Grassi Mario, Full Professor in Medical Statistics

Contact details

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Education

1978 Graduated in Biological Sciences, University of Pavia: 104/110

1983 Post-Graduated in Medical Statistics, University of Pavia: 50/50 summa cum laude

Appointments

1984-1998 Researcher, Faculty of Medicine and Surgery, University of Pavia

1998-2006 Associate Professor of Medical Statistics, Faculty of Medicine and Surgery, University of Pavia

2006-today Full Professor of Medical Statistics, Faculty of Medicine and Surgery, University of Pavia

2001-2011 Head of Multivariate Statistics Laboratory, Department of Applied Health Sciences, University of Pavia

2011-today Head of Multivariate Statistics Laboratory, Medical and Genomic Statistics Unit, Department of Brain and Behavioural Sciences, University of Pavia

2011-2020 Head of the II-level post graduate Master in "Medical Statistics and Genomics", University of Pavia

2011-today Faculty member of PhD in "Psychology, Neuroscience and Data Science", University of Pavia

Research activities

He is author of 153 (citations: 5739; H-index: 41, i-10-index: 99, in Google Scholar accessed on November, 2021) indexed peer-reviewed publications in epidemiology of chronic-degenerative diseases, specifically

respiratory disease (asthma) and mental health disorders, vascular diseases (coronary artery disease and stroke) and degenerative dementias (Alzheimer's disease and Frontotemporal Dementia).

He had experience in interdisciplinary collaborations and a track record of developing novel statistical methodology. He leveraged this experience also with International consortiums (ECRHS-I and ECRHS-II: European Community Respiratory Health Survey Groups, GEIRD: Genes Environment Interaction on Respiratory Diseases, GENFI: Genetic Frontotemporal dementia Initiative) and with Italian consortiums (ISAYA: Italian Study of Asthma in Young Adults, IPSYS: Italian Project on Stroke in Young Adults, MUCH-Italy: Multicenter Study on Cerebral Hemorrhage in Italy, STRKOVID, Italy).

His work revolves around prediction and inference for multivariate, and often high-dimensional data, drawing on tools from Structural Equation Models (SEM), Gaussian Graphical Models (GGM), Network Analysis (NA), and in machine learning (random forests and causal structure discovery). He has a long expertise as R user and package developer, recently SEMgraph package for Causal Network Inference of High-Throughput Data with Structural Equation Models is load on CRAN (https://CRAN.R-project.org/package=SEMgraph). Much of his earlier work involves construct measures, like questionnaire scales. This is related to the idea of latent variables (with reflective indicators) or composite variables (with formative indicators) embedded in mediation/moderator models in psychiatric, respiratory and cardiovascular diseases.

His recent works focus on causal inference, genomic statistics, neuroscience and network analysis, with much overlap between these. Currently, his applied statistical work concerns two research areas. The former probes functional connectivity and modularity of sub-networks extracted from protein-protein interaction (PPI) by using high-throughput data (GWAS, gene expression, epigenetic profiles, and www.databases) or from brain Region of Interest (ROI) correlation of neuroimaging signatures (fMRI, EEG or MEG data). The latter investigates the gene susceptibility and heritability with pedigree and unrelated data by using non linear mixed (fixed plus random) models, and the identification of causal biomarkers via a Mendelian Randomization approach in metabolic syndrome and neurodegenerative diseases.