CALL FOR APPLICATIONS
Workshop:
Agent-based Simulation Modeling in Economics

Rome, 14-18 October 2019

The Workshop will be held from 14 to 18 October 2019, at the department of Economics, Roma Tre University, Via Silvio D'Amico, 77, Rome.

OVERVIEW AND OBJECTIVES

The Workshop provides training on the use of agent-based models as a tool for research in Economics. The course consists of seminars, technical lectures and hands-on exercises guiding students through the different stages involved in using agent-based models: design, implementation, calibration, analysis, revision and documentation. During the exercises students work independently under supervision on example projects, focusing in particular on the gradual improvements of models starting from initial prototypical versions, testing initial results, and expanding prior versions of the model including new elements depending on the results produced in earlier iterations. At the end of the Workshop they are expected to have gained the skills to independently design, develop and exploit basic simulation models for research purposes.

METHODOLOGY AND TECHNICAL TOOLS

The methodological perspective of the Workshop assumes that simulation models are a useful tool in research if, besides providing results validated by empirical evidence, the modeller is also able to provide explicit *explanations* of the results by linking model assumptions (i.e. code and initialization) to the model results, an operation frequently difficult due to the complexity of massive numbers of non-linear dynamic interactions among model components. For this reasons the Workshop adopts the modelling *Laboratory for Simulation Development – LSD*, an high-performance open-source software specifically designed for this use of agent-based models (www.labsimdev.org). *LSD* is a generic modelling platform capable of expressing any computational structure. Users to specify independently the elements of the model as individual modules, which are then rearranged automatically by the system to provide a working simulation program with sophisticated interfaces for initialization, debugging, analysis and documentation. Crucially, *LSD* permits to address every single operation performed during a simulation run so as to reconstruct the logical motivations at the base of the model results.

TEACHING STAFF AND PROGRAM

The leading teacher of the Workshop will be prof. Marco Valente, with contributions by dr. Paola D'Orazio and dr. Tommaso Ciarli to be confirmed. The Workshop will accept between 10 and 20 students who will be selected on the basis of their CVs and interest for agent-based simulations.

The lectures on examples of using agent-based modelling in the economic literature will be selected among these papers:

- Valente, M., 2017, "KNOWLEDGE AS EXPLANATIONS", SSRN, doi:10.2139/ssrn.2918920;
- Valente, M., 2012 , "EVOLUTIONARY DEMAND: A MODEL FOR BOUNDED RATIONAL CONSUMERS", *Journal of Evolutionary Economics*, **22**(5), pp. 1029-1080;
- Valente, M., 2014 , "AN NK-LIKE MODEL FOR COMPLEXITY", *Journal of Evolutionary Economics*, **24**(1), pp. 107-134;

- D'Orazio, P. and Valente, M., 2018, "THE ROLE OF FINANCE IN ENVIRONMENTAL INNOVATION DIFFUSION: AN EVOLUTIONARY MODELING APPROACH", *Journal of Economic Behavior & Organizations*, DOI: 10.1016/j.jebo.2018.12.015
- Ciarli,T., Lorenz, A., Savona, M. and Valente, M., 2010, "THE EFFECT OF CONSUMPTION AND PRODUCTION STRUCTURE ON GROWTH AND DISTRIBUTION. A MICRO TO MACRO MODEL", *Metroeconomica*, **61**(1), pp. 180-218.

The students will be guided to develop simulation models with increasing complexity, starting from the elementary up to moderately complex ones. The exercises are designed to let students familiarize with the most relevant functionalities in *LSD* and resolve the most common challenges facing modelers. No prior experience on simulations or programming is required. Students are expected to bring their own laptop to perform the exercises. Any operative system is permitted, and possible software requirements will be solved at the start of the Workshop, though students are expected to have administrator privilege on their computers.

FEES

Students from Roma Tre	free
Phd students from other institutions	50€
All other partecipants	100€

IMPORTANT DATES

Applications should be sent by **September 8th 2019**.

In case of acceptance, participants will be notified by **September 15nd 2019**.

Registrations should be completed by **September 22nd 2019**.

Applications must include:

1) An up-to-date Curriculum Vitae (max 2 pages)
2) A brief essay concerning your research interest and the reasons why you like to participate in this workshop. (max 1 page)

Applications must be submitted to gabrieleguzzi93@gmail.com