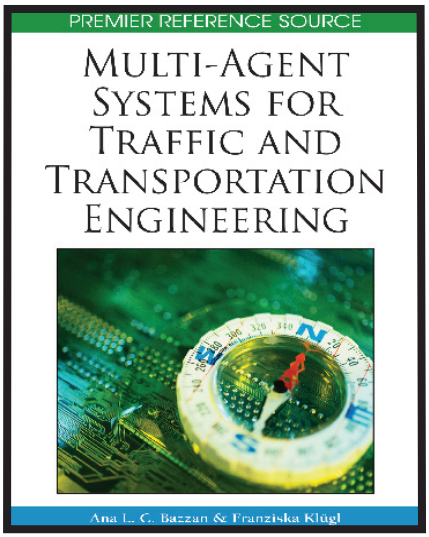
Multi-Agent Systems for Traffic and Transportation Engineering



Edited by: Ana Bazzan, Universidade Federal do Rio Grande do Sul, Brazil and Franziska Klügl, Örebro University, Sweden

13-digit ISBN: 978-1-60566-226-8
446 pages; 2009 Copyright
Price: US $195.00 (hardcover*)
Pre-pub price§: $180.00
Perpetual Access: US $295.00
Print + Perpetual Access: US $390.00
Illustrations: figures, tables (8 1/2" x 11")
Translation Rights: World
*Paperback is not available. §Pre-pub price is good through one month after publication.

"This book is a collection of contributions addressing topics that arose from a cross fertilization between traffic engineering and multi-agent system. Hence, this book summarizes innovative ideas for applications of different agent technologies on traffic and transportation related problems."

- Ana L. C. Bazzan, Instituto de Informatica, UFRGS, Brazil

Our increasing societal demand for mobility now challenges researchers to devise more efficient traffic and transportation systems.

The **Handbook of Research on Multi-Agent Systems for Traffic and Transportation Engineering** provides a unique compendium of research covering topics such as transportation system designs, control devices, and techniques to optimize existing networks. Presenting a collection of approaches to issues in traffic and transportation, this authoritative reference offers a compilation of chapters with innovative methods and systems written by leading international researchers.

Subject:
Artificial Intelligence; Industrial Informatics; Networking/Telecommunications; Mobile/Wireless Computing; Multimedia Technologies; Software/Systems Design

Market:
This essential publication is for all academic and research libraries, as well as all those involved in the development and study of intelligent transportation systems and the advancement of traveler information systems. Researchers, educators, practitioners, automotive engineering specialists, and students who are interested in the science of safe and efficient movement of people and goods, passenger travel, and public safety on the roads, will also find this publication an excellent resource.

Multi-Agent Systems for Traffic and Transportation Engineering

Edited by: Ana Bazzan, Universidade Federal do Rio Grande do Sul, Brazil and Franziska Klügl, Örebro University, Sweden

Contributors

Adrian Agogino, USCS, NASA Ames Research Center, USA
Theo Arentze , Eindhoven University of Technology, Urban Planning Group, The Netherlands
Michael Balmer, IVT, ETH Zürich, Suisse
Ana L. C. Bazzan, Instituto de Informática, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
Klemens Böhm, Universität Karlsruhe (TH), Germany
Ladislau Boloni, School of Electrical Engineering and Computer Science, University of Central Florida, USA
Brahim Chaib-draa, Laval University, Quebec City, QC, Canada
Charles Desjardin, Laval University, Quebec City, QC, Canada
Kurt Dresner, University of Texas at Austin, Department of Computer Sciences, Austin, USA
Francis Y. Enomoto, NASA, NASA Ames Research Center, USA
Edgar Esteves, Artificial Intelligence and Computer Science Laboratory (LIACC), University of Porto (FEUP), Portugal
Paulo Ferreira, Artificial Intelligence and Computer Science Laboratory (LIACC), University of Porto (FEUP), Portugal
Qi Han, Eindhoven University of Technology, Urban Planning Group, The Netherlands
Lawrence Henesey, Blekinge Institute of Technology, Sweden
Davy Janssens, Hasselt University, Transportation Research Institute –Instituut voor Mobiliteit (IMOB), Belgium
Peter A. Jarvis, Perot Services Government Systems, NASA Ames Research Center, USA
David J. Kaup, Institute for Simulation and Training, Mathematics Department, University of Central Florida, USA
Hubert Klüpfel, TraffGo HT GmbH, Duisburg, Germany
Tobias Kretz, PTV AG, Karlsruhe, Germany
Koichi Kurumatani, CREST, Japan Science and Technology Agency (JST), Information Technology Research Institute (ITRI), National Institute of Advanced Industrial Science and Technology (AIST), Japan
Jules Laumonier, Laval University, Quebec City, QC, Canada
Ulf Lotzmann, Institute of Information Systems Research, University of Koblenz, Germany
Tamas Mahr, Almende, TU Delft, The Netherlands
Linda Malone, Department of Industrial Engineering and Management Sciences, University of Central Florida, USA
Konrad Meister, David Charypar, Nicolas Lefebvre, IVT, ETH Zürich, Suisse
Kai Nagel, VSP, TU Berlin, Germany
Rex Oleson, Thomas L. Clarke, Institute for Simulation and Training, University of Central Florida, USA
Eugénio Oliveira, Artificial Intelligence and Computer Science Laboratory (LIACC), University of Porto (FEUP), Portugal
Denise de Oliveira, Instituto de Informática, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
Sascha Ossowski, Artificial Intelligence Group, University Rey Juan Carlos, Madrid, Spain
Jan A. Persson, Blekinge Institute of Technology, Sweden
Marcel Rieser, VSP, TU Berlin, Germany and IVT, ETH Zürich, Suisse
Christian Rogsch, Institute for Building Material Technology and Fire Safety Science, University of Wuppertal, Germany
Rosaldo Rossetti, Artificial Intelligence and Computer Science Laboratory (LIACC), University of Porto (FEUP), Portugal
Andreas Schadschneider, Institut für Theoretische Physik, Universität zu Köln, Germany
Heiko Schepperle, Universität Karlsruhe (TH), Germany
Armin Seyfried, Jülich Supercomputing Centre, Research Centre Jülich, Germany
Kapil S. Sheth, NASA, NASA Ames Research Center, USA
Maarten Sierhuis, USRA-RIACS/Delft University of Technology, NASA Ames Research Center, USA
Jordan Srour, Rotterdam School of Management, Erasmus University, The Netherlands
Peter Stone, University of Texas at Austin, Department of Computer Sciences, Austin, USA
Takeshi Takama, Stockholm Environment Institute / Oxford Office, UK, University of Oxford, OUCE, UK
Harry Timmermans, Eindhoven University of Technology, Urban Planning Group, The Netherlands
Sabine Timpf, Geoinformatics, Department of Geography, University of Augsburg, Germany
Kagan Tumer, School of MIME, Oregon State University, USA
Mark Van Middlesworth, Division of Engineering and Applied Sciences, Havard University, USA
Bart-Jan van Putten, USRA-RIACS/Utrecht University, NASA Ames Research Center, USA
Matteo Vasirani, Artificial Intelligence Group, University Rey Juan Carlos, Madrid, Spain
Mathijs de Weerdt, TU Delft, The Netherlands
Zachary T. Welc, School of MIME, Oregon State University, USA
Geert Wets, Hasselt University, Transportation Research Institute – Instituut voor Mobiliteit (IMOB), Belgium
Shawn R. Wolfe, NASA, NASA Ames Research Center, USA
Tomohisa Yamashita, CREST, Japan Science and Technology Agency (JST), Information Technology Research Institute (ITRI), National Institute of Advanced Industrial Science and Technology (AIST), Japan
Rob Zuidwijk, Rotterdam School of Management, Erasmus University, The Netherlands

About the Editors

Ana Bazzan received her PhD in 1997 from the University of Karlsruhe (Germany), and an MSc in computer science from the Institute of Informatics at the University of Rio Grande do Sul (UFRGS) in Porto Alegre (Brazil). From 1997 to 1998, she had a postdoc research associate position in the Multi-Agent Systems Laboratory at the University of Massachusetts in Amherst, under the supervision of Prof. Victor Lesser. In 1999 she joined the Institute for Informatics at UFRGS as a professor and got tenure 3 years later. During 2006 and 2007 she had a fellowship from the Alexander von Humboldt Foundation at the University of Würzburg (Germany). She is affiliated with the research groups on artificial intelligence and multi-agent systems at UFRGS. Her research interests include game-theoretic paradigms for coordination of agents, multiagent learning, coordination and cooperation in MAS, agent-based simulation, RoboCup Rescue, and traffic simulation and control. Other professional activities include associate editor of the journal *Advances in Complex Systems*, chair of program committee for the 17th Braz. Symp. on Artificial Intelligence (2004), and co-organizer of workshop series on Agents in Traffic and Transportation.

Franziska Klügl is Universitetslektor at the Örebro University since September 2008. She is also responsible for Scenario-based Modelling at the Research Centre for Modelling and Simulation at the Campus Alfred Nobel in Karlskoga. She received her PhD in computer science from the University of Würzburg (2000). From 2000 to 2008 she worked as an assistant professor at the University of Würzburg and headed there the Multi-Agent Simulation group. She is co-organizer of the workshop series on "*Agents in Traffic and Transportation*" and was involved in the organization of several scientific events like PC Chair of the European Workshop of Multi-Agent Systems (2008). Her research interests are in the area of methodologies, applications and tools for multi-agent simulation ranging from learning and adaptive agents to visual programming for modelling multi-agent models. The main application areas of her research are all forms of traffic simulation.