

CONTACT INFORMATION	Toyota Research Institute AI & Robotics Group, TRD 2350 Green Road Ann Arbor, MI 48105, USA	Phone: (734) 995-3623 Fax: (734) 995-9049 E-mail: ddolgov@ai.stanford.edu WWW: <a href="http://ai.stanford.edu/~ddolgov">http://ai.stanford.edu/~ddolgov</a>
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RESEARCH INTERESTS	Artificial Intelligence, Robotics, Motion Planning, Decision-making under Uncertainty, Optimal Stochastic Control, Multi-Agent Systems, Resource-Limited Agents
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EDUCATION	<b>PhD</b>	Feb. 2006	<b>University of Michigan</b> , Ann Arbor, MI Computer Science (Artificial Intelligence) Dissertation: <i>Integrated Resource Allocation and Planning in Stochastic Multiagent Environments</i> Advisor: Prof. Edmund Durfee
	<b>MS</b>	May 2002	<b>University of Michigan</b> , Ann Arbor, MI Computer Science (Artificial Intelligence) GPA: 8.3/9.0
	<b>MS</b>	June 2000	<b>Moscow Institute of Physics and Technology</b> , Moscow, Russia Applied Physics and Mathematics (Dept. of Quantum Electronics) GPA: 5.0/5.0
	<b>BS</b>	June 1998	<b>Moscow Institute of Physics and Technology</b> , Moscow, Russia Applied Physics and Mathematics (Dept. of Quantum Electronics) GPA: 4.9/5.0

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CURRENT POSITION	<b>Toyota Research Institute</b> , Ann Arbor, MI <i>Senior Research Scientist</i>	<b>August 2006 – present</b>
	<b>Stanford University</b> , Palo Alto, CA <i>Visiting Research Scientist</i> Research in robotics, intelligent safety, autonomous driving.	<b>August 2006 – present</b>

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HONORS AND AWARDS	IEEE Intelligent Systems “AI’s Ten to Watch”, 2008 AAMAS/Victor Lesser Distinguished Dissertation Award, 2nd place, 2007. Nomination for the ACM Doctoral Dissertation Award by the Computer Science Department, the University of Michigan, 2007. University of Michigan Computer Science and Engineering Graduate Student Honors Competition. 3rd place (1st Place within Intelligent Systems/AI), 2004.
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## PUBLICATIONS

*Journal Articles & Book Chapters* **Junior: The Stanford Entry in the Urban Challenge.** M. Montemerlo, J. Becker, S. Bhat, H. Dahlkamp, D. Dolgov, S. Ettinger, D. Haehnel, T. Hilden, G. Hoffmann, B. Huhnke, D. Johnston, S. Klumpp, D. Langer, A. Levandowski, J. Levinson, J. Marcil, D. Orenstein, J. Paefgen, I. Penny, A. Petrovskaya, M. Pueger, G. Stanek, D. Stavens, A. Vogt, and S. Thrun. *Journal of Field Robotics*, 2008. To appear.

**Resource Allocation Among Agents with MDP-Induced Preferences.** Dmitri A. Dolgov and Edmund H. Durfee, *Journal of Artificial Intelligence*. 2006.

**Symmetric Approximate Linear Programming for Factored MDPs with Application to Constrained Problems.** Dmitri A. Dolgov and Edmund H. Durfee, *Annals of Artificial Intelligence and Mathematics*. 2006.

**Locality and Asymmetry in Large-Scale Multiagent MDPs.** Dmitri A. Dolgov and Edmund H. Durfee, Invited book chapter. In P. Scerri, R. Vincent, R. Mailler (Eds.) *Coordination of Large-Scale Multiagent Systems*. 2005.

*Conferences & Workshops* **Autonomous Driving in Semi-Structured Environments: Mapping and Planning.** Dmitri Dolgov and Sebastian Thrun. In *Proceedings of the 2009 IEEE International Conference on Robotics and Automation (ICRA-09)*. Kobe, Japan. May 2009. To Appear.

**Autonomous Driving in a Multi-level Parking Structure.** Rainer Kümmerle, Dirk Hähnel, Dmitri Dolgov, Sebastian Thrun, and Wolfram Burgard In *Proceedings of the 2009 IEEE International Conference on Robotics and Automation (ICRA-09)*. Kobe, Japan. May 2009. To Appear.

**Apprenticeship learning for motion planning, with application to parking lot navigation.** Pieter Abbeel, Dmitri Dolgov, Andrew Ng, and Sebastian Thrun. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS-08)*. Nice, France. September 2008.

**Path Planning for Autonomous Driving in Unknown Environments.** Dmitri Dolgov, Sebastian Thrun, Michael Montemerlo, and James Diebel. In *Proceedings of the Eleventh International Symposium on Experimental Robotics (ISER-08)*. Athens, Greece. July 2008.

**Detection of Principal Directions in Unknown Environments for Autonomous Navigation.** Dmitri Dolgov and Sebastian Thrun. In *Proceedings of Robotics: Science and Systems (RSS-08)*. Zurich, Switzerland. June 2008.

**Practical Search Techniques in Path Planning for Autonomous Driving.** Dmitri Dolgov, Sebastian Thrun, Michael Montemerlo, and James Diebel. In *Proceedings of the First International Symposium on Search Techniques in Artificial Intelligence and Robotics (STAIR-08)*. July 2008.

**Junior: The Stanford Racing Team's Robot in the 2007 DARPA Urban Challenge.** M. Montemerlo, J. Becker, S. Bhat, H. Dahlkamp, D. Dolgov, S. Ettinger, D. Haehnel, T. Hilden, G. Hoffmann, B. Huhnke, D. Johnston, S. Klumpp, D. Langer, A. Levandowski, J. Levinson, J. Marcil, D. Orenstein, J. Paefgen, I. Penny, A. Petrovskaya, M. Pueger, G. Stanek, D. Stavens, A. Vogt, and S. Thrun. In *Proceedings of the Symposium on Automation, Assistance and Embedded Real Time Platforms for Transportation (AAET)*. Braunschweig, Germany, 2008.

**Stanford Racing Team's Parking Planner and Beyond.** Dmitri Dolgov, Sebastian Thrun, Michael Montemerlo, and James Diebel. In *Proceedings of the NIPS-07 Workshop, The Urban Challenge Perspectives of Autonomous Driving*. December 2007. To Appear.

**Combinatorial Resource Scheduling for Multiagent MDPs.** Dmitri A. Dolgov, Michael R. James, and Michael E. Samples. In *Proceedings of the Sixth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS-07)*. pp 657 – 664, Honolulu, Hawaii. May 2007.

**Improving Anytime Point-Based Value Iteration Using Principled Point Selections.** Michael James, Michael Samples, and Dmitri Dolgov. In *Proceedings of the Twentieth International Joint Conference on Artificial Intelligence (IJCAI-07)*, pp 865–871. Hyderabad, India. January 2007.

**Resource Allocation Among Agents with Preferences Induced by Factored MDPs.** Dmitri A. Dolgov and Edmund H. Durfee. In *Proceedings of the Fifth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS-06)*, pp 297–304. Hakodate, Japan. May 2006.

**Coordinated Plan Management Using Multiagent MDPs.** David J. Musliner, Edmund H. Durfee, Jianhui Wu, Dmitri A. Dolgov, Robert P. Goldman, and Mark S. Boddy. In *Working Notes of the AAAI Spring Symposium on Distributed Plan and Schedule Management*. March 2006.

**Symmetric Primal-Dual Approximate Linear Programming for Factored MDPs.** Dmitri A. Dolgov and Edmund H. Durfee. In *Proceedings of the Ninth International Symposiums on Artificial Intelligence and Mathematics (AI&M 2006)*. Florida, USA. January 2006.

**Efficient Linear Approximations to Stochastic Vehicular Collision-Avoidance Problems.** Dmitri A. Dolgov and Kenneth Laberteaux. In *Proceedings of the Second International Conference on Informatics in Control, Automation, and Robotics (ICINCO-05)*. Barcelona, Spain. September 2005.

**Stationary Deterministic Policies for Constrained MDPs with Multiple Rewards, Costs, and Discount Factors.** Dmitri A. Dolgov and Edmund H. Durfee. In *Proceedings of the Nineteenth International Joint Conference on Artificial Intelligence (IJCAI-05)*, pp 1326–1332. Edinburgh, Scotland. August 2005.

**Computationally-Efficient Combinatorial Auctions for Resource Allocation in Weakly-Coupled MDPs.** In *Proceedings of the Fourth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS-05)*. pp 657–664. Utrecht, The Netherlands. July 2005.

**Towards Exploiting Duality in Approximate Linear Programming for MDPs.** Dmitri A. Dolgov and Edmund H. Durfee. In *Proceedings of the Twentieth National Conference on Artificial Intelligence (AAAI-05)*. July 2005. Poster.

**Graphical Models in Local, Asymmetric Multi-Agent Markov Decision Processes.** Dmitri A Dolgov and Edmund Durfee. In *Proceeding of the Third International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS-04)*, pp 956–963. New York, July 2004.

**Optimal Resource Allocation and Policy Formulation in Loosely-Coupled Markov Decision Processes.** Dmitri A Dolgov and Edmund Durfee. In *Proceedings of the Fourteenth International Conference on Automated Planning and Scheduling (ICAPS-04)*. Whistler, Canada. June 2004.

**Approximate Probabilistic Constraints and Risk-Sensitive Optimization Criteria in Markov Decision Processes.** Dmitri A Dolgov and Edmund Durfee. In *Proceedings of the Eighth International Symposium on Artificial Intelligence and Mathematics (AI & Math 04)*. Florida, January 2004.

**Resource Allocation and Multiagent Policy Formulation for Resource-Limited Agents Under Uncertainty.** Dmitri A Dolgov and Edmund Durfee. In *Proceedings of the Fourth International Workshop on Computational Logic in Multi-Agent Systems (CLIMA IV)*, pp 109–125. Florida, January 2004.

**Constructing Optimal Policies for Agents with Constrained Architecture.** Dmitri A Dolgov and Edmund Durfee, *Technical Report CSE-TR-476-03, EECS, University of Michigan*. 2003.

**Approximating Optimal Policies for Agents with Limited Execution Resources.** Dmitri A Dolgov and Edmund H. Durfee. In *Proceedings of the Eighteenth International Joint Conference on Artificial Intelligence (IJCAI-03)*, pp 1107–1112. Acapulco, Mexico, August 2003.

**Constructing Optimal Policies for Agents with Constrained Architecture.** Dmitri A Dolgov and Edmund Durfee, *Proceedings of the Second International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS-03)*, pp 974–975. Melbourne, Australia. July 2003.

**Satisficing Strategies for Resource-Limited Policy Search in Dynamic Environments.** Dmitri A Dolgov and Edmund H. Durfee. In *Proceeding of the First International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS-02)*, pp 1325–1332. Bologna, Italy. July 2002.

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EMPLOYMENT  
HISTORY

**Toyota Research Institute**, Ann Arbor, MI **March 2006 – August 2006**  
*Postdoctoral Researcher*  
*Academic Advisor: Prof. Sebastian Thrun, Stanford University*  
Research on learning driver models, decision making in dynamic environments.

**University of Michigan**, Ann Arbor, MI **May 2001 – Feb 2006**  
*Graduate Research Assistant*  
Research on stochastic optimal control, combinatorial optimization, multiagent systems, resource-limited systems.

**Toyota Research Institute**, Ann Arbor, MI **May 2004 – February 2006**  
*Part-time Research Intern*  
Research on intelligent multi-vehicle safety, using techniques of optimal stochastic control.

**University of Michigan**, Ann Arbor, MI **September 2001 – January 2001**  
*Graduate Student Instructor*  
Taught "Data Structures and Algorithms" (EECS 280)

**University of Michigan**, Ann Arbor, MI **July 2001 – August 2001**  
*Summer Discovery Program - instructor*  
Taught a web design class (HTML, JavaScript, Java)

**Interlink Networks**, Ann Arbor, MI **November 2000 – December 2002**  
*Part-time Software Engineer (consultant)*  
Headed and participated in multiple software development projects contributing to the development of the Interlink Authentication Authorization and Accounting (AAA) server.

**Cinimex Informatica**, Moscow, Russia **June 1997 – August 2000**  
*Part-time Software Engineer*  
Headed and participated in multiple software-development projects for IBM PC and IBM AS/400 platforms.

**Chronotech b.v.**, Netherlands

**November 1998 – January 1999**

*Software Engineer*

Worked on software-development projects for Nissan on the IBM AS/400 platform.

**McAfee Associates, Inc.**, Moscow, Russia

**March 1997 – June 1997**

*Software Engineer*

Developed anti-virus software.

**Oak Ridge National Laboratory (ORNL)**, Oak Ridge, TN

**June 1996 – August 1996**

*Summer intern*

*Advisor: Prof. Yuri Kamyshev*

Computer simulations of a neutron-antineutron oscillation observation experiment.

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PROFESSIONAL  
SERVICE

Program Committee, International Joint Conference on Artificial Intelligence (IJCAI), 2009.

Program Committee, National Conference on Artificial Intelligence (AAAI), 2007, 2008.

Reviewer, International Conference on Robotics and Automation (ICRA), 2009.

Program Committee, International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2008, 2009.

Selection Committee, AAAI Doctoral Consortium, 2008.

Program Committee, Symposium on Sensor Fusion, Intelligent Sensors and Applications, 2007.

Program Committee, European Conference on Artificial Intelligence (ECAI), 2006.

Program Committee, Multi-Agent Sequential Decision Making in Uncertain Domains(MSDM), 2006, 2007, 2008, 2009.

Reviewer, Journal of Artificial Intelligence (JAIR), 2005, 2006, 2007, 2008.

Reviewer, International Joint Conference on Artificial Intelligence (IJCAI), 2005, 2007.

Reviewer, IEEE Transactions on Neural Networks, 2006.

Reviewer, IEEE International Symposium on Approximate Dynamic Programming and Reinforcement Learning, 2006.

Reviewer, International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), auxiliary reviewer, 2004.

Reviewer for IEEE journal Transactions on Systems, Man, and Cybernetics, 2003.