Antonino Marvuglia

Finding synergies between Life Cycle Assessment and Computational Sustainability

The talk will start outlining some of the past research work carried out by Dr. Marvuglia (wind speed velocity forecast at regional scale using combined neural and geostatistical models; forecast of weather data time series using nonlinear auto-regressive models) and will then give a short presentation of the Public Research Centre Henri Tudor and its research axis. It will then delve into more details about the Life Cycle Assessment (LCA) methodology and present the research projects currently led and/or submitted for funding by the Environmental Monitoring and Assessment unit of CRTE. In particular, the current main research interests of CRTE, which will be discussed during the talk, encompass: indirect land use change modelling (linked to agricultural practices induced by biofuels production); multi-agent simulation of agrosystems; LCA of multimodal mobility policies; Optimization-based integrated process modelling-LCA.

The talk will aim at highlighting research needs and open issues in the LCA area that could find valuable solutions through the application of some of the computationally advanced approaches belonging to the wide range of tools offered by and applied in the interdisciplinary field of Computational Sustainability.

Short biography:
After the achievement of a MSc degree in Environmental Engineering in 2003 and a PhD in Environmental Applied Physics in 2007, both from the University of Palermo (Italy), Antonino Marvuglia held a postdoctoral position at the Department of Energy and Environmental Researches of the University of Palermo until June 2009. From June 2009 to June 2010 he has been a Marie Curie Post-doc fellow at the Cork Constraint Computation Centre (4C) of University College Cork (Ireland). In July 2010 Dr. Marvuglia joined the Resource Centre for Environmental Technologies (CRTE) of the Public Research Centre Henri Tudor (Luxembourg) as a R&D Engineer. He is member of the Editorial Board of The Open Renewable Energy Journal and the Journal of Environmental Accounting and Management and co-author of over 30 papers in peer reviewed international journals and books and over 45 papers published in conference proceedings.

His early research activities concerned the processing of space-temporal patterns with neural network and their coupling with other machine learning and geostatistical models. In the last five years of his career he has dealt with the computational structure of Life Cycle Assessment (LCA) and, in particular, with the issues connected with data quality and uncertainty and with the search for robust algorithms to circumvent the problem of allocation in the Life Cycle Inventory (LCI) phase.

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