, F Del Greco M, CM Stein, A Ziegler: Mendelian Randomization. *Methods in Molecular Biology*, DOI: 10.1007/978.1.4939.7274.6.29, 581 – 628, 2017
31. D Gill, CF Brewer, F Del Greco M, P Sivakumaran, J Bowden, NA Sheehan, C Minelli: Age at menarche and adult body mass index: a Mendelian randomization study. *International Journal of Obesity*, 42(9) : 1574 – 1581, 2018
32. J Bowden, W Spiller, F Del Greco M, N Sheehan, J Thompson, C Minelli, G Davey Smith: Improving the visualisation, interpretation and analysis of two-sample summary data Mendelian randomization via the radial plot and radial regression. *International Journal of Epidemiology*, 47(4) : 1264 – 1278, 2018
33. E Evangelou, et al.: Genetic analysis of over 1 million people identifies 535 new loci associated with blood pressure traits. *Nature Genetics*, 50(10) : 1412 – 1425, 2018
34. S Grover, F Del Greco M, I König: Evaluating the current state of Mendelian randomization studies: A protocol for a systematic review on methodological and clinical aspects using neurodegenerative disorders as outcome. *Systematic Reviews*, 7 : 145 – 150, 2018
35. G Paglia, F Del Greco M, et al.: Influence of collection tubes during quantitative targeted metabolomics studies in human blood samples. *Clin Chim Acta*, 486 : 320 – 328, 2018
36. van Setten J, et al.: PR interval genome-wide association meta-analysis identifies 50 loci associated with atrial and atrioventricular electrical activity. *Nature Commun.*, 9(1) : 2904, 2018
37. I König, F Del Greco M: Mendelian Randomization: Progressing towards understanding causality. *Neurology*, DOI: 10.1002/ana.25293, 2018
38. Ligthart, et al. Genome analyses of > 200,000 individuals identify 58 loci for chronic inflammation and highlight pathways that link inflammation and complex disorders. *The American Journal of Human Genetics*, 103, 691706, 2018
39. J Bowden, F Del Greco M, C Minelli, D Lawlor, N Sheehan, J Thompson, G Davey Smith: Improving the accuracy of two-sample summary data Mendelian randomization: moving beyond the NOME assumption. *International Journal of Epidemiology*, DOI: 10.1093/ije/dyy258, 2018
40. E Marouli E, F Del Greco M, et al.: Mendelian randomisation analyses find pulmonary factors mediate the effect of height on coronary artery disease. *Commun Biol.*, DOI: 10.1038/s42003-019-0361-2, 2 : 119, 2019
41. S Grover, C Lill, MS Kasten, C Klein, F Del Greco M, and I König: Risky behaviors and Parkinsons disease: A Mendelian randomization study. *Neurology*, 93(15) : e1412–e1424, 2019
42. F Del Greco M, L Foco, et al.: Lipidomics, atrial conduction, and body mass index: evidence from association, mediation, and Mendelian randomization models. *Circulation: Genomic and Precision Medicine*, 12(7) : e002384, 2019
43. I Ntalla et al.: Multi-ancestry GWAS of the electrocardiographic PR interval identifies 202 loci underlying cardiac conduction. *Nature Communications*, 11(1), 2020
44. A Kuś, E Marouli, F Del Greco M., et al.: Variation in normal range thyroid function affects serum cholesterol levels, blood pressure and type 2 diabetes risk: A Mendelian randomization study. *Thyroid*, [http : //doi.org/10.1089/thy.2020.0393](http://doi.org/10.1089/thy.2020.0393), 2020

45. E Marouli, A Kuś, F Del Greco M., et al.: Thyroid Function Affects the Risk of Stroke via Atrial Fibrillation: A Mendelian Randomization Study. *Journal of Clinical Endocrinology & Metabolism*, 105(8), 2020
46. C Minelli, F Del Greco M, DA van der Plaats, J Bowden, NA Sheehan, J Thompson: The use of two-sample methods for Mendelian randomization analyses on single large datasets. *Under revision*, DOI: <https://doi.org/10.1101/2020.05.07.082206>, 2020

### Fellowship and Grants

- *PHD Fellowship*, P.O.R./Abruzzo/Fondo Sociale Europeo (2005 – 2006) EUR 9,000
- *Tutor Fellowship*, G. d'Annunzio University (2005 – 2006) EUR 5,000
- *Post-doc Fellowship*, P.O.R./Abruzzo/Fondo Sociale Europeo (2008) EUR 4,500
- *Fellowship*, Fondo Sociale Europeo (2012) EUR 3,000
- *Travel grant*, Royal society - International Exchanges Scheme - 2012/R2 (inc. CNRS cost share), project “Mendelian randomization with family data”, PIs: Prof. John Thompson (Department of Health Sciences, University of Leicester, Leicester, UK), Dr. Cosetta Minelli (Respiratory Epidemiology, Occupational Medicine and Public Health, Imperial College London, UK) GBP 12,000
- *PI research grant*, German Research Foundation (DFG), project “Mendelian Randomization and Path Models to infer causality for genetic disease with reduce penetrance”, co/PI Prof. Andreas Ziegler (University of Lübeck) within the Research Unit “Reduced Penetrance in hereditary movement disorders”(December 2016) EUR 207,050
- *PI research grant*, German Research Foundation (DFG), project “Mendelian randomization and polygenic risk scores to understand reduced penetrance in movement disorders”, co/PI Prof. Inke König (University of Lübeck) and co/PI Dr. Anke Caliebe (University of Kiel) within the Research Unit “Reduced Penetrance in hereditary movement disorders”(June 2020) EUR 138,200

### Referee activity

Bioinformatics; Biometrics; International Journal of Epidemiology; Electronic Journal of Applied Statistical Analysis; Annals of Epidemiology; Nature (Scientific Reports, Nature communication); Annals of Neurology; The Open Statistics and Probability Journal; Circulation; Molecular Metabolism; Movement Disorders; Arteriosclerosis, Thrombosis, and Vascular Biology; British Journal of cancer; PloS Medicine; Genes; Addition; Journal of the American Heart Association ; Biological Psychiatry; Atherosclerosis; Computational Life Science.  
REPRISE (Register of Scientific Experts set up at the MIUR) for: Statistics; Biostatistics; Epidemiology

### Seminars and talks

- December 12, 2005 - *Percolation*, G. d'Annunzio University, Pescara (Italy) - *invited*
- November 11, 2006 - *Stochastic processes: Introduction*, Master I level - Metodi di valutazione, previsione e controllo dei sistemi socio-economici - G. d'Annunzio University, Pescara (Italy) - *invited*
- September 10, 2008 - *An application of Large Deviations theory to hypothesis testing*, Novartis Pharma, Basel (Suisse) - *invited*
- September 23, 2009 - *Applications of Large Deviations to Hidden Markov Chains estimation*, SIS 2009 Statistical Methods for the Analysis of Large Data Set, Pescara (Italy)
- June 20, 2012 - *A multiple imputation procedure of censored values in family-based genetic association studies*, SIS 2012 46th scientific meeting of the Italian Statistical Society, Roma (Italy)
- February 21, 2013 - *Investigation of pleiotropy in Mendelian randomization studies*, Victorian center of biostatistics (ViCBiostat), Melbourne (Australia) - *invited*

- June 20, 2013 - *Investigation of pleiotropy in Mendelian randomisation studies with continuous outcome using aggregate genetic data*, SIS 2013 Advances in Latent Variables - Methods, Models and Applications, Brescia (Italy)
- March 30, 2017 - *MR-Egger regression: power calculation*, University of Bristol (UK) - *invited*

## Posters

- F Del Greco M, C Pattaro, C Minelli, PP Pramstaller, JR Thompson. A Bayesian Approach to the Analysis of Censored Measurement Data in Family-based Genetic Association Studies - *European Mathematical Genetics Meeting (EMGM) 2011* - London (UK)
- A Saint-Pierre, F Del Greco M, PP Pramstaller, A Pfeufer, C Pattaro. On the detection of pleiotropic QTLs in extended pedigree data: evaluation of different multi-trait association approaches - *European Mathematical Genetics Meeting (EMGM) 2011* - London (UK)
- F Del Greco M et al. Investigation of pleiotropy in Mendelian randomisation studies that use aggregate genetic data - *33rd Annual Conference of the International Society for Clinical Biostatistics (ISCB33) 2012* - Bergen (Norway)
- F Del Greco M et al. Investigation of pleiotropy in Mendelian randomization studies with continuous outcome using aggregate genetic data - *Young Statisticians Conference 2013* - Melbourne (Australia)
- F Del Greco M, C Minelli, N Sheehan, C Pattaro, JR Thompson. Evaluating the presence of pleiotropy in a Mendelian Randomization study on iron blood levels and kidney function - *International Biometric Conference (IBC) 2014* - Florence (Italy)
- J Thompson, C Minelli, F Del Greco M, Bernet Kato. Impact of population stratification on Mendelian randomization - *International Biometric Conference (IBC) 2014* - Florence (Italy)
- C Pattaro, M Gögele, D Mascalzoni, A De Grandi, C Schwenbacher, F Del Greco M, R Melotti, MF Facheris, PP Pramstaller. The Cooperative Health Research in South Tyrol (CHRIS) study - *International genetic epidemiology society (IGES) meeting 2014* - Vienna (Austria)
- G Mishra, S Tian, A Dev, F Del Greco M, S Deshpande. Implications of treatment deferral in patients with chronic hepatitis C infection - *Australian Gastroenterology Conference* - Oct 22-24, 2014 Gold Coast (Australia)
- F Del Greco M et al. Screening the effects of lipidomics alterations on atrial depolarization - *38rd Annual Conference of the International Society for Clinical Biostatistics (ISCB38) 2017* - Vigo (Spain)
- E Marouli, F Del Greco M, C Astley, Z Kutalik, RJF Loos, JN Hirschhorn, P Deloukas, on behalf of the GIANT consortium. Adult height and risk of cardiometabolic disease - *Annual Meeting of The American Society of Human Genetics (ASHG)*- Oct 17 – 21, 2018 Orlando, FL (USA)
- F Del Greco M, C Volani, J Rainer, G Paglia, PP Pramstaller - *41st Annual Conference of the International Society for Clinical Biostatistics (Virtual ISCB41) 2020* - Krakow (Poland)

## Academic Experiences

- Instructor: ‘Stochastic Processes’ (in Italian)* 2005 - 2006  
 G. d’Annunzio University - Faculty of Scienze Manageriali - Pescara (Italy)  
 Master 1st level - Metodi di valutazione, previsione e controllo dei sistemi socio-economici
- Teaching assistant: ‘Statistics’ (in Italian)* 2005 - 2007  
 G. d’Annunzio University - Faculty of Scienze Manageriali - Pescara (Italy)
- Instructor: ‘Time Series and Econometrics models’ (in Italian)* 2007 - 2008  
 G. d’Annunzio University - Faculty of Scienze Manageriali - Pescara (Italy)  
 Master I level - Metodi di valutazione, previsione e controllo dei sistemi socio-economici

*Teaching: ‘Applied Mathematics’ (in Italian)* *May 15 - June 12, 2008*  
High school: Istituto tecnico commerciale e per geometri - Corso IGEA - Penne (Italy)

*Instructor: ‘Time Series and Econometrics models’ (in Italian)* *2007 - 2008*  
G. d’Annunzio University - Faculty of Scienze Manageriali - Pescara (Italy)  
Master I level - Metodi di valutazione, previsione e controllo dei sistemi socio-economici

*Teaching assistant: ‘Calculus I’ (in Italian)* *2008 - 2009*  
Ca’ Foscari University - Faculty of Economics - Venice (Italy)

*Instructor: ‘Econometrics’ (in Italian)* *2008 - 2009*  
Ca’ Foscari University - Faculty of Economics - Venice (Italy)

*Teaching assistant: ‘Statistical Methods for Science’ (in English)* *2013 - 2014*  
Monash University - School of Mathematical Science - Melbourne (Australia)

*Teaching assistant: ‘Statistics for Data Science’ (in English)* *2019 - 2020*  
Free University of Bozen-Bolzano - Faculty of Computer Science - Bolzano (Italy)

*Instructor: ‘Applied Statistics’ (in English)* *2020 - 2021*  
Free University of Bozen-Bolzano - Faculty of Science and Technology - Bolzano (Italy)

## Professional Experiences

*Statistician* *May 20 - July 5, 2004*  
Town Hall Pescara (Italy)

*Statistician - Research assistant* *July 26 - August 26, 2007*  
“Metodi Quantitativi e Teoria Economica” Department - G. d’Annunzio University - Pescara (Italy)

*Statistician - Research assistant* *December 19, 2007 - January 19, 2008*  
“Metodi Quantitativi e Teoria Economica” Department - G. d’Annunzio University - Pescara (Italy)

*Statistician - Research assistant* *June 11 - August 30, 2008*  
Biomedical Science Department - G. d’Annunzio University - Chieti (Italy)

*Statistician - Research assistant* *June 1 - December 31, 2014*  
Maxima, Monash University - School of Mathematical Science - Melbourne (Australia)

## Attended Courses and Workshops

- *Mathematical Statistics*, August 1 - September 4, 2004  
Scuola Matematica Interuniversitaria, Perugia (Italy)  
Prof. P Rigo (University of Pavia, Italy)
- *Probability*, August 1 - September 4, 2004  
Scuola Matematica Interuniversitaria, Perugia (Italy)  
Prof. A Gandolfi (University of Florence, Italy)
- *Data Mining and Regression Tools*, September 13 – 16, 2004  
Scuola SIS, Capua (Italy) Prof. JH Friedman (Stanford University, USA)
- *The Twenty-seventh Midwest Probability Colloquium*, October 21 – 22, 2005  
Northwestern University, Evanston, Illinois (USA)
- *Prediction and Interpolation of Spatial and Temporal Processes*, September 4 – 9, 2006  
DMQTE Department - G. d’Annunzio University, Pietracamela (Italy)  
Prof. R Banshali (University of Liverpool, U.K.) and Prof. CC Taylor (University of Leeds, UK)

- *Financial Time Series*, April 2 – 5, 2008  
DMQTE Department - G. d'Annunzio University, Pescara (Italy)  
Prof. R Banshali (University of Liverpool, UK)
- *Genetic Association Studies*, March 18 – 19, 2009  
Social Medicine Department - Bristol University (UK)
- *Course of STATA*, March 30 – 31, 2009  
Institute of Genetic Medicine - EURAC research - Bolzano (Italy)  
Prof. J Thompson (University of Leicester, UK)
- *Spring School: Advance and Challenges in Space-time Modelling of Natural Events*, March 17 – 21, 2010 - Toledo (Spain)
- *Applied Bayesian Statistics School: Bayesian machine learning with biomedical applications*, June 11 – 15, 2010 - Bolzano (Italy)  
Prof. DB Dunson (Duke University - Durham, NC, USA)
- *Course in Statistical Genetic Analysis of Complex Phenotypes*, June 21 – 24, 2010 - Bologna (Italy)
- *Applied Bayesian Statistics School: Hierarchical modeling for environmental processes*, June 20 – 24, 2011 - Bolzano (Italy)  
Prof. A Gelfand (Duke University - Durham, NC, USA)
- *Short course in Causal Inference*, September 19 – 21, 2011 - Torino (Italy)
- *25th Residential Summer Course in Epidemiology (Eepe)*, June 25 - July 13, 2012 - Firenze (Italy)
- *Workshop on Probability Theory and its Applications*, September 11, 2013 - Melbourne University and Monash University - Melbourne (Australia)
- *Introduction to the Linux command line*, October - November 2013 (26 hours) - EURAC research - Bolzano (Italy)
- *Gene expression profiling using microarrays and high throughput sequencing*, December 6, 2013 - EURAC research - Bolzano (Italy)  
Dr. Johannes Rainer, Daniel Bindreither (Medical University Innsbruck, Austria)
- *Introduction to Python*, May - June 2016 (20 hours) - TIS - Bolzano (Italy)

### Computer Skills

- Statistical Packages: R, STATA, Python, Matlab, Mathematica, SPSS
- Applications: Word, Excel, Power Point, Access, L<sup>A</sup>T<sub>E</sub>X
- Operating Systems: Unix/Linux, Windows

### Languages

Italian and Spanish (both mother tongues), English (good knowledge - C1 level - IELTS), French (fair knowledge), German (basic knowledge), Arabic (basic knowledge), Japanese (basic knowledge)

I consent to the use of my personal data in accordance with the provisions of decree 196/2003

November 18<sup>th</sup>, 2020