

Davoud Taghawi-Nejad, PhD

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Education/Employment

- Post-doc, Oxford University, Institute for New Economic Thinking** 08/2016-present
- Developing an agent-based modeling platform
- Modeling systematic risk in insurance and financial markets
- Post-doc, Center For Metropolitan Studies / USP, Sao Paulo** 08/2015–07/2016
Post-doc, University of Sao Paulo, Sao Paulo 10/2014–03/2015
- Developed a model and web-enabled policy simulator of the Brazilian Education System
- Agents' behaviors are modeled according to the law and decisions are made based on tax and educational data
- Developed double-entry bookkeeping platform in Python
- Simulation will be used to train policy makers and develop inequality-reducing education policies.
- Post-doc, Massachusetts Institute of Technology, Boston** 07/2013–08/2014
Post-doc, MIT/KACST, Boston/Riyadh 09/2014–12/2014
- Led a project of six researchers to develop and test policies to increase employment of Saudi nationals
- All model parameters are calibrated using time-series and firm-level data
- Worked closely with our client, the Saudi Arabian Ministry of Labor
- Using an agent-based model of the labor market, broke down the complexity of the Saudi Arabian labor market into an understandable web-based policy simulator
- PhD, Economics of Complexity and Creativity** 01/2010–03/2013
Title: "The Economy as a Non-Equilibrium Process"
- Wrote an agent-based modeling framework with a domain-specific language for economics that simplifies programming and makes ABM accessible to economists
- Showed that changes in the network of firms can lead to business cycles
- Used reinforcement learning to model firms
PhD advisor: Pietro Terna; Commission: Robert Axtell, Mauro Gallegati, and Magda Fontana
University of Torino, Italy
- Management and Economics M.Phil (DEA), Master of Arts** 09/2004–09/2008
Université Catholique de Louvain, Belgium; Grade: Distinction
- Economics and Management, Bachelor's degree** 09/2001–09/2004
Free University of Bolzano, Italy; Grade: 100 = top fifth percentile
Completed courses taught in English, Italian, and German

Teaching Experience

- TA at Sciences Po and ILO (United Nations)** 11/2010–03/2013
- Worked as a teaching assistant in micro-, macro-, and labor economics in the Master of Applied Labor Economics for Development program

- Launched the new program
- Taught students, including junior staff from ministries and international organisations, from around the world; helped improve the program over three cycles
- Developed a distance learning program element

Agent-Based Modeling short course at University of Sao Paulo 05/2016

- Taught social and political scientists how to program
- Taught research methodology of agent-based modeling
- The students were programming a housing segregation and a spatial voting ABM

**Agent-Based Modeling Summer School 'Metodologia Quantitativa (MQ)'
Federal University of Minas Gerais, Brazil** 07/2016

- Taught economists and social scientists how to program
- Taught research methodology of agent-based modeling
- The students were programming a spatial voting ABM

Languages

English: fluent (TOEFL 280/300); German: native; Italian: fluent; French: fluent; Brazilian Portuguese: fluent

Publications published

Taghawi-Nejad, Davoud, and Vipin P. Veetil. (2016) "The Complexity of Coordination." *Eastern Economic Journal*: 1-11.

Taghawi-Nejad, Davoud. (2015) "Saudis and expats: an agent-based model of the Saudi Arabian labor market." *Advances in Artificial Economics*. Springer International Publishing. 139–149.

Taghawi-Nejad, Davoud. (2013) "Modelling the economy as an agent-based process: ABCE, a modelling platform and formal language for ACE." *Journal of Artificial Societies and Social Simulation* 16(3), 1.

Taghawi-Nejad, Davoud, and Samuel G. Asfaha. (2013) "Computational complete economy models: a model class that bridges the gap between conventional economic modeling and agent-based models." *Proceedings of the European Conference on Complex Systems 2012*. Springer International Publishing.

Taghawi-Nejad, Davoud. (2012) "How the simplistic science of economics caused the crisis and how economics has to reinvent itself as a complexity science." *Zukunft und Forschung*. 2012 Göttingen: Cuvillier.

Taghawi-Nejad, Davoud. (2012) "Beyond Computable General Equilibrium: Simulating Non-equilibrium Dynamics and money, an Agent-based Computational Complete Economy.", CEF Proceedings

Taghawi-Nejad, Davoud. (2010) "Technology shocks and trade in a network: How business cycles emerge from the interaction of autonomous agents." *Progress in Artificial Economics*. Springer Berlin Heidelberg. 101–112.

Accepted for publication

McCabe, Stefan, Dale Brearcliffe, Peter Froncek, Marta Hansen, Davoud Taghawi-Nejad, and Robert L. Axtell (2016) "A Comparison of Languages and Frameworks for the Parallelization of a Simple Agent Model", Multi-Agent-Based Simulation. Springer-Verlag, Lecture Notes in Artificial Intelligence,

(forthcoming)

Papers in Progress

Cantillon Effect: The network origins of relative price effects of monetary shocks, with Vipin Veetil

In the short-run we might be dead: a non-equilibrium model of climate abatement and taxation (simulation can be found at www.taghawi-nejad.de/portfolio)

Invited Talks

Smart Public Administration 2014, Istituto di Ricerca Economico e Sociale Piemonte (Torino, Italy). "Decision support systems to facilitate communication between policy makers and scientists: the case of Saudi-Arabia's labor-market support system" (in Italian).

Future and Science 2011, Mind-Akademie (Hannover, Germany). "How the simplistic science of economics caused the crisis and how economics has to reinvent itself as a complexity science" (in German).

Conferences

The Computational Social Science Society of the Americas 2015: "An Agent-Based Model to Understand the Effect of Interactions Between Federal, State and Local Governance on the Distribution of Educational Resources"

Integrative Research: Challenges of complex systems for technological applications 2015: "ABCE: a Python agent-based modelling platform."

World Congress on Social Simulation 2014: "Transitioning Saudi Arabia from an expat-driven economy to an endogenous wealth-creating society."

Artificial Economics 2014: "Saudis and expats: an agent-based model of the Saudi Arabian labor market."

Computational Economics and Finance 2012: "Beyond computable general equilibrium: simulating non-equilibrium dynamics and money, an agent-based computational complete economy."

ECCS 2012: "Computational complete economy models: bridging the gap between CGE and agent-based models."

Artificial Economics 2010: "Technology shocks and trade in a network."

International Atlantic Economic Conference 2016: ed "Effects of monetary shocks on the distribution of prices".

Referee

Journal of Economic Dynamics and Control, Elsevier
Economic book series, Routledge
The Economics of Transition, Wiley
Technological Forecasting & Social Change, Elsevier

Software Projects

Agent-based complete economy platform (<http://davoudtaghawinejad.github.com/abce/>): a general simulation platform for the economy that I created and maintain

Summer Schools

2010 First Heidelberg Summer School of Neuroeconomics, University of Heidelberg

Certificate in Econometrics, London School of Economics; Grade: A+

Work Experience

Consulting Internship Asset Management, Acarda

04/2009–08/2009

I implemented trading strategies for very large transactions, e.g., the sales of a majority stake for a large German bank. I partitioned large orders and randomized their execution time to substantially mitigate the share price decrease. A higher sales price is worth several hundred thousand dollars for large orders. In analyzing the consequences of Basel III and Solvency II on bank requirements, I identified new fields of business activities for Acarda. These efforts led to the acquisition of three projects with one Japanese and two German banks.

Associate Coach, TetraLD

02/2008–12/2009

I gave seminars on coaching style management and true listening. My clients included Intel and the Hub Brussels.

Research Assistant in Asset Management, Uni. of Bolzano

11/2001–09/2004

I developed investment strategies, programmed a rolling-fund picking model in Visual Basic for Excel, and created financial models in Excel.

United Nations, Internship

06/2005–07/2005

As editor and co-author of a report on social and economic development, I gathered texts and opinions from a large (~80) group of people and compiled them into one report. Through communication and diplomacy, I created a compromise among often-disagreeing parties and delivered the unanimously accepted text to the Secretary General of the UN.

Leadership

Member of the Executive Board, Free University of Bolzano's Deputy

Deputy Chairman of two youth social centers

Managed 12 full- and part-time youth workers

State-wide student representative to North Rhine-Westphalia (representing 2.56 million students)

Training

Certificate in Coaching (PCC-Level, ICF)

03/2007–07/2007

125 hours of ICF-accredited coach training. Coaching Development, London.

Programming: **Python** (industrial-quality development); **Cython** (development); **Java** (very good knowledge); **C++** (good knowledge)

Network Analysis: Gephi, Graphviz, Networkx

Econometrics Software: R, OX, Gretl, Stata, Eviews, pandas

Economic/Mathematical: GAMS, Octave/Matlab