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## Curriculum Vitae Jacky (Hansjörg) Baltes

### Employment History

- Full Professor** 2008 – now  
University of Manitoba Participate in the Computer Science Department's research and teaching activities. Adjunct appointment in the department of Electrical and Computer Engineering, University of Manitoba.
- Associate Professor** 2002 – 2008  
University of Manitoba Participate in the Computer Science Department's research and teaching activities. Adjunct appointment in the department of Electrical and Computer Engineering, University of Manitoba.
- Senior Lecturer** 2001 – 2002  
University of Auckland Participate in the Computer Science and Electrical Engineering Department's research and teaching activities.
- Lecturer** 1996 – 2000  
University of Auckland Department of Computer Science.
- Research/Teaching Assistant** 1989 - '95  
University of Calgary Instructing labs for computer science students.
- Consultant** Winter 1994  
Canadian Microelectronics Corporation Develop industry training material for field-programmable devices.
- Research Assistant** Summer 1990  
University of Calgary Develop an intelligent and instructable user interface for the operating system shell
- Member of German Speed Skating team** 1981 – '88  
Participant in the 1984 and 1988 Olympic Winter Games and three times national champion. Between 1981 and 1988, my main activity was as an amateur athlete. Other pursuits were secondary.
- Sports and Personnel Manager Sergeant** 1983 – '88  
German Airforce (Full Time) Organize and maintain personnel records, perform office supervisory duties, teach and supervise soldiers during their training.

## Educational Background

**University of Calgary** 1990 – 1996

*PhD* in Computer Science

Specialization: Artificial Intelligence, Machine Learning, Planning and Distributed Computing

Doctoral Dissertation: DoLittle: a learning multi-strategy planning system

Supervisor: Dr. Bruce MacDonald, Computer Science Department, University of Calgary .

**University of Calgary** 1988 – '90

Calgary, Alberta

*BSc.* with distinction,

Computer Science Major and Pure Math Minor

**Karls gymnasium Pasing** 1974 – '83

Munich, Germany

Senior Matriculation

## Distinctions and Awards: Academic

**3<sup>rd</sup> place, RoboCup Physical Visualization League Pickup Tournament** July 2009

My students and I participated with a team in the RoboCup Physical Visualization Pickup Tournament in Graz, Austria.

**3<sup>rd</sup> place, EuroBy HuroCup Humanoid Robot Competition** July 2008

My students and I participated with a team in the EuroBy HuroCup Humanoid Robot Competition in Zurich, Switzerland, and Linz, Austria.

**3<sup>rd</sup> place, RoboCup Physical Visualization League** July 2007

My students and I participated with two teams at the RoboCup World Championship in Atlanta, U.S.A.

**4<sup>th</sup> place, AUVSI Competition** June 2007

I acted as faculty advisor to the University of Manitoba entry into the Autonomous Unmanned Vehicle Systems International (AUVSI): 4th Annual Student Unmanned Aerial Vehicle Competition, in Lexington Park, MD.

**1<sup>st</sup> place, AUVSI Competition** June 2006

Several of my students were team members and I acted as an advisor to the University of Manitoba entry into the Autonomous Unmanned Vehicle Systems International (AUVSI): 3rd Annual Student Unmanned Aerial Vehicle Competition, in Lexington Park, MD.

- 2<sup>nd</sup> place at the JavaSPEKTRUM Competition: Sudoku Meister** Feb. 2006  
2<sup>nd</sup> place at the JavaSPEKTRUM Mobile Java Competition for which me and my student Mike Gauthier developed a Sudoku puzzle game titled “Sudoku Meister”.
- 1<sup>st</sup> Place Robo League** Oct. 2005  
1<sup>st</sup> place winner at the International Robotics Olympiad (IROC) in the Robo League Competition. Seoul, Korea.
- 4<sup>th</sup> Place RoboCup Humanoid League Technical Challenge** 2005  
4<sup>th</sup> place winner at the RoboCup competition in the Humanoid technical challenge competition. Osaka, Japan. June 2005
- 1<sup>st</sup> Place RoboCup E-League Competition** 2004  
1<sup>st</sup> place winner in the RoboCup E-league competition. Lisbon, Portugal
- 3<sup>rd</sup> Place HuroSot Competition** 2004  
FIRA International Robotic Soccer World Cup, Busan, Korea
- 2<sup>nd</sup>, 3<sup>rd</sup> Place RoboCup Competition for Humanoid Robots** 2003  
2<sup>nd</sup> place winner at the RoboCup competition for humanoid robots in the penalty kick competition. 3<sup>rd</sup> place winner in the humanoid robots free demonstration event
- 2<sup>nd</sup> Place RoboSot Competition of the FIRA International Robotic Soccer World Cup, Seoul, Korea** 2002
- 2<sup>nd</sup>, 3<sup>rd</sup> Place RoboCup Competition for Humanoid Robots** 2002  
2<sup>nd</sup> place winner at the RoboCup competition for humanoid robots in the penalty kick competition. 3<sup>rd</sup> place winner in the humanoid robots free demonstration event
- Technical Merit Award for Fully Autonomous Operation** Sept. 2002  
HuroSot Humanoid Robotics World championship competition
- Image Puzzler Game** July 2002  
One of 10 finalists in the games category in the world-wide Sharp Zaurus programming competition. I developed a puzzle game called picture code (PCode) for this event.
- Finalist Distinguished Science Award** 2000  
Finalist for the Distinguished Science Award at the International Symposium for RoboCup 2000 for the paper “*Adaptive Path Planning in Highly Dynamic Domains*”

## Distinctions and Awards: Others

- Participant of the Olympic Winter Games** 1984, '88  
Member of the German Speedskating Team.
- Silver Medal of Honor** 1987  
German Airforce.
- German National Champion** 1985, '86, '88  
Three times national senior champion in speed skating.

## Teaching Activity

### Graduate Student Supervision

- Brian McKinnon *Point, Line Segment, and Region-Based Stereo Matching for Mobile Robotics*, Masters Thesis. Department of Computer Science, University of Manitoba, 2009.
- Sara McGrath *Active Reflex-Based Balancing for Small Humanoid Robots*, Masters Thesis. Department of Computer Science, University of Manitoba, 2007.
- Shawn Schaerer, *Practical Visual Odometry* Masters Thesis, Department of Computer Engineering, University of Manitoba, 2006.
- Xiao-Wen Terry Liu, *An Intuitive and Flexible Architecture for Intelligent Mobile Robots*, Masters Thesis, Department of Computer Science, University of Manitoba, 2005.
- Byung Doo Lee, *Multi-Strategic Learning, Reasoning, and Searching in the Game of Go*, PhD Thesis, Department of Computer Science, University of Auckland, (I was the sole supervisor from 1999 to 2002, co-supervised with Hans Guesgen from July 2002 because of my move to the University of Manitoba) 2004.
- Patrick Lam, *Walking Algorithm for a Small Humanoid*, Masters Thesis, Department of Computer Science, University of Auckland, 2002.
- Andrew Thomson, *A Path Following System for Autonomous Robots with Minimal Computing Power*, Masters Thesis, Department of Computer Science, University of Auckland, 2001.
- Weidong Xu, *Online Evaluation of Clustered Search Engine Results: Design, Implementation, and Results*, Masters Thesis, Department of Computer Science, University of Auckland, 2001.
- Nicholas Hildreth, *Adaptive Path Planning for Real-time Systems* Masters Thesis, Department of Computer Science, University of Auckland, 2000.
- Juhua Zhou, *Ferret: An Application of Machine Learning to Internet Searching*, Masters Thesis, Department of Computer Science, University of Auckland, 2000.
- Yongjoo Park, *Learning and Comparison of Pursuit and Evasion Strategies in Finite Space*, Masters Thesis, Department of Computer Science, University of Auckland, 2000.

Li Huang, *Anytime Path Planning for Mobile Robots in Highly Dynamic Environments*, Masters Thesis, Department of Computer Science, University of Auckland, 2000.

Yuming Lin, *Path-tracking control of a non-holonomic car-like robot with reinforcement learning*, Masters Thesis, Department of Computer Science, University of Auckland, 1999.

Sanjeeva Wasalathantry, *Planning Navigation and Object Manipulation for a Mobile Robot*, Masters Thesis, Department of Electrical Engineering, University of Auckland, (co-supervised with Dr. Bruce MacDonald) 1998.

## University of Manitoba

**Intelligent Mobile Robotics** 2003 – now  
4th year course on intelligent mobile robotics using global vision. (16 Students).

**Embedded Control Systems** 2009  
Graduate course on embedded real-time control systems. (4 Students).

**Intelligent Mobile Robotics using Local Vision** 2003, '05, '06  
Graduate course on intelligent mobile robotic systems. (approx. 8 Students).

**Humanoid Robotics** 2004  
Graduate course on humanoid robotics. (3 Students).

**Machine Learning** 2003 – now  
4th year course on machine learning. (30 Students).

**Real-time Systems** 2007  
4th year course on real-time systems. (30 Students).

**Advanced Artificial Intelligence** 2004  
4th year course on advanced topics in AI. (20 Students).

## University of Auckland

**Graduate Teaching** 1996 – 2002  
Seven MSc. students graduated under my supervision during my time at the University of Auckland. I also supervised seven undergraduate research projects.

**Software Engineering 206** 2002  
Second year course and an introduction to software engineering. Personal Software processes. (80 students) .

- Software Engineering 252** 2001 - 02  
Second year course and an introduction to computer organization, assembly language programming, and an introduction to operating systems (80 Students).
- Intelligent Active Vision** 1998 – 2002  
Graduate course on intelligent multi-agent/multi-robot systems in real time environments (15 Students).
- Computer Systems 1E** 2000  
Second year course on digital logic and assembly language programming (190 Students).
- Robotics and Real-time Control** 1999 – 2000  
Fourth year course on robotics, digital signal processing, real-time operating systems, UNIX device drivers, and control. (15 Students).
- Computer Organization** 1997 – 2000  
Third year course that covers computer organization topics such as performance evaluation, design of a modern RISC microprocessor, I/O and memory hierarchies, and parallel processing. (130 Students).
- Introduction to Programming** 1997 – 1999  
First year programming course using the Java programming language. (200 Students).
- Introduction to Artificial Intelligence** 1997  
Third year course covers a variety of topics in AI with a focus on automatic planning and problem solving. (30 Students).
- System Software** 1996 – 1997  
Second year course introduces students to assembly language programming and operating systems. (80 Students).

## Industry Training

- Robotics Workshop** Dec. 2008  
Presented a robotics workshop for Astana Digital Cooperation in Kuala Lumpur, Malaysia.
- Robotics Workshop** 2007  
Presented a robotics workshop for the Malaysian Ministry of Education (MOE) and the Malaysian Ministry for Entrepreneurship (MARA) for high school teachers in Kuala Lumpur, Malaysia. This work was funded by the Tate Cooperation.
- Viewlogic training session** 1994  
In collaboration with Dr. John Knight (University of Carleton) and Peter Graumann (University of Calgary), I presented an invited training session during the “Canadian Workshop on Field-programmable Devices 1994” in Kingston, Ontario, on the use of Viewlogic logic design tools, in particular using VHDL Designer for logic synthesis.

## Invited Lectures and Demonstration

**Total Number of Invited Lectures and Demonstrations: 48**

**National Chung Cheng University** May. 2009

Invited lecture on stereo vision research at the National Chung Cheng University, Chia Yi, Taiwan. My visit was sponsored by Professor Hwang and Prof. Meyer in the Electrical Engineering Department.

**National Kaohsiung First University of Science and Tech.** May 2009

Invited lecture on digital signal processing at the National Kaohsiung First University of Science and Technology (NKFUST), Kaoshiong, Taiwan. My visit was sponsored by Professor Tu in the Electrical Engineering Department.

**National Cheng Kung University** May 2009

Invited lecture on robotics research at the National Cheng Kung University, Tainan, Taiwan. My visit was sponsored by Professor Li in the Electrical Engineering Department.

**Tamkung University** May 2009

Invited lecture on robotics business opportunities in Taiwan at Tamkung University, Danshui, Taiwan. My visit was sponsored by Professor Wong in the Electrical Engineering Department.

**National Kaohsiung University** Dec. 2008

Invited lecture on robotics research at the National Kaohsiung University, Kaohsiung, Taiwan. My visit was sponsored by Professor Chen in the Computer Science Department.

**Keynote Address at ICOM 2008** 18th Dec. 2008

Presented a keynote address titled “10 Years of Robotic Soccer Competitions, with a Look to the Future” at the International Conference on Mechatronic in Kuala Lumpur, Malaysia.

**Keynote Address at ROBVIS 2008** 19th Feb. 2008

Presented a keynote address titled “Ronaldhino’s Metal Friends” at the Robotic Vision Conference (ROBVIS) in Auckland, New Zealand.

**Agent Symposium** May 2007

Presented a seminar titled “Recent Robotics Research Results at the University of Regina. My visit was sponsored by Prof. Raman Paranjape, Professor, Electronic Systems Engineering, University of Regina.

**Technex 2007** Jan. 2007

Presented an invited robotics workshop and an invited lecture on humanoid robots as part of Technex 2007, a technology festival at IT BHU, Varanasi, India.

**Tamkung University Taiwan** Dec. 2006

Presented seminar “HuroCup as a Benchmark Problem for Humanoid Robotics” at Tamkung University of Taiwan. My visit was hosted by Prof. Wong, Head of Department, Electrical Engineering

- Temasek Politechnic** Dec. 2006  
Visited Temasek Politechnic, Singapore for a two week period to design and manufacture my next generation humanoid robot.
- KSHITIJ 2006** Feb. 2006  
Presented an invited robotics workshop and an invited lecture on humanoid robots as part of KSHITIJ 2006, a technology festival at IIT KGP, Kharagpur, India.
- Pragyan 2006** Jan. 2006  
Presented an introductory workshop into robotics as part of Pragyan '06, a technology festival organized by the students of NIT Trichy, India.
- King's College Of Engineering** Jan. 2006  
Presented a seminar on robotics at King's College of Engineering, Pudukottai, India.
- Tamkang University** Dec. 2005  
I presented a short course (5 days) on humanoid robotics at Tamkung University in Tai Pei, Taiwan. My visit was hosted by Prof. Wong from the Electrical Engineering department.
- National Kaohsiung First University of Science and Tech.** Dec. 2005  
Invited lecture on robotics research at the National Kaohsiung First University of Science and Technology (NKFUST), Kaoshiong, Taiwan. My visit was sponsored by Professor Tu in the Electrical Engineering Department.
- KAIST Invited Speaker Series** Oct. 2005  
Seminar as part of the KAIST invited speaker series at the Korean Advanced Institute for Science and Technology (KAIST), Daejon, South Korea.
- CAIMS** June 2005  
Invited talk at Canadian Applied and Industrial Mathematics Conference, Winnipeg, Manitoba.
- Gillam Area Conference** June 2005  
Presented invited talk on practical urban search and rescue robots as part of the Gillam Area Conference sponsored by Hydro Manitoba.
- Manitoba Robot Games** March '05 - now  
Yearly demonstration of our robots at the Manitoba Robot Games, Winnipeg, Canada.
- Techfest 2005** Jan. 2005  
Presented an invited robotics workshop and an invited lecture on soccer playing robots as part of Techfest 2005, a technology festival at IIT Mumbai, Mumbai, India.



- University of Western Australia** Dec. 2004  
I presented a seminar at the UWA, Perth, Australia. My visit was hosted by Prof. Thomas Braunl from the Electrical Engineering department.
- Tamkang University** Dec. 2004  
I presented a seminar “Robotics research at the University of Manitoba” at the Tamkang University in Tai Pei, Taiwan. My visit was hosted by Prof. Wong from the Electrical Engineering department.
- Plenary talk at FIRA World Congress** Oct. 2003  
I presented a talk “Humanoid robotics” at the FIRA World Congress, Vienna, Austria.
- Demonstration of Doraemon RoboCup Videoserver** June 2003  
I was invited to visit Dr. Elizabeth Sklar’s lab at the Department of Computer Science, Columbia University, New York, U.S.A.
- LBD and Tao-Pie-Pie Demonstration** June 2003  
Demonstration of my robot teams at TR Labs, Winnipeg, Manitoba, Canada.
- Software Engineering for Robotics** Jan. 2001, '02  
Temasek Polytechnic, Singapore
- Path Planning in Dynamic Domains** August 2001  
Department of Electrical Engineering, University of Western Australia, Perth, Australia
- Tutorial on Toy Robotics** June. 2001  
International Conference on AI and Soft Computing ASC-01, Cancun, Mexico.
- Keynote Address at Workshop on Multi-Agent Systems** 12th Dec. 2000  
Massey University, Albany, NZ.
- Workshop on Entertainment Robotics** 11 Dec. 2000  
Centre for Imaging Technology and Robotics. Auckland, New Zealand.
- Practical Camera Calibration for Large Rooms** Feb. 2000  
National University of Singapore, Singapore.
- Invited Demonstration of Research** Nov. 1999  
ENZCON Conference, Auckland, New Zealand.
- Invited Demonstration of Research** Oct. 1999  
PC/IT Exhibition, Melbourne, Australia.
- Time Management for Graduate Students** April 1999  
New Zealand Computer Science Graduate Conference, Hamilton, New Zea d.

- A Fuzzy Logic Controller for Car-like Robots** Feb. 1999  
National University of Singapore, Singapore.
- DoLittle: A Multi-strategy planning system** Feb. 1998  
National University of Singapore, Singapore.
- Introduction to Linux** Sep. 1998  
IEEE Seminar at the University of Auckland, Auckland, New Zealand.
- Demonstration of our non-holonomic controller and path planner** July 1998  
TUANZ Business Expo, Auckland, New Zealand.
- Case-based Meta Learning: a Dynamic Bias for Sustained Learning** Aug. 1992  
University of Manitoba, Canada.
- Problem Reformulation: Combining Macros, Abstractions, and Case-based Planning** Aug. 1992  
University of Manitoba, Canada.

## Societies, Services, and Other Research Activities

- Vice-President FIRA** 2009 - now  
Vice-president of the Federation of International Robot-soccer Association (FIRA).
- RoboCup Federation Executive Committee** 2009 - now  
Executive Committee member of the International RoboCup Federation.
- Symposium Co-Chair** 2009  
Co-Chair of the International RoboCup Symposium.
- Chair of NSERC Scholarship Committee 176** 2009 - '10  
Chair of the National Sciences and Research Council of Canada (NSERC) scholarship committee for Scholarships and Fellowships Selection Committee (Electrical Engineering and Computing Sciences 176).
- The Knowledge Engineering Review** 2009 - now  
Associate editor of the The Knowledge Engineering Review, Cambridge Press.
- Workshop Co-Chair** July 2009  
Co-Chair of the 1st Taiwan - Canada - Austria Workshop on Robotics and Computer Vision.
- Chair** Aug. 2009  
General chair of the International Conference for Advanced Humanoid Robotics Research (ICAHRR).
- FIRA HuroCup Competition** 2002 - now  
Chair of the humanoid league.

- NSERC Scholarship Committee 176** 2007 – '09  
Member of the NSERC scholarship committee for Scholarships and Fellowships Selection Committee (Electrical Engineering and Computing Sciences 176).
- RoboCup Humanoid League** 2006 - now  
Organizing Chair for the humanoid league.
- IROC Committee** 2003 – now  
Organizing chair for RoboLeague category. Member of the International Committee for the Robot Olympiad
- Chair** 2007  
Organizing Committee of the RoboCup Physical Visualization League.
- Reviewer** 2006 – now  
Reviewer of the International journal Pattern Recognition.
- IEEE Transactions on Pattern Recognition and Machine Intelligence** 2003  
Reviewer
- IEEE Systems, Man, and Cybernetics** 2003  
Reviewer
- Advanced Robotics Journal** 2003  
Reviewer
- Intelligent Robotics Journal** 2003  
Reviewer
- RoboCup Symposium** 2001 – now  
Program Committee Member
- Technical Committee** 2003 – now  
Co-chair of the RoboCup Humanoid League.
- FIRA Competition and Workshop** 2002 – now  
Member of program committee and participant
- Organizer of Robotics workshop for Explorers Club** 2001-2002  
A robotics workshop for children in the Explorers club, an organization similar to Mensa for children. Center for Imaging Technology and Robotics, Auckland, New Zealand.
- RoboCup Rescue Physical Agent Challenge** 2000 – 2004  
Member of the rules committee.
- RoboCup F180 League** 1999 – 2001  
Member of the rules committee.

## Publications

Total number of refereed publications: 96

### Books

- [1] Jacky Baltes, Michail G. Lagoudakis, Tadashi Naruse, and Saeed Shiry, editors. *Proceedings of RoboCup-2009: Robot Soccer World Cup XIII, 2009*. Springer-Verlag.
- [2] J.-H. Kim, S. Ge, P. Vadakkepat, N. Jesse, A. Al Manum, K. Puthusserypady, U. Rueckert, J. Sitte, U. Witkowski, R. Nakatsu, T. Braunl, J. Baltes, J. Anderson, C.-C. Wong, I. Verner, and D. Ahlgren, editors. *Advances in Robotics (FIRA RoboWorld Congress 2009)*, volume 5744 of *Image Processing, Computer Vision, Pattern Recognition, and Graphics*, 2009. Springer-Verlag.
- [3] J.-H. Kim, S. Ge, P. Vadakkepat, N. Jesse, A. Al Manum, K. Puthusserypady, U. Rueckert, J. Sitte, U. Witkowski, R. Nakatsu, T. Braunl, J. Baltes, J. Anderson, C.-C. Wong, I. Verner, and D. Ahlgren, editors. *Progress in Robotics (FIRA RoboWorld Congress 2009)*, volume 44 of *Communications in Computer and Information Science*, 2009. Springer-Verlag.

### Refereed Journal Papers and Book Chapters

- [4] Jacky Baltes and John Anderson. Advancing Artificial Intelligence through Minimalist Humanoid Robotics. In Dikai Liu, Lingfeng Wang, and Kay Chen Tan, editors, *Design and Control of Intelligent Robotic Systems*, chapter 17, pages 355-376. Springer-Verlag, Heidelberg, 2009.
- [5] Jacky Baltes and John Anderson. Intelligent Global Vision for Teams of Mobile Robots. In Sascha Kolski, editor, *Mobile Robots: Perception & Navigation*, chapter 9, pages 165-186. Advanced Robotic Systems International/pro literatur Verlag, Vienna, Austria, 2007.
- [6] John Anderson and Jacky Baltes. An agent-based approach to introductory robotics using robotic soccer. *International Journal of Robotics and Automation*, 21(2):141–152, February 2006.
- [7] Kuo-Yang Tu and Jacky Baltes. Fuzzy potential energy for a map approach to robot navigation. *Robotics and Autonomous Systems*, 54:574–589, May 2006.
- [8] Jacky Baltes and John Anderson. *Mobile Robots, Moving Intelligence*, chapter Intelligent Global Vision for Teams of Mobile Robots. Advanced Robotic Systems, Vienna, 2006.
- [9] Jacky Baltes and John Anderson. Introductory programming workshop for children using robotics. *International Journal of Human-Friendly Welfare Robotic Systems*, 6(2):17–26, July 2005.

- [10] Jacky Baltes and Patrick Lam. Design of walking gaits for tao-pie-pie, a small humanoid robot. *Advanced Robotics*, 18(7):713–716, August 2004.
- [11] Thomas Braunl. *Embedded Robotics*, chapter Camera Interface. Springer Verlag, Heidelberg, 2003.

## Refereed Conference Papers

- [12] John Anderson and Jacky Baltes. Using Mixed Reality to Facilitate Education in Robotics and AI. In *Proceedings of the 22nd International FLAIRS Conference*, Sanibel, FL, May 2009.
- [13] John Anderson, Jacky Baltes, and Kuo-Yang Tu. Improving Robotics Competitions for Real-World Evaluation of AI. In *Proceedings of the AAAI Spring Symposium on Experimental Design for Real-World Systems*, AAAI Spring Symposium Series, Stanford, CA, March 2009.
- [14] Jacky Baltes, N. Michael Mayer, John Anderson, Kuo-Yang Tu, and Alan Liu. The Humanoid Leagues in Robot Soccer Competitions. In *Proceedings of the IJCAI Workshop on Competitions in Artificial Intelligence and Robotics*, Pasadena, California, pages 9-16, July 2009. AAAI Press.
- [15] Michael de Denu, John Anderson, and Jacky Baltes. Heuristic Formation Control in Multi-Robot Systems Using Local Communication and Limited Identification. In Jacky Baltes, Michail G. Lagoudakis, Tadashi Naruse, and Saeed Shiry, editors, *Proceedings of RoboCup-2009: Robot Soccer World Cup XIII*, Graz, Austria, July 2009.
- [16] John Anderson and Jacky Baltes. Robotics and AI as a Motivator for the Attraction and Retention of Computer Science Undergraduates in Canada. In *Proceedings of the AAAI Spring Symposium on Using AI to Motivate Greater Participation in Computer Science*, AAAI Spring Symposium Series, Stanford, CA, March 2008.
- [17] Jonathan Bagot, John Anderson, and Jacky Baltes. Vision-Based Multi-Agent Slam for Humanoid Robots. In *Proceedings of the 5th International Conference on Computational Intelligence, Robotics and Autonomous Systems (CIRAS-2008)*, pages 171-176, June 2008.
- [18] Jacky Baltes. Ronaldinho’s Metal Friends - 10 Years of Robotic Soccer Competitions. In *Robot Vision 2008* (Keynote Address), Auckland, NZ, February 2008.
- [19] Sara McGrath, John Anderson, and Jacky Baltes. Model-Free Active Balancing for Humanoid Robots. In L. Iocchi, H. Matsubara, A. Weitzenfeld, and C. Zhou, editors, *Proceedings of RoboCup-2008: Robot Soccer World Cup XII*, Suzhou, China, July 2008.
- [20] Brian McKinnon, Jacky Baltes, and John Anderson. Stereo-Vision Based Control of a Car using Fast Line-Segment Extraction. In L. Iocchi, H. Matsubara, A. Weitzenfeld, and C. Zhou, editors, *Proceedings of RoboCup-2008: Robot Soccer World Cup XII*, Suzhou, China, July 2008.

- [21] John Anderson and Jacky Baltes. A Mixed Reality Approach to Undergraduate Robotics Education. In Robert Holte and Adele Howe, editors, *Proceedings of AAAI-07 (Robot Exhibition Papers)*, Vancouver, Canada, July 2007. AAAI Press.
- [22] John Anderson and Jacky Baltes. A Pragmatic Global Vision System for Educational Robotics. In *Proceedings of the 2007 AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education*, Stanford, CA., April 2007, American Association for Artificial Intelligence.
- [23] Sancho McCann and Jacky Baltes. Towards Automatic Image Modification as an Empirical Test of Image Segmentation. In *Proceedings of the 9th IEEE International Conference on Control, Automation, Robotics, and Vision (ICARCV)*, Singapore, Dec. 2006, IEEE.
- [24] Jacky Baltes and John Anderson. Daodan: An affordable research platform for humanoid robotics. In *Proceedings of the Fourth International Conference on Autonomous Robots and Agents (ICARA)*, New Zealand, December 2006.
- [25] Jacky Baltes and John Anderson. Affordable platforms for hurobot. In *Proceedings of the 2006 FIRA Robot World Congress*, Dortmund, Germany, June 2006.
- [26] Jacky Baltes and John Anderson. The keystone scavenger team. In *Proceedings of AAAI-06 (Mobile Robotic and Symposium Papers)*, Boston, U.S.A., July 2006.
- [27] Jacky Baltes, Sara McGrath, and John Anderson. The use of gyroscope feedback in the control of the walking gaits for a small humanoid robot. In Daniele Nardi, Martin Riedmiller, , and Claude Sammut, editors, *The Seventh RoboCup Competitions and Conferences*, Berlin, 2005. Springer Verlag.
- [28] Paul Furgale, John Anderson, and Jacky Baltes. Real-time vision-based pattern tracking without predefined colors. In *Proceedings of the Third International Conference on Computational Intelligence, Robotics, and Autonomous Systems (CIRAS)*, Singapore, December 2005.
- [29] Sara McGrath, John Anderson, and Jacky Baltes. Improving cooperation in spatially distributed agents. In *Proceedings of the Third International Conference on Computational Intelligence, Robotics, and Autonomous Systems (CIRAS)*, Singapore, December 2005.
- [30] Terry Liu, Jacky Baltes, and John Anderson. Archangel: A flexible and intuitive architecture for intelligent mobile robots. In *Proceedings of the Third International Conference on Computational Intelligence, Robotics, and Autonomous Systems (CIRAS)*, Singapore, December 2005.
- [31] Sancho McCann and Jacky Baltes. Abarenbou – a small vision-based humanoid robotic research platform. In *Proceedings of the Third International Conference on Computational Intelligence, Robotics, and Autonomous Systems (CIRAS)*, Singapore, December 2005.

- [32] Jacky Baltes, Elizabeth Sklar, and John Anderson. Teaching with robocup. In *Accessible Hands-on Artificial Intelligence and Robotics Education*, number SS-04-01 in Spring Symposium, pages 146 – 152. American Association for Artificial Intelligence, AAAI Press, February 2004.
- [33] John Anderson and Jacky Baltes. Agent-based control in a global-vision robotic soccer team. In *Proceedings of the Agents Meet Robots Workshop, 17th Conference of the Canadian Society for the Computational Studies of Intelligence (AI-04)*, pages 60–68, London, ON, May 2004.
- [34] John Anderson, Brian Tanner, and Jacky Baltes. Dynamic coalition formation in robotic soccer. In *Proceedings of the AAAI-04 Workshop on Forming and Maintaining Coalitions and Teams in Adaptive Multiagent Systems*, San Jose, CA, July 2004.
- [35] Brian McKinnon and Jacky Baltes. Practical region-based matching for stereo vision. In Reinhard Klette and Jovisa D. Zunic, editors, *IWCIA*, volume 3322 of *Lecture Notes in Computer Science*, pages 726–738. Springer, 2004.
- [36] Xiao-Wen Terry Liu and Jacky Baltes. An intuitive and flexible architecture for intelligent mobile robots. In S. C. Mukhopadhyay and G. Sen Gupta, editors, *Second International Conference on Autonomous Robots and Agents (ICARA)*, pages 52–57. Massey University, December 2004.
- [37] Sara McGrath, Jacky Baltes, and John Anderson. Active balancing using gyroscopes for a small humanoid robot. In S. C. Mukhopadhyay and G. Sen Gupta, editors, *Second International Conference on Autonomous Robots and Agents (ICARA)*, pages 470–475. Massey University, December 2004.
- [38] Jacky Baltes and John Anderson. Interpolation methods for global vision systems. In Daniele Nardi, Martin Riedmiller, , and Claude Sammut, editors, *The Seventh RoboCup Competitions and Conferences*, Berlin, 2005. Springer Verlag.
- [39] Byung-Doo Lee, Hans Werner Guesgen, and Jacky Baltes. The application of td(1) learning to the opening games of go. In *Proceedings of the Fifth International Conference on Advances in Pattern Recognition*, Kalkutta, India, 2003.
- [40] Jacky Baltes and John Anderson. Identifying robots through behavioral analysis. In *Proceedings of the Second International Conference on Computational Intelligence, Robotics, and Autonomous Systems*, Singapore, 2003.
- [41] Jacky Baltes, Sara McGrath, and John Anderson. Stabilizing walking gaits using feedback from gyroscopes. In *Proceedings of the Second International Conference on Computational Intelligence, Robotics, and Autonomous Systems*, 2003.
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## Research Grants and Scholarships

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|---|----------------|
| <b>Manitoba Centre for Health Policy</b>  | 2009           |
| “Telling our stories: Quantifying, documenting and articulating First Nations health information needs.” \$40,000 CDN/year  |                |
| <b>Technical University of Vienna</b>   | 2009           |
| Donation of Archie Humanoid Robot platform, worth \$200,000 CDN   |                |
| <b>NSERC</b>  | 2003 – 2011    |
| Individual discovery grant over \$23,000 CDN/year for a five year term, which was extended to eight years because of my membership in the NSERC Scholarship and Fellowship Committee 176.   |                |
| <b>RoboCup Travel Support</b>   | July, 2007     |
| We received support from various sources for our participation at the Robocup Conference and Competition in Atlanta, U.S.A. and the FIRA Conference and Competition in San Francisco, U.S.A. (\$4000.00 - Faculty of Science; \$2,500.00 - University of Manitoba Travel and Sponsorship Program. jointly with J. Anderson) totalling \$6,500 . |                |
| <b>Citizen</b>  | 2007           |
| Equipment donation of twenty ultra-small robots and associated accessories. These robots are not available for sale, and myself and Dr. John Anderson were selected as one of ten teams world wide to receive the robots.   |                |
| <b>Government of Manitoba</b>   | 2006           |
| Western Diversification Fund, (jointly with Dr. John Anderson) \$40,000.  |                |
| <b>University of Manitoba Technology Transfer</b>   | November, 2006 |

Intellectual Property Mobilization Grant, jointly with J. Anderson, D. Yergens). Funding for prototype development of a Derived Intelligence Medical Management System, in order to facilitate a patent application. \$25,000.

**RoboCup Travel Support** June, 2006

We received support from various sources for our participation at the Robocup Conference and Competition in Bremen, Germany and the FIRA Conference and Competition in Dortmund, Germany. (\$1000 - Robocup - Travel Grants Program; \$4000.00 - Faculty of Science; \$2,500.00 - University of Manitoba Travel and Sponsorship Program. \$500 - Pepsi Contingency Fund, jointly with J. Anderson) totalling \$8,000 .

**CMC** 2004, '05

Equipment donation of FPGA development platforms and workstations. \$5,000 CDN/each

**RoboCup Travel Support** June, 2005

We received support from various sources for our participation at the Robocup Conference and Competition in Bremen, Germany and the FIRA Conference and Competition in Dortmund, Germany. (\$2750 - Robocup - Travel Grants Program; \$4000.00 - Faculty of Science; \$2,500.00 - University of Manitoba Travel and Sponsorship Program. jointly with J. Anderson) totalling \$9,250.

**IBM** 2004

Equipment funding through donation of IBM Arctic Power PC platform for embedded systems development. \$3,000 CDN.

**VIA Technologies Taiwan** 2003 – now

Donation of six VIA Eden processor boards. \$1,000 CDN.

**AAAI -Travel Grants Program** 2002, '04, '07

Funding for participation in Robotic Rescue. Total \$8500.00 CDN.

**RoboCup Federation** 2003

Travel Grant to participate at RoboCup, \$3,000 CDN.

**University of Manitoba Science Faculty** 2003

Travel Grant to participate at RoboCup, \$4,000 CDN.

**University of Manitoba Engineering Faculty** 2003

Travel Grant to participate at RoboCup,\$4,000 CDN.

**E-Stage Business** 2003

Travel Grant to participate at RoboCup, \$1,000 CDN.

**IJCAI Robot Competition Program** 2003

Travel Grant to participate at IJCAI Robotics Competition \$1,700 USD.

**Intel - Academic Relations Program** 2003

Equipment funding through donation of XScale 450 development board for embedded systems. These boards are Intel's cutting-edge development board. \$5,000 CDN.	
<b>University of Manitoba Research Grant</b> URGP research grant for robotic rescue platform, \$6,500 CDN.	2002
<b>Winnipeg Foundation - Post-Secondary Education Grants</b> Robotic Rescue Testbed for Research and Education, \$6,500.00 CDN.	2003
<b>Lego New Zealand</b> Prizes for 3 <sup>rd</sup> Auckland Robotics Games. \$1,000 NZD.	2000
<b>University of Auckland</b> Departmental grants to participate in RoboCup. Total \$19,500 NZD.	1999 – 2002
<b>University of Auckland</b> Various Auckland University research grants totalling \$35,300 NZD.	1997 – 2002
<b>University of Auckland</b> Co-applicant in three Auckland University Infrastructure Grants totalling \$210,000 NZD.	1997 – 2000
<b>University of Auckland</b> Departmental teaching improvement grant to setup a mobile robotics laboratory \$2,500 NZD.	1997 – 1998
<b>University of Calgary</b> Graduate Research Assistantship \$8,000 CAN.	1994 – 1995
<b>Alberta Microelectronic Center</b> Annual scholarship for three years \$13,000 CAN per annum.	1991 – 1993
<b>McMahon Stadium Society Graduate Scholarship</b> Scholarship and program fees \$10,000 CAN.	1993 – 1994

## Media Coverage

<b>Canadian Press and Winnipeg Free Press</b> Article entitled "Robot developers closer to Jetsons' Rosie."	2nd Sept. , 2009
<b>Winnipeg Free Press</b> Article entitled "Getting Their Kicks."	June 30th, 2009
<b>Archie Press Conference</b> Demonstrated the new 1.2m tall humanoid robot Archie to members of the press and TV at the Technical University of Vienna in Vienna, Austria. Our robot was shown on Hungarian, German, Korean, and Taiwanese TV and press.	June 29th, 2009

- Discovery Channel** June 2009  
Interview with students and professors for the RoboCup 2009 competition.
- Canadian Broadcasting Corporation (CBC)** July 2007  
Life Radio Interview on the Bertram Show after returning from RoboCup 2007.
- Winnipeg Free Press** 13th July 2007  
Article entitled "UofM Computer Team Scores at RoboCup."
- National Broadcasting Company (NBC)** June 2007  
Life TV Interview during FIRA 2007 HuroCup Competition.
- Canadian Broadcasting Corporation (CBC)** June 2006  
"Life TV Interview on Canada AM."
- Canadian Microelectronics Corporation** 2005  
"Feature article about our humanoid research in the annual report"
- The Big Breakfast (A-Channel)** Aug. 25th, 2004  
"Visit to the University of Manitoba robotics lab"
- Winnipeg Free Press** Aug. 5th, 2004  
"Rock 'em, Sock 'em Robots"
- University of Manitoba Homepage** Aug. 10th 2004  
"Remarkable robots"
- Winnipeg Free Press** June 12 2004  
"Soccer becomes a game of robotic skill"
- University of Manitoba Bulletin** April 17th 2003  
"Robots will compete at Soccer"
- University of Manitoba Alumni Newspaper** Aug. 10th 2004  
"Robotic Rescue Research in the Department of Computer Science"
- Toronto Star** 31 July 2002  
"Professors pit their low-cost rescue robots against the best"
- East and Bays Courier, Auckland** 23rd Feb. 2001  
"Cultivating an Interest in Robotics"