

*Curriculum Vitae*

**Brian P. Gerkey**

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**EDUCATION**

PhD, Computer Science, University of Southern California, July 2003. Dissertation advisor: Prof. Maja J Matarić. Dissertation: *On Multi-Robot Task Allocation*.

M.S., Computer Science, University of Southern California, May 2000.

B.S.E., Computer Engineering, magna cum laude, departmental honors, Tulane University, May 1998. Thesis advisor: Prof. James S. Jennings. Honors thesis: *Task Allocation for Heterogeneous Robots*. Secondary major in Mathematics. Minor in Robotics & Automation.

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**PROFESSIONAL**

From Aug 2003 : *Postdoctoral Scholar*, Stanford University Robotics Laboratory. Supervisor: Prof. Sebastian Thrun.

Jun 2003 – Jul 2003: *Postdoctoral Research Fellow*, University of Southern California Robotics Research Laboratory. Supervisor: Prof. Maja J Matarić.

Aug 1998 – May 2003: *Research Assistant*, University of Southern California Robotics Research Laboratory. Supervisor: Prof. Maja J Matarić.

Feb 2002 – Feb 2003: *Consultant*, Evolution Robotics, Inc., Pasadena, California. Supervisor: Dr. Paolo Pirjanian.

Jun 2001 – Jul 2001: *Consultant*, University of Southern California Information Sciences Institute. Supervisor: Dr. Kristina Lerman.

Feb 2001 – Mar 2001: *Consultant*, Phoenix International, Fargo, North Dakota. Supervisor: Dr. Noel W. Anderson.

May 1999 – Aug 1999: *Member of Technical Staff*, Artificial Intelligence Group, Jet Propulsion Laboratory, Pasadena, California. Supervisor: Dr. Tara Estlin.

Nov 1996 – May 1998: *Researcher*, Tulane University Mobile Robot Laboratory. Supervisor: Prof. James S. Jennings.

May 1996 – Aug 1998: *Programmer*, Computerized Processes Unlimited, Inc., Metairie, Louisiana. Supervisor: Thomas J. Accardo.

## GRANTS AND CONTRACTS

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DARPA grant DABT63-99-1-0015, “A Software Framework for Reliable, Adaptive, Autonomous Robots (MARS),” supplement for development of the Player robot device server, PI: G. Sukhatme, co-PI: M. Matarić, key personnel: B. Gerkey and A. Howard, approximately \$100,000 for two years, starting June 2002.

## HONORS

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Intel Foundation Graduate Fellowship	2001–2002
Tau Beta Pi Honor Society	1997–present
Upsilon Pi Epsilon Honor Society	1996–1998
Tulane Engineering and Computer Science Honor Society	1995–1998
Tulane University Dean’s Honor Scholarship	1994–1998
Lockheed Leadership Fund Scholarship	1994–1998
Dixie Crows Scholarship	1994–1998
National Merit Scholar	1994
Georgia Scholar	1993–1994
Georgia Governor’s Honor Program	1993

## SERVICE

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### Reviewing

#### Journals

- Autonomous Robots
- Journal of Artificial Intelligence Research (JAIR)
- Journal of Autonomous Agents and Multi-Agent Systems
- IEEE Transactions on Robotics and Automation
- IEEE Transactions on Systems, Man, and Cybernetics - Part B

#### Conferences

- American Assoc. for Artificial Intelligence National Conf. (AAAI)
- IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems (IROS)
- Intl. Conf. on Autonomous Agents
- Intl. Conf. on Intelligent Autonomous Systems (IAS)
- Intl. Joint Conf. on Artificial Intelligence (IJCAI)

#### Tutorials

“Introduction to Pioneer Robot Hardware and Software,” USC Computer Science Department, Fall 2000.

#### Other

President, USC Climbing Club, 1999–2000.

## MAJOR SOFTWARE PACKAGES DEVELOPED

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Founding and co-lead developer on the Player/Stage project. Player is a language- and platform-independent robot device interface, which supports a wide variety of robots and peripherals. Stage is a highly-scalable and parameterizable multiple robot simulator, to which Player is also the interface. Both Player and Stage are Free Software, released under the GNU General Public License, and they enjoy a significant and burgeoning user community. Software from this project has been downloaded over 3000 times, is actively used in more than twenty major academic and industrial research labs around the world, and is also used in teaching undergraduate and graduate classes. The software is available from:

<http://playerstage.sourceforge.net>.

## MEMBERSHIPS

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IEEE, Robotics and Automation Society

## PUBLICATIONS

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### Refereed Journal Articles

Brian P. Gerkey and Maja J Matarić. Sold!: Auction methods for multi-robot coordination. *IEEE Transactions on Robotics and Automation*, special issue on Multi Robot Systems, 18(5):758–768, Oct 2002. Also Technical Report IRIS-01-399.

### Refereed Conference Papers

Richard T. Vaughan, Brian P. Gerkey, and Andrew Howard, On device abstractions for portable, reusable robot code. To appear in *Proc. of the IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, Nevada, October 2003. Also Technical Report CRES-03-009.

Brian P. Gerkey and Maja J Matarić. Multi-Robot Task Allocation: Analyzing the Complexity and Optimality of Key Architectures. To appear in *Proc. of the IEEE Intl. Conf. on Robotics and Automation (ICRA)*, Taipei, Taiwan, September 2003. Also Technical Report CRES-02-005.

Brian P. Gerkey, Richard T. Vaughan, and Andrew Howard. The Player/Stage Project: Tools for Multi-Robot and Distributed Sensor Systems. In *Proc. of the Intl. Conf. on Advanced Robotics (ICAR)*, pages 317–323, Coimbra, Portugal, June 2003.

Brian P. Gerkey, Maja J Matarić, and Gaurav S Sukhatme. Exploiting physical dynamics for concurrent control of a mobile robot. In *Proc. of the IEEE Intl. Conf. on Robotics and Automation (ICRA)*, pages 3467–3472, Washington D.C., May 2002.

Brian P. Gerkey and Maja J Matarić. Pusher-watcher: An approach to fault-tolerant tightly-coupled robot coordination. In *Proc. of the IEEE Intl. Conf. on Robotics and Automation (ICRA)*, pages 464–469, Washington D.C., May 2002. Also Technical Report IRIS-01-403.

Brian P. Gerkey, Richard T. Vaughan, Kasper Støy, Andrew Howard, Gaurav S Sukhatme, and Maja J Matarić. Most Valuable Player: A Robot Device Server for Distributed Control. In *Proc. of the IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems (IROS)*, pages 1226–1231, Wailea, Hawaii, October 2001.

Brian P. Gerkey and Maja J Matarić. Principled communication for dynamic multi-robot task allocation. In D. Rus and S. Singh, editors, *Experimental Robotics VII, LNCIS 271*, pages 353–362. Springer-Verlag Berlin Heidelberg, 2001. Presented at the International Symposium on Experimental Robotics, Waikiki, Hawaii, December 2000.

## Refereed Conference Posters

Brian P. Gerkey and Maja J Matarić. Murdoch: Publish/Subscribe Task Allocation for Heterogeneous Agents. In *Proc. of Autonomous Agents*, pages 203–204, Barcelona, Spain, June 2000.

## Refereed Workshop Papers

Brian P. Gerkey and Maja J Matarić. A Framework for Studying Multi-Robot Task Allocation. In A.C. Schultz et al., editors, *Multi-Robot Systems: From Swarms to Intelligent Automata, Volume II*, pages 15–26, Kluwer Academic Publishers, the Netherlands, 2003. Presented at the International Workshop on Multi-Robot Systems, Washinton, DC, May 2003.

Brian P. Gerkey, Richard T. Vaughan, Kasper Støy, Andrew Howard, Gaurav S Sukhatme, and Maja J Matarić. Most valuable player: A robot device server for distributed control. In *Proceedings of the Second International Workshop on Infrastructure for Agents, MAS, and Scalable MAS at Autonomous Agents 2001*, Montreal, Canada, May 2001.

## Technical Reports (not otherwise published)

Brian P. Gerkey and Maja J Matarić. “A formal framework for the study of task allocation in multi-robot systems”. Technical Report CRES-03-013, Center for Robotics and Embedded Systems, School of Engineering, University of Southern California, July 2003.

Ashley Tews, Maja J Matarić, Gaurav S Sukhatme, and Brian P. Gerkey. “G’day Mate. Let me Introduce you to Everyone: An Infrastructure for Scalable Human-System Interaction”. Technical Report CRES-02-004, Center for Robotics and Embedded Systems, School of Engineering, University of Southern California, September 2002.

Brian P. Gerkey, Kasper Støy, and Richard T. Vaughan. “Player robot server”. Technical Report IRIS-00-392, Institute for Robotics and Intelligent Systems, School of Engineering, University of Southern California, November 2000.

## Unrefereed Workshop/Symposia Papers

Brian P. Gerkey and Maja J Matarić. A market-based formulation of sensor-actuator network coordination. In *Proceedings of the AAAI Spring Symposium on Intelligent Embedded and Distributed Systems*, pages 21–26, Palo Alto, California, March 2002.

## INVITED TALKS & PRESENTATIONS (excluding conference paper talks)

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“Player & Stage: Current Status and Future Directions,” DARPA Software for Distributed Robotics (SDR) Principal Investigators Meeting, Washington, DC, March 2003.

“Analyzing Multi-Robot Task Allocation,” HRL Information Sciences Laboratory, Malibu, California, October 2002.

“Task Allocation in Multi-Robot Systems,” Harvey Mudd College Computer Science Department, Claremont, California, October 2002.

“Player & Stage: Robot Device Interface & Multiple Robot Simulator,” for the DARPA Information Processing Technology Office, at the *DARPA Tech Symposium*, Anaheim, California, July 2002.

“Player & Stage: Robot Device Interface & Multiple Robot Simulator,” in the Robot Exhibition at *Autonomous Agents*, Montreal, Canada, May 2001.

## PERSONAL

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Citizenship: USA