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## Current Position

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Assistant professor, Faculty of Technology, Policy and Management, Delft University of Technology, NL

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## Education

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- Sept 2009 – June 2013 PhD (**Cum Laude**), Delft University of Technology, the Netherlands.  
Thesis Title: **Structuring Socio-technical Complexity: Modelling Agent Systems Using Institutional Analysis**  
I have developed an agent-based simulation framework (MAIA) which assists researchers to comprehend and analyse the impact of long term decisions on the dynamics of complex socio-technical systems. This framework simultaneously considers top-down structures (e.g., norms and institutions) with decision making behaviour of individuals, thus combining bottom-up and top-down structures in agent simulations for the first time.
- 2007 - 2009 M.Sc. (**Honors**), Information Technology Engineering (minor in Artificial Intelligence), University of Tehran, Iran. (GPA: 19.59/20),  
Thesis Title: **Design and Implementation of Electronic Customer Churn Prediction System**  
I used several prediction algorithms (Decision Tree, Neural Networks) to detect customer defection on two large data sets. I also developed an ontology that covers the concepts and relations required for the development of a churn management system.
- 2003 - 2007 B.Sc., Computer Science, Isfahan University of Technology, Iran.  
Thesis Title: **Exploring Data Mining Techniques for Weather Forecast**

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## Networking

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### International Research Visits (two weeks or more)

- May 2016 – June 2016 University of ETH, Switzerland  
Professor Dirk Helbing, Computational Sociology
- June 2015, Nov 2013 University of Linnaeus, Vaxjo, Sweden  
During my two visits I worked with **Prof. Giangiacomo Bravo** who **funded me** for the research visits in order to build a model of **institutional emergence in communities** for common-pool resources. We have also validated the model with empirical data from irrigation and fishery.
- March 2014 University of Surrey, Guilford, UK  
Prof. Nigel Gilbert is the director of the **CRESS** group which is at the core of the computational sociology research. I visited CRESS to further establish my network and start collaboration with the researchers there. As an outcome

of that, I have been working with Dr. Tina Balke to investigate the influence of individual expectation on rule compliance which will be submitted to AAMAS this year.

Sept-Oct 2011  
Universitat Autònoma de Barcelona, Department of artificial intelligence (IIIA- CSIC), Barcelona, Spain  
During my visit, I worked with Dr. Pablo Noriega to build a logical formalization of the ADICO grammar of institutions. This formalization was not only useful for social simulation; it proved to be useful in the artificial intelligence domain for implementing electronic institutions. The outcome of this research was presented at the AAMAS conference which is the most reputable conference in the multi-agent systems research domain.

University of Tehran, Iran

2007-2009  
I started my agent-oriented research during my M.Sc. studies, where I conducted research on agent architectures and languages in the multi-agent systems lab. Working in that lab influenced my decision about the field of research I would pursue my PhD in.

### International Collaboration

I have been co-organizing international workshops with

Prof. Giangiacomo Bravo from **Linnaeus University**

Prof. Jeremy Pitt from **Imperial College London**

Dr. Neil York-Smith from **American University of Beirut**

Dr. Savarimuthu from **University of Otago**

Dr. Armando Geller from **George Mason University**

Dr. Tina Balke from **University of Surrey**

### Organization of international conferences and workshops

September 2016  
[Lorentz Workshop](#) (accepted), I am the **main applicant** of this workshop which will be about “Emerging Institutions: Design or Evolution?”. Lorentz workshops are highly prestigious and fully funded workshops held in Leiden, where prominent experts in the field are invited for one whole week to work on a particular topic leading to publications and research proposals. I co-organized this workshop with Professors Giangiacomo Bravo (Linnaeus University), Tine de Moor (Utrecht University, [president IASC](#)), Jeremy Pitt (Imperial College).

August 29-2 Sept 2016  
ECAI (22<sup>nd</sup> European Conference on Artificial Intelligence), the Hague, NL, **Logistic chair**, <http://www.ecai2016.org>

December 1-6, 2013  
COIN 2013 (16<sup>th</sup> International Workshop of Coordinations, Organizations, Institutions and Norms)

**Special AMPLE Track Chair**, workshop at PRIMA 2013, Dunedin, New Zealand, <http://coin2013-prima.tudelft.nl/index.html>

August 27-31, 2012  
AMPLE 2012 (Agent-based Modelling for Policy Engineering) Workshop with special track on sustainability,

- June 18-20 2012      **Co-chair**, workshop at ECAI'12, Montpellier, France,  
<http://ample2012.tudelft.nl/>
- June 18-20 2012      CESUN Conference, Doctoral Consortium Program
- June 18-20 2012      **Co-organizer**, Delft, The Netherlands, <http://cesun2012.tudelft.nl/>
- May 2, 2011            AMPLE2011 (Agent-based Modelling for Policy Engineering) Workshop,
- May 2, 2011            **Co-chair**, workshop at AAMAS'11, Taipei, Taiwan,  
<http://ample2011.tudelft.nl/>

### Invited Talks

- October 2015            Invited talk, Extracting Normative Patterns in Energy Use to Inform Agent-based Models , Energy Sense Seminar, **University of Groningen**
- May 2015                Invited talk, Modelling and Simulation to understand the evolution of institutions, **AMS** Urban metabolism workshop, Amsterdam -
- June 2014                Invited talk, Constructed Complexities International Workshop – **University of Surrey**, UK – “Modelling Institutional Emergence”
- March 2014              Invited CRESS Seminar, Centre for Research in Social Simulation, **University of Surrey**, UK - “Structuring Socio-technical Complexity with ABM”
- March 2014              Invited seminar, **Environmental Change Institute (ECI), Oxford University**, UK – “Tackling Environmental Issues with MAIA”
- January 2014             Invited seminar, presentation of PhD thesis as a Cum Laude PhD, First TBM Dean’s Seminar, TU Delft
- November 2013          Invited talk, **University of Linnaeus**, Vaxjo, Sweden – “Modelling Common pool resource systems with MAIA”
- September 2011         Invited seminar, **Universitat Autònoma de Barcelona**, Department of artificial intelligence (IIIA- CSIC), Barcelona, Spain – “Understanding institutions from Institutional Economics point of view”.

### Editor of special issues

- 2015                        Editor Special Issue on Agent-based Modelling for Policy Engineering, Journal of AI & Society, Volume 30 Issue 3

### Reviewer for international journals

- 2015                        Journal of Simulation
- 2015                        Journal of Expert Systems with Applications
- 2014, 2015                Journal of Artificial Societies and Social Simulation (JASSS)
- 2010, 2014                Journal of Industrial Ecology

### Program committee and reviewer

- 2016                        European Conference on Modelling and Simulation (ECMS16, <http://www.scs-europe.net/conf/ecms2016/committee.html>)
- 2016                        International Joint Conference on Artificial Intelligence

2015	Workshop on Agents Applied to Healthcare (A2HC, AAMAS)
2014, 2015	Social Simulation Conference (ESSA)
2014	European Conference on Social Intelligence (ECSI-2014)
2013	Social Path Conference
2013, 2015, 2016	International Conference on Autonomous Agents and Multi-agent Systems (AAMAS 13)
2012	Agent-based Modelling for Policy Engineering (AMPLE 2011, 2012)
2012-2016	International Workshop on Coordination, Organisations, Institutions and Norms (COIN)
2012	Winter simulation conference

## Memberships

2015 – current	<b>Affiliated member</b> of Institute for Collective Action, Utrecht University, <a href="http://www.collective-action.info/">http://www.collective-action.info/</a>
2015 – current	International association for the study of the commons (IASC) (Ostrom as founding member)
2013 – current	European Social Simulation Association

## Teaching and Supervision

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### Lectures, courses and teaching material

Year	Course name	Role
2015	Renewable Energy Systems, M.Sc. Course for Industrial Ecology program (TU Delft, Leiden)	Module manager and instructor
2015	Interdisciplinary Project Groups, M.Sc. Course for Industrial Ecology program (TU Delft, Leiden)	Group Supervisor
2015	TPM Research Frontiers, PhD graduate course, topic: conducting PhD research (TU Delft)	Guest Lecturer
2014 – 2015	Research methods and statistics. B.Sc. course for SEPAM program (TU Delft)	Domain docent
2014 – 2015	Advanced Agent-based Modeling. M.Sc. course for SEPAM program (TU Delft)	Co-instructor / Guest Lecturer
2014	Multi-agent systems (MAS) course M.Sc., topic: modeling with MAIA (University of Twente)	Guest Lecturer
2013 – 2015	Multi-actor systems design: an integrated view. M.Sc. course for SEPAM program (TU Delft)	Group Supervisor
2010 - 2012	Web Information Systems. B.Sc. course for SEPAM program (TU Delft)	Co-instructor
2009	Information Technology Management, M.Sc. course for Information Technology program, (University of Tehran)	Teacher Assistant
2009	E-customer Relationship Management, M.Sc. course for Information Technology program, (University of Tehran)	Teacher Assistant

2009	Information technology foundations, B.Sc. course for Information Technology program, (University of Tehran)	Teacher Assistant
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## Supervision

Level of Education	Name of Student	Role
<b>PhDs</b> Ongoing	Arthur Feinberg (TU Delft): Community formation and self-organization (start: 2016) - Yared Abebe (UNESCO-IHE): <i>Holistic flood risk assessment with ABM</i> (start: 2013) - Ali Azizi (University of Tehran): <i>Management of Land-Use and Ground Water Changes Using ABM</i> (start: 2013)	Daily supervisor  Expert advisor on modelling institutions and other social aspects using ABM Expert advisor on ABM
<b>Master students</b>		
Ongoing	- Mahtab Aghamiri (Engineering Policy Analysis M.Sc.) (TU Delft): <i>Self-organization for Sustainable Collective Action in Smart Cities: The Case Of Buiksloterham</i> , Started: November 2015.  - Francesca Klack (Industrial Ecology M.Sc.) (TU Delft/Leiden): <i>Using Choice models and ABM to understand policy makers decision regarding industrial symbiosis</i> , Started: December 2015.	Daily supervisor  Daily supervisor
Completed *	- Roland Saur (Sustainable Energy Technology M.Sc.), <i>Smart Grids Managment: A Common pool resource approach</i> , August 2015.  - Ahmad Mirmohammadi (SEPAM M.Sc.) (TU Delft): <i>Designing an Agent-based Model for Investigating the World Energy System</i> , September 2013.  - Reinier Verhoog (SEPAM M.Sc.) (TU Delft): <i>Exploring biogas stakeholder interaction in the Netherlands, Winner of Dutch Gas Industry Prize 2014</i> for his M.Sc. thesis, September 2013.  - Noortje Schrauwen (industrial ecology M.Sc.) (TU Delft/University of Leiden): <i>Innovativeness of innovation: A study on the effects of social institutions on innovation practices in the Westland horticulture sector, Cum Laude</i> , December 2012.  - Femke de Korte (SEPAM M.Sc.) (TU Delft): <i>Exploring the potential of manure-based energy production in Salland</i> , May 2012.  - Sathyam Sheoratan (Industrial ecology M.Sc.) (TU Delft/University of Leiden): <i>Agent Based Modelling of the e-waste recycling sector in Bangalore, India</i> , August 2011.	Daily supervisor  Daily supervisor  Daily supervisor  Daily supervisor  Daily supervisor
<b>Bachelor students</b>	- Bert Belder (system engineering and policy analysis and management B.Sc.): <i>A web-based application for</i>	Daily supervisor

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\*All the M.Sc. students who have completed their theses and whom I was the daily supervisor of, have received a grade above 8.

## Scholarships, grants and prizes

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	Amount	Year of award
<b>Prizes</b>		
- European Social Simulation Association (ESSA) Distinguished Dissertation Award (Given to a PhD graduate each year based on thesis and CV)	1000	2014
- "Best Engineering Graduate" Award, University of Tehran (Selection criteria based on innovativeness of M.Sc. thesis, CV and GPA)		2010
- Ranked 12 <sup>th</sup> in National University Entrance Exam for M.Sc. Program (among 10,000 participants), Iran		2007
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<b>Research Visit Grants</b>		
- European Network for Social Intelligence (SINTELNET) Grant for Research Visit abroad (evaluation: research plan and CV)	1000	2014
- European Cooperation in Science and Technology (COST) Grant for Research Visit abroad (evaluation: research plan and CV)	1700	2011
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<b>Conference Grants</b>		
- Artificial Life Conference Travel Stipend	234	2010
- EASSS Summer School Travel Stipend (evaluation: CV)	270	2011
- European Social Simulation Conference Travel Stipend (twice) (evaluation: CV)	1000	2012, 2013
- Lorentz Workshop	15000	2015
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<b>Research Proposals</b>		
- SimBiogas part of the Energy Delta Gas Research (EDGaR) program in the Netherlands (role as co-applicant)	100.000	2014, 2015

## Scientific Output

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### Research Tools

- About MAIA and the developed Java plugin: <http://maia.tudelft.nl>
- Online tool to build MAIA models: <http://maia-tool.github.io/>
- Agent research at TU Delft: <http://agents.tudelft.nl>

### Publications

## Refereed Journal articles

1. Verhoog, Reinier, **Amineh Ghorbani**, and Gerard PJ Dijkema. "Modelling socio-ecological systems with MAIA: A biogas infrastructure simulation." *Environmental Modelling & Software* 81 (2016): 72-85.
2. **Ghorbani, G. Bravo**, *Managing the Commons: A Simple Model of the Emergence of Institutions through Collective Action*, In press: International Journal of the Commons, 2016.
3. R. Verhoog, A. **Ghorbani**, E.E. Hardi, G.P.J. Dijkema, M.P.C. Weijnen, *Structuring socio-technical complexity in infrastructure systems: an agent-based model*, In press: International Journal of Complexity in Applied Science and Technology, 2016.
4. **Ghorbani**, G.P.J. Dijkema, and N. Schrauwen, [Structuring Qualitative Data for Agent-based Modelling](#), *Journal of Artificial Societies and Social Simulation (JASSS)*, Volume 18, issue 1, 2015
5. **Ghorbani**, P. Bots, H. Alderwereld, V. Dignum, G. Dijkema, [Model-Driven agent-based simulation: Procedural semantics of a MAIA model](#), *Simulation Modeling Practice and Theory*, Volume 49, 27-40, 2014.
6. **Ghorbani**, V. Dignum, F. Dechesne, C. Jonker, [Enhancing ABM into an Inevitable Tool for Policy Analysis](#), *Policy and Complex Systems*, Volume 1 Issue 1, Policy Studies Organization, 2014
7. **Ghorbani**, V. Dignum, P. Bots, G. Dijkema, [MAIA: A Framework for Developing Agent-based Social Simulations](#), *Journal of Artificial Societies and Social Simulation (JASSS)*, Volume 16, issue 2, 2013.

## Book Chapters

1. **Ghorbani**, V. Dignum, [Agent-based Simulation for Complex Social Systems: Support for the Developer](#), Springer Proceedings in Complexity, 421-425, 2013 ([Proceedings of the European Conference on Complex Systems 2012](#)).
2. **Ghorbani**, H. Alderwereld, V. Dignum, and **P. Noriega**, [Shared Strategies in Agent Systems, Coordination, Organization, Institutions and Norms in Agent Systems VIII](#), LNAI, Springer, 2012.
3. **Ghorbani**, V. Dignum, and G. Dijkema. [An analysis and design framework for agent-based social simulation](#). *Advanced Agent Technology*, 96-112, LNAI, Springer, 2012.
4. **Ghorbani**, H. Alderwereld, V. Dignum, G. Dijkema, [Applying the MAIA Platform to Model a Manure-based Energy System in the Netherlands](#), [Modeling social phenomena in spatial context 2](#), 91-111, 2012.
5. R. Karimpour, A. **Ghorbani**, A. Pishdad, M. Mohtarami, A. AleAhmad, H. Amiri, F. Oroumchian, [Using Part of Speech Tagging In Persian Information Retrieval](#), *Lecture Notes in Computer Science (LNCS)*, Springer, 2009.

## Conference Proceedings (peer-reviewed)

1. **Ghorbani**, R. Saur, I. Nikolic, Groenleer M., Herder P., *Smart grids as Common-pool Resources: Managing Electrical Vehicle Charging through Evolving institutions*, IASC Thematic Conference on Urban Commons, Italy, 6-7 November 2015.
2. **Ghorbani** and G. Bravo, *Managing the Commons: Cheating, Sanctioning and the Emergence of Institutions*, Proceedings of the 11th Social Simulation Conference, September 14 - 18, 2015.
3. Kisjes, K.; Verhoog R., **Ghorbani**, A; Dijkema, G.P.J.; *SIMBIOGAS - An Agent-Based Model to Explore the Industrial Ecology Of Biogas*, 8th Biennial Conference of the International Society for Industrial Ecology, 7th- 10th July 2015, University of Surrey, Guildford, UK, 2015.
4. **Ghorbani**, *Modelling and Simulation to understand the evolution of institutions*, Sense Summer Symposium, Wageningen University campus, NL, 18 June 2015

5. **Ghorbani**; G.P.J. Dijkema P. Bots H. Alderwereld V. Dignum; *Model-driven agent-based simulation : Procedural semantics of a MAIA model*; B-type paper in proceedings of the 27th Benelux Conference on Artificial Intelligence, Hasselt, Belgium, 5 - 6 November 2015
6. Verhoog, R.; **Ghorbani**, A., Dijkema, G.P.J., Lukszo, Z. *Transmission Capacity as a Common-Pool Resource: The Case of Gas Interconnector Capacity*. In: Dolan, T. and Collins, B., (eds.) International Symposium for Next Generation Infrastructure Conference Proceedings: International Institute of Applied Systems Analysis (IIASA), Schloss Laxenburg, Vienna, Austria. (pp. pp. 93-99), 30 September - 1 October 2014.
7. M. Oey, Z. Genç, A. **Ghorbani**, H. Alderwereld, R. Aydogan, N. Wijngaards, R. Timmer, F. Brazier, C. Jonker, [Modelling Multi-Stakeholder Systems: A Case Study](#), Proceedings of the 2014 IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT'14), Warsaw, Poland, Special session on Agent-Based Simulation Supporting Decision Making, August 11-14, 2014.
8. R Hesán, A. **Ghorbani**, V Dignum, [Modeling the Influence of Multiple Social Groups on Agents Behavior](#), Proceeding of European Conference on Social Intelligence, Barcelona, Spain, November 3-5, 2014.
9. R. Hesán, A. **Ghorbani**, and V. Dignum, [Using Difference Equation to Model Discrete-time Behavior in System Dynamics Modeling](#), Proceedings of the 32nd International Conference of the System Dynamics Society, Delft, Netherlands, July 20-24, 2014.
10. **Ghorbani**, *A Different Application of the IAD Framework: A Simulation Tool, Workshop on the Ostrom Workshop (WOW5)*, Indiana University, Bloomington, USA, June 18-21, 2014.
11. **Ghorbani** and **G. Bravo**, [The Emergence of Institutions for the Management of the Commons](#), Proceedings of the 10th Social Simulation Conference, September 1-5, 2014.
12. R. Hesán, A. **Ghorbani**, and V. Dignum, [Modelling Environments in ABMS: a System Dynamics approach](#), Proceedings of 15th International Workshop on Multi-Agent-Based Simulation, AAMAS 2014, Paris, France, May 5-6, 2014.
13. **Ghorbani**, G.P.J. Dijkema, and N. Schrauwen, [Using Ethnographic Information to Conceptualize Agent-based Models: The case of Greenhouse Innovation](#), The 9th European Social Simulation Association Conference, Warsaw, Poland, September 16-20, 2013.
14. Reinier Verhoog, A. **Ghorbani**, Gerard P J Dijkema, Margot P C Weijnen, [Structuring Socio-Technical Complexity In Infrastructure Systems: The Biogas System](#), International Symposia for Next Generation Infrastructure, Wollongong, Australia, September 30– October 4, 2013.
15. **Ghorbani**, V. Dignum, P. Bots, G. Dijkema, [Simulating the commons using the commons language](#), The Commons: Commoners and the Changing Commons: Livelihoods, Environmental Security, and Shared Knowledge: Kitafuji Conference, Mount Fuji, Japan, June 3-7, 2013.
16. **Ghorbani**, V. Dignum, P. Bots, G. Dijkema, B. Belder, *Agent-based Modeling for the Social Scientist: The MAIA tool support*, International Workshop on Agent-Based Models and Complex Techno-Social Systems, ETH Zurich (Switzerland), July 2-4, 2012.
17. **Ghorbani**, H. Alderwereld, V. Dignum, and P. Noriega, [Dutch eat at 5:30 pm: Shared Strategies in Artificial Agent Societies](#), Proceedings of the 11th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**) - Volume 3, Valencia, Spain, June 4-8, 2012.
18. **Ghorbani**, [An agent-oriented social simulation methodology for institutional Driven evolving agents](#), Proceedings of the 11th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS** 2012), Conitzer, Winikoff, Padgham, and van der Hoek (eds.), doctoral consortium, Valencia, Spain, June 4–8, 2012.
19. **Ghorbani**, *A Software Tool for Conceptualizing Agent-based Models*, 14th European Agent Systems Summer School Paper Session (EASSS 2012), Valencia, Spain, May 28th - June 1<sup>st</sup>, 2012.



20. **Ghorbani**, V. Dignum, G. Dijkema, S. Sheoratan, [Applying the MAIA Methodology to Model the Informal E-waste Recycling Sector](#), The 7th European Social Simulation Association Conference, Montpellier, France, September 19-23, 2011.
21. Nikolic and A. **Ghorbani**, [A method for developing agent-based models of socio-technical systems](#). In IEEE International Conference on Networking, Sensing and Control (ICNSC), pages 44-49, Delft, the Netherlands, April 11-13, 2011.
22. Ligtvoet, A. **Ghorbani** and E. Chappin, [A methodology for agent-based modeling using institutional analysis applied to consumer lighting](#). Agent Technologies for Energy Systems Workshop, Tenth international conference on Autonomous Agents and Multi Agent Systems (**AAMAS**), Taipei, Taiwan, May 2-6, 2011.
23. Steubing, F. Kostadinov, A. **Ghorbani**, P. Wäger, R. Zaha, O. Thees and C. Ludwig, [Agent-based modeling of a wood-fuel market – factors that affect the availability of wood-fuel](#), 6<sup>th</sup> International Conference on Industrial Ecology, Berkeley, US, June 7-10, 2011.
24. **Ghorbani**, A. Ligtvoet, I. Nikolic, and G. Dijkema, [Using Institutional Frameworks to Conceptualize Agent-based Models of Socio-technical Systems](#), Proceeding of the Workshop on Complex System Modeling and Simulation (CoSMoS2010) at Artificial Life XII, 3:33-41, August 19-23, 2010.
25. **Ghorbani**, F. Taghiyareh, C. Lucas, [The Application of the Locally Linear Model Tree on Customer Churn Prediction](#), In International Conference of Soft Computing and Pattern Recognition (SOCPAR'09), IEEE, 472-477, Melaka, Malaysia, December 4-7, 2009.
26. **Ghorbani**, F. Taghiyareh, [CMF: A framework to improve the management of customer churn](#), In Services Computing Conference (APSCC 2009), IEEE Asia-Pacific, 457-462, Singapore, December 7-9, 2009.
27. **Ghorbani**, O. Fatemi, *Using the Particle Swarm Optimization Algorithm in personalizing E-learning systems*, 2nd joint congress on Fuzzy and Intelligent Systems, Tehra, Iran, September 2-3, 2008.
28. **Ghorbani**, R. Karimpour, M. Moghisi, *A Parking Management System using RFID and GPS technologies*, Proceeding of Second International Conference on Automotive Electronics Industry, Tehran, Iran, December 10-13, 2008.
29. R. Karimpour, A. **Ghorbani**, M. Moghisi, *A reliable communication protocol for BRT platooning*, Proceeding of Second International Conference on Automotive Electronics Industry, Tehran, Iran, December 10-13, 2008.

#### **Books**

- **Ghorbani**, Structuring Socio-technical Complexity: Modelling Agent Systems Using Institutional Analysis, PhD thesis, TU Delft, 2013.