

CURRICULUM VITAE

JOELLE PINEAU

ADDRESS

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PERSONAL DETAILS

Date of birth: October 10, 1974
Place of birth: Ottawa, Canada
Citizenship: Canadian
Gender: Female
Languages: French, English

PRIMARY RESEARCH INTERESTS

- Statistical artificial intelligence
 - Robotics: probabilistic planning and control, state estimation, human interaction
 - Machine learning: reinforcement learning, model estimation, statistical algorithms
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CURRENT POSITION

Since Sept 2004: Assistant Professor. School of Computer Science. McGill University.

EDUCATION

Aug 2004	Ph.D., Robotics Institute, Carnegie Mellon University, Pittsburgh, PA.
May 2001	M.Sc., Robotics Institute, Carnegie Mellon University, Pittsburgh, PA.
May 1998	B.A.Sc., Systems Design Engineering (with options in Intelligent Systems and Cognitive Sciences), University of Waterloo, Waterloo, Canada.

RESEARCH PROJECTS

1998–present: Probabilistic robotics.
Development of probabilistic planning algorithms and model-based reinforcement learning techniques for robust robot control under uncertainty.

- 1999–present: Nursebot - A robotic assistant for the elderly.
Design, building and testing of a personal robot assistant for the elderly, with a person focus on the implementation of the high-level robot controller and human interaction interface.
- 1997–1998: Hexplorer - A six-legged walking robot.
Design, building and testing of a six-legged walking robot, with a personal focus on the implementation of the sonar-based obstacle detection system.
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TEACHING EXPERIENCE

- Winter 2002 Technical Assistant. 16-899D: “Assistive Robotic Technology in Nursing and Health Care”. Carnegie Mellon University, School of Computer Science.
Provided technical support for graduate course, including preparing documentation and leading instructional sessions on robot operation.
- Fall 1999 Teaching Assistant. 15-385: “Robotic Manipulation”. Carnegie Mellon University, School of Computer Science.
Provided instructional support for undergraduate course, including office hours, teaching duties, preparing and marking assignments/exams.
- Summer 1998 Program Assistant, University of Waterloo, Shad Valley Program. Waterloo, Canada.
Organization and operation of science and engineering summer program for gifted high school students.
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WORK EXPERIENCE

- Summer 2000 Research Intern, Whizbang!Labs. Pittsburgh, PA.
Research in the area of web-based text mining, including data extraction and classification using probabilistic machine learning algorithms.
- Summer 1999 Research Intern, Compaq Computers, Cambridge Research Lab. Cambridge, MA.
Research in the area of speech-based dialogue management, including simple user modelling, and fast-reinforcement learning algorithms.
- Summer 1997 Radar Signal Processing Systems Analyst. Raytheon Canada Limited. Waterloo, Canada.
Algorithmic and software development for analysis of radar signal detection; mathematical modelling of wave and radar signals.
- Fall 1997 Speech Recognition Technology Analyst. National Research Council, Flight Research Lab. Ottawa, Canada.
Human factors analysis and user studies on the integration of speech recognition in search and rescue helicopters.

Summer 1995 / Fall 1996 Human Factors Research Assistant. National Research Council, National Fire Lab. Ottawa, Canada.

Experimental design, data collection, and statistical analysis of human behaviour in emergency fire situations.

Winter / Fall 1994 Assistant Solar Technology Officer. Natural Resources Canada, Alternative Energy Division. Ottawa, Canada.

Simulation-based analysis of solar technology for agricultural and aquaculture projects.

PROFESSIONAL ACTIVITIES AND SERVICE

- Co-chair. *Workshop on Planning for the Real-World: The Promises and Challenges of Dealing with Uncertainty*. Neural Information Processing Systems Conference (NIPS). Vancouver, Canada. December 2003.
- Co-organizer. *Machine Learning Lunch Seminars*. Carnegie Mellon University. 2001-present.
- Qualifier Committee Member. Robotics Institute, Carnegie Mellon University.
- Panelist. *Dependable Multimodal Human-Robot Interfaces*. 2nd IARP/IEEE-RAS Joint Workshop on Technical Challenge for Dependable Robots in Human Environments. Toulouse, France. October 2002.
- Panelist. *The Future of Social Robots*. Workshop on Robot as Partner: An Exploration of Social Robots. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Lausanne, Switzerland. September 2002.
- Panelist. *Technical Needs and Opportunities*. Workshop on Automation as Caregiver: The Role of Intelligent Technology in Elder Care. Eighteenth National Conference on Artificial Intelligence (AAAI). Edmonton, Canada. July 2002.
- Reviewer. Journal of Artificial Intelligence Research (JAIR).
- Reviewer. Robotics and Autonomous Systems Journal.
- Reviewer. IEEE Robotics and Automation Magazine.
- Reviewer. IEEE Transactions on Robotics and Automation.
- Reviewer. Neural Information Processing Systems (NIPS).
- Reviewer. International Joint Conference on Artificial Intelligence (IJCAI).

AWARDS

1998	Graduated on Dean's Honour List. University of Waterloo.
1997	1989 Canadian Engineering Memorial Foundation Scholarship. (1 recipient nationally/year)
1996	CEO Scholarship. Consulting Engineers of Ontario.
1996	Upper-year Engineering Undergraduate Scholarship. University of Waterloo.
1994-1997	Women in Engineering and Science Program. National Research Council Canada.
1993-1998	Canada Scholarship. Government of Canada.

PUBLICATION LIST

REFEREED JOURNAL ARTICLES

1. J. Pineau, M. Montemerlo, M. Pollack, N. Roy & S. Thrun. "Towards Robotic Assistants in Nursing Homes: Challenges and Results". Special issue on Socially Interactive Robots, Robotics and Autonomous Systems 42 (3-4). pp.271-281.

REFEREED CONFERENCE ARTICLES

2. J. Pineau, G. Gordon & S. Thrun. "Applying Metric-Trees to Belief-Point POMDPs". Neural Information Processing Systems (NIPS). Vancouver, Canada. 2003.
3. J. Pineau, G. Gordon & S. Thrun. "Point-Based Value Iteration: An Anytime Algorithm for POMDPs". International Joint Conference on Artificial Intelligence (IJCAI). Acapulco, Mexico. 2003.
4. J. Pineau, G. Gordon & S. Thrun. "Policy-Contingent Abstraction for Robust Robot Control". Conference on Uncertainty in Artificial Intelligence (UAI). Acapulco, Mexico. 2003.
5. M. Montemerlo, J. Pineau, N. Roy, S. Thrun & V. Verma. "Experiences with a Mobile Robotic Guide for the Elderly". National Conference on Artificial Intelligence (AAAI). Edmonton, Canada. 2002.
6. N. Roy, J. Pineau & S. Thrun. "Spoken Dialog Management for Robots". Association for Computational Linguistics (ACL). Hong Kong. 2000.
7. D. Goddeau & J. Pineau. "Fast Reinforcement Learning of Dialog Strategies". IEEE Conference on Acoustics, Speech and Signal Processing (ICASSP). Istanbul, Turkey. 2000.
8. G. Proulx & J. Pineau. "Differences in the Evacuation Behaviour of Office and Apartment Building Occupants". Proceedings of the Human Factors and Ergonomics Society (HFES) 40th Annual Meeting, Vol.2. Philadelphia, PA. 1996.

9. G. Proulx & J. Pineau. "Impact of Age on Occupants' Behaviour During a Residential Fire" Proceedings of the Human Factors and Ergonomics Society (HFES) 40th Annual Meeting, Vol. 2. Philadelphia, PA. 1996.

REFEREED WORKSHOP ARTICLES

10. J. Pineau, G. Gordon & S. Thrun. "Point-Based Value Iteration: An Anytime Algorithm for POMDPs". Workshop on Advances in Machine Learning. Montreal, Canada. 2003. (*Early version of the identically-titled IJCAI conference paper.*)
11. J. Pineau, M. Montemerlo, M. Pollack, N. Roy & S. Thrun. "Probabilistic Control of Human Robot Interaction: Experiments with a Robotic Assistant for Nursing Homes". The second IARP/IEEE/RAS Joint Workshop on Technical Challenges for Robots in Human Environments (DRHE). Toulouse, France. 2002.
12. J. Pineau, M. Montemerlo, M. Pollack, N. Roy & S. Thrun. "Towards Robotic Assistants in Nursing Homes: Challenges and Results". Workshop on Social Robots (IROS). Lausanne, Switzerland. 2002. (*Early version of identically-titled RAS journal paper.*)
13. J. Pineau & S. Thrun. "High-Level Robot Behaviour Control with POMDPs". Workshop on Cognitive Robotics (AAAI). Edmonton, Canada. 2002.
14. M. Pollack, S. Engberg, J.T. Matthews, S. Thrun, L. Brown, D. Colbry, C. Orosz, B. Peintner, S. Ramakrishnan, J. Dunbar-Jacob, C. McCarthy, M. Montemerlo, J. Pineau & N. Roy. "Pearl: A Mobile Robotic Assistant for the Elderly". Workshop on Automation as Caregiver: the Role of Intelligent Technology in Elder Care (AAAI). Edmonton, Canada. 2002.
15. J. Pineau, N. Roy & S. Thrun. "A Hierarchical Approach to POMDP Planning and Execution". Workshop on Hierarchy and Memory in Reinforcement Learning (ICML). Williams College, MA. 2001.
16. N. Roy, G. Baltus, D. Fox, F. Gemperle, J. Goetz, T. Hirsch, D. Margaritis, M. Montemerlo, J. Pineau, J. Schulte & S. Thrun. "Towards Personal Service Robots for the Elderly". Workshop on Interactive Robots and Entertainment (WIRE). Pittsburgh, PA. 2000.

TECHNICAL REPORTS

17. J. Pineau & S. Thrun. "An Integrated Approach to Hierarchy and Abstraction for POMDPs". CMU-RI-TR-02-21. Robotics Institute. Carnegie Mellon University. 2002.
18. G. Proulx, A. Kaufman & J. Pineau. "Evacuation Time and Movement in Office Buildings". IRC-IR-711. Institute for Research in Construction, National Research Council Canada. 1996.
19. G. Proulx, C. Laroche & J. Pineau. "Methodology for Evacuation Drill Studies". IRC-IR-730. Institute for Research in Construction, National Research Council Canada. 1996.

20. G. Proulx & J. Pineau. "Review of Evacuation Strategies for Occupants with Disabilities". IRC-IR-712. Institute for Research in Construction, National Research Council Canada. 1996.
21. G. Proulx, J.C. Latour, J.W. MacLaurin, J. Pineau, L.E. Hoffman & C. Laroche. "Housing Evacuation of Mixed Abilities Occupants in Highrise Buildings". IRC-IR-706. Institute for Research in Construction, National Research Council Canada. 1995.
22. G. Proulx, J. Pineau, J.C. Latour & L. Stewart. "Study of the Occupants' Behaviour During the 2 Forest Laneway Fire in North York, Ontario January 6, 1995". IRC-IR-705. Institute for Research in Construction, National Research Council Canada. 1995.

THESIS

23. J. Pineau. "Tractable Planning Under Uncertainty: Exploiting Structure". Ph.D. Thesis. Robotics Institute. Carnegie Mellon University. Pittsburgh, PA. 2004.
Co-Advisors: Sebastian Thrun; Geoffrey Gordon.
Thesis Committee: Craig Boutilier (Toronto), Geoffrey Gordon (Carnegie Mellon), Michael Littman (Rutgers), Matthew Mason (Carnegie Mellon), Andrew Moore (Carnegie Mellon), Sebastian Thrun (Stanford).

TALKS

- *POMDP Planning for Robot Control*. Dagstuhl Workshop on Plan-Based Control of Robotic Agents. Dagstuhl, Germany. June 2003.
- *Approximate POMDP planning: Overcoming the Curse of History*. Machine Learning Lunch Seminar. Carnegie Mellon University. Pittsburgh, PA. March 2003.
- *Probabilistic Approaches to Reasoning and Control: Towards Autonomous Interactive Mobile Robots*. TAMALE Seminar. University of Ottawa. Ottawa, Canada. March 2003.
- *La robotique au service des personnes âgées*. Université de Sherbrooke. Sherbrooke, Canada. September 2002.
- *Hierarchical Policy Constraints for POMDP Planning and Execution*. Workshop on Reinforcement Learning. Neural Information Processing Systems (NIPS). Breckenridge, CO. December 2000.