

BRETT BROWNING

PERSONAL DETAILS

Age: 30 (Born 15th December 1974)

Citizenship: Australian

EDUCATION

1997 – 2000 University of Queensland Brisbane, Australia
Doctor of Philosophy

- Awarded November 20, 2001
- Dissertation: “Biologically Plausible Spatial Navigation for a Mobile Robot”
- Advisor: Dr. Gordon Wyeth

1992 – 1997 University of Queensland Brisbane, Australia
Bachelor of Electrical Engineering (Major: Computer Systems Engineering)

- First class honors
- Deans list award

1992 – 1997 University of Queensland Brisbane, Australia
Bachelor of Science (Major: Mathematics)

PROFESSIONAL APPOINTMENTS

July 2002 – present Carnegie Mellon University Pittsburgh, USA
Systems Scientist

2000 – 2002 Carnegie Mellon University Pittsburgh, USA
Postdoctoral Fellow

- Advisor: Prof. Manuela Veloso

1996 Canal Brisbane, Australia
Engineering Consultant

1995 – 1996 Advanced Ceramic Developments Brisbane, Australia
Design Engineer

PROFESSIONAL AND RESEARCH ACTIVITIES

- 2005
 - Co-Chair for Segway RMP League for RoboCup US Open 2005
 - Co-Chair for ICRA workshop “Towards fieldable multirobot systems”
 - RoboCup Executive for small-size league
 - Lead development of Segway robot platform with Prof. Manuela Veloso
 - Lead on Unmanned Air Vehicle project with Prof. Manuela Veloso
- 2004
 - Chair for RoboCup US Open 2004 Workshop
 - RoboCup Executive for small-size league
 - Developed new robot domain: Segway Soccer
 - Developed new multi-camera overhead vision system
 - Lead development of Segway robot platform with Prof. Manuela Veloso
 - Contributed towards CAMEO meeting tracking system
- 2003
 - Co-chair RoboCup 2003 International Symposium
 - Co-chair RoboCup American Open 2003
 - RoboCup Executive for small-size league
 - Commercialized small-size robot design with Red Zone Inc.
 - Lead development of small-size robot team with Prof. Manuela Veloso
 - Lead development of Segway robot platform with Prof. Manuela Veloso
 - Developed high-fidelity simulation engine UberSim
- 2002
 - Lead development of small-size robot team with Prof. Manuela Veloso
 - Chair small-size league RoboCup 2002
 - Developed new small-size robot with omni-directional drive
 - Developed a Communication Planning program for DARPA Active Templates program
 - Developed referee box for automating small-size robot soccer games
- 2001
 - Local organizer small-size league, RoboCup 2002
 - Developed new small-size differential drive robot
 - Developed UGCV prototype with Prof Tucker Balch & Battelle Corp.
 - Co-authored DARPA proposals for SEC, MICCA, and UGCV programs
- 2000
 - Developed small, cheap robot with on-board vision processing
 - Developed rat hippocampus inspired navigation system

UNIVERSITY SERVICE

- Robotics Institute Seminar Organizer 2003-2004
- Co-administrator for Robotics Institute Machine Shop 2002-present
- Numerous on and off campus robotics demonstrations

STUDENTS ADVISED

Graduate	Brenna Argall, PhD	Fall 2004-present
	Jeremy Searock, RI Masters	2003 – present
	Dinesh Govindaraju, RI Masters	Fall 2004-present
Undergraduate	Senior Thesis:	
	• Jennifer Lin	2003 – present
	Independent Study/SURG grant	
	• Matt Faria	Fall 2004-present
	• Chris Casinghino	Spring 2005-present
	• Barbara Dematti	Spring 2005-present
	• Michael V Sokolsky	2003 – present
	• Jared Go	2003 – present
	• Ling Xu	2003/2004
	• Allen Chang	2002/2003
	• Erick Tryzelaar	2002/2003

FUNDING ACTIVITIES

Accepted	<ul style="list-style-type: none">• Boeing: “Teams of Learning Robots and Human Partners for Complex Tasks”, as Co-PI• DARPA BAA 02-021: “Human-Robot Teamwork in Adversarial Domains”• Army AATD “Autonomous Collaborative Operations”• General Motors: “Learning Safety-Grade Maps”, (Co-PI)• ONR BAA 02-024: “High performance autonomy for heterogeneous mixed-initiative teams”, Co-PI (Carnegie Mellon cancelled proposal due to terms required by funding agency).• General Motors: “Learning to Predict the Intentions of Drivers”, (Co-PI). (expired).
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PROFESSIONAL MEMBERSHIPS

2001 – present AAAI member

2002 – present IEEE Member

PUBLICATIONS

Books	“ <i>RoboCup 2003: Robot Soccer World Cup VIP</i> ”. Editors, D. Polani, B. Browning, A. Bonarini, K. Yoshida, LNCS 3020, Springer-Verlag, 2004.
Journal	“Turning segways into soccer robots”. Brett Browning, Jeremy Searock, Paul E. Rybski,

Refereed
Conference

Manuela M. Veloso. *Industrial Robot*, Vol. 32, No. 2, to appear.

“STP: Skills, tactics and plays for multi-robot control in adversarial environments”, Brett Browning, James Bruce, Michael Bowling, Manuela Veloso, *IEEE Journal on Control and Systems Engineering*, in press.

“Cognitive models of spatial navigation from a robot builder's perspective”, Gordon Wyeth and Brett Browning. *Adaptive Behaviour Journal*, 1997, Volume 6, Issue 3/4.

“Learning to Prevent Failure States for a Dynamically Balancing Robot”. Jeremy Searock, Brett Browning, Manuela Veloso. *International Joint Conference on Artificial Intelligence (IJCAI'05)*, submitted.

“Real-Time, Adaptive Color-based Robot Vision”. Brett Browning and Manuela Veloso. *IEEE/RSJ International Conference on Robots and Autonomous Systems (IROS'05)*, submitted.

“Turning Segways into Robust Human-Scale Dynamically Balanced Soccer Robots”, Jeremy Searock, Brett Browning, and Manuela Veloso. *International RoboCup Symposium 2004*.

“Plays as effective multiagent plans enabling opponent-adaptive play selection”, Michael Bowling, Brett Browning, and Manuela Veloso. *The International Conference on Automated Planning and Scheduling (ICAPS'2004)*, 2004, in press.

“Development of a Soccer-Playing Dynamically-Balancing Mobile Robot”, Brett Browning, Paul Rybski, Jeremy Searock, and Manuela Veloso. *The IEEE International Conference on Robotics and Automation (ICRA'04)*, 2004.

“CAMEO: Camera Assisted Meeting Event Observer”, Paul Rybski, Fernando de la Torre, Raju Patil, Carlos Valespi, Manuela Veloso, Brett Browning. *The IEEE International Conference on Robotics and Automation (ICRA'04)*, 2004.

“Skill acquisition and use for a dynamically-balancing soccer robot”, Brett Browning, Ling Xu, and Manuela Veloso. *The Nineteenth National Conference on Artificial Intelligence (AAAI'04)*, in press.

“Accurate and flexible simulation for dynamic, vision-centric robots”, Jared Go, Brett Browning, and Manuela Veloso. *The International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'04)*, in press.

“Fusing multiple perspectives for Global Perception and Control”, Shinya Hibino, Brett Browning, James Bruce, and Manuela Veloso. *The 8th RoboCup International Symposium*, submitted.

“Segway CM-RMP Robot Soccer player”, Jeremy Searock, Brett Browning, and Manuela Veloso. *The 8th RoboCup International Symposium*, in press.

“Plays as team plans for coordination and adaptation”, Michael Bowling, Brett Browning, Allen Chang, and Manuela Veloso. *RoboCup 2003: Robot Soccer World Cup VII*. (eds) D. Polani, B. Browning, A. Bonarini, K. Yoshida, in press.

“An overview of RoboCup-2002 Fukuoka/Busan”, Minoru Asada, Oliver Obst, Daniel Polani, Brett Browning, Andrea Bonarini, Masahiro Fujita, Thomas Christaler, Tomoichi Takahashi, Satoshi Tadokoro, Elizabeth Sklar, Gal Kaminkar. *AI Magazine*, Summer, 2003.

“Multi-Robot Team Response to a Multi-Robot Opponent Team.” James Bruce, Michael Bowling, Brett Browning, and Manuela Veloso. *The 2003 IEEE International Conference on Robotics and Automation ICRA'03*, Taiwan, May 2003. A previous version also submitted to IROS-2002 workshop on Collaborative Robots

“MONAD: A Flexible Architecture for Multi-Agent Control.” Thuc Vu, Jared Go, Gal Kaminka, Manuela Veloso, and Brett Browning. *The International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'03)*, 2003, in press.

“UberSim: A Realistic Simulation Engine for Robot Soccer. In Proceedings of Autonomous Agents and Multi-Agent Systems”. Brett Browning and Erick Tryzelaar., *The International Conference on Autonomous Agents and Multi Agent Systems (AAMAS'03)*, 2003, in press.

“Principled monitoring of distributed agents for detection of coordination failure”, Brett Browning, Gal Kaminka, and Manuela M. Veloso. *The 6th International Symposium on Distributed Autonomous Robotic Systems (DARS'02)*, in press.

“Improbability filtering for rejecting false positives”, Brett Browning, Michael Bowling, and Manuela M. Veloso. *The 2002 IEEE International Conference on Robotics and Automation (ICRA'2002)*, in press.

“Using rat navigation models to learn orientation from visual input on a mobile robot”, Brett Browning. *In Proceedings of Autonomous Agents, 2001*, Montreal, Canada, November 2001.

“A navigation system for robot soccer”, Brett Browning, Gordon Wyeth, and Ashley Tews. *In the Australian Conference on Robotics and Automation (ACRA '99)*, Brisbane, Queensland, Australia, March 1999.

“Neural systems for integrating robot behaviours”, Brett Browning and Gordon Wyeth. *In the Australian Conference on Neural Networks (ACNN)*, Brisbane, Queensland, Australia, March 1998.

Thesis
Dissertation

Biologically Plausible Spatial Navigation for a Mobile Robot, Brett Browning. PhD thesis, Computer Science and Electrical Engineering Department, University of Queensland, Brisbane, Qld, Australia, August 2000.

Technical
Reports

“Accurate and Flexible Simulation for Dynamic, Vision-Centric Robot.” Jared Go, Brett Browning, and Manuela Veloso. Carnegie Mellon University Technical Report CMU-CS-04-180, 2004.

“Person Tracking From a Dynamic Balancing Platform.” Dinesh Govindaraju, Brett Browning, and Manuela Veloso. Carnegie Mellon University Technical Report CMU-CS-04-18,1 2004.

“Segway CMBalance Robot Soccer Player”. Jeremy Searock, Brett Browning, and Manuela Veloso. Carnegie Mellon University Technical Report CMU-CS-04-143, 2004.

“The CMDragons'03 Team”, Brett Browning, James Bruce, Michael Bowling, Manuela Veloso, *RoboCup 2003: Robot Soccer World Cup VII*. (eds) D. Polani, B. Browning, A. Bonarini, K. Yoshida, Springer-Verlag, in press.

“The CMDragons'02 Team”, Brett Browning, James Bruce, Michael Bowling, Manuela Veloso, *RoboCup 2002: Robot Soccer World Cup VII*. (eds), Springer-Verlag, in press.

“The CMDragons'01 Team”, Brett Browning, James Bruce, Michael Bowling, Manuela Veloso, *RoboCup 2001: Robot Soccer World Cup VII*. (eds) D. Polani, B. Browning, A. Bonarini, K. Yoshida, Springer-Verlag, in press.

“Planning for Communication Resources”, Brett Browning and Manuela Veloso, Carnegie Mellon Technical Report CMU-CS-03-120, May, 2003.

“ViperRoos: Developing a low cost local vision team for the smallsize league”, Mark Chang, Brett Browning, and Gordon Wyeth. In A. Birk, S. Coradeschi, and S. Tadokoro (eds), *RoboCup-2001: The Fifth RoboCup Competitions and Conferences*, Springer Verlag, Berlin, 2002.

“UQ RoboRoos: Kicking on to 2000”. Wyeth G.F., Tews A. and Browning B. *RoboCup-2000: Robot Soccer World Cup IV. Lecture Notes in Artificial Intelligence 2019*. Springer Verlag, Berlin, 2001

“ViperRoos 2000”, Mark Chang, Brett Browning, and Gordon Wyeth. In P. Stone, T. Balch, and G. Kraetschmar (eds), *RoboCup-2000: Robot Soccer World Cup IV*, Springer Verlag, Berlin, 2000.

“UQ RoboRoos: Preliminary Design of a Robot Soccer Team”. Wyeth G.F., Browning B. and Tews A. In *Lecture Notes in AI: RoboCup '98, 1604*, an earlier version appeared in *RoboCup Workshop, Pacific-Rim International Conference on Artificial Intelligence, PRICRI '98*, Singapore, November 1998.

Biologically plausible spatial navigation for a mobile robot, Brett Browning. Technical report, Computer Science and Electrical Engineering Department, University of Queensland, 1998.