

Nicholas Roy

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Education

- Ph. D. Robotics, Carnegie Mellon University
In progress, expected completion date 2003
Supervised by Sebastian Thrun and Tom Mitchell
- M. Sc. Computer Science, McGill University 1997
Dean's Honours List
Supervised by Gregory Dudek
- B. Sc. Physics (Minor Cognitive Science), McGill University 1995
Graduated with distinction.

Research Interests

Artificial intelligence and robotics, focusing on probabilistic methods for reasoning and control, including navigation, dialogue management and human-robot interaction.

3. Teaching Experience

- Teaching Assistant, Mobile Robot Programming, 1998
- Teaching Assistant, Programming Languages and Paradigms 1995, 1996, 1997
- Teaching Assistant, Data Structures and Algorithms 1996, 1997
- Teaching Assistant, Computer Systems and Organization, 1996
- Teaching Assistant, Person-Machine Communication 1996
- Teaching Assistant, Computer Systems Architecture 1995

Publications

Journal Papers

- N. Roy & G. Dudek "Collaborative Robot Exploration and Rendezvous: Algorithms, Performance Bounds and Observations". *Autonomous Robots*, 11(2): 117-136, 2001.
- S. Thrun, M. Beetz, M. Bennewitz, W. Burgard, A.B. Cremers, F. Dellaert, D. Fox, D. Hähnel, C. Rosenberg, N. Roy, J. Schulte, and D. Schulz. "Probabilistic Algorithms and the Interactive Museum Tour-Guide Robot Minerva". *International Journal of Robotics Research*, 19(11): 972-999, 2000.

Refereed Conference Papers

- J. Matthews, S. Engberg, M. Montemerlo, J. Pineau, N. Roy, J. Rogers, S. Thrun, S. Handler, T. Starrett, D. Ting, and R. Travis. "The Nursebot project: Results of preliminary field studies during development of a personal robotic assistant for older adults". In Proceedings of the Greater Pittsburgh 14th Annual Nursing Research Conference, Pittsburgh, PA, 2002.
- J. Matthews, S. Engberg, M. Montemerlo, J. Pineau, N. Roy, J. Rogers, and S. Thrun. "Robotic assistance during ambulation by older adults". In Proceedings of the Annual Conference of the American Medical Informatics Association, San Antonio, TX, 2002.
- N. Roy & G. Gordon. "Exponential Family PCA for Belief Compression". Advances in Neural Information Processing (NIPS 2002) 15. Vancouver, BC, 2002. To appear.
- N. Roy & S. Thrun. "Motion Planning through Policy Search". Proceedings of the International Conference on Intelligent Robots and Systems (IROS 2002). Lausanne, Switzerland, 2002.
- M. Montemerlo, J. Pineau, N. Roy, S. Thrun and V. Varma. "Experiences with a Mobile Robotic Guide for the Elderly". Proceedings of the National Conference on Artificial Intelligence (AAAI 2002). Edmonton, AB, 2002.
- N. Roy & A. McCallum. "Toward Optimal Active Learning through Monte Carlo Estimation of Error Reduction". Proceedings of the International Conference on Machine Learning (ICML 2001). Williamstown, Jun. 2001.
- N. Roy, J. Pineau & S. Thrun. "Spoken Dialog Management for Robots". Proceedings of the Association for Computational Linguistics (ACL 2000). Hong Kong, October 2000.
- N. Roy & S. Thrun. "Coastal Navigation with Mobile Robots". Neural Information Processing Systems (NIPS) 12. Colorado, Dec. 1999
- S. Thrun, M. Bennewitz, W. Burgard, A.B. Cremers, F. Dellaert, D. Fox, D. Hähnel, G. Lakemeyer, C. Rosenberg, N. Roy, J. Schulte, D. Schulz, and W. Steiner. "Experiences with two deployed interactive tour-guide robots". Proceedings of the International Conference on Field and Service Robotics (FSR 1999), Pittsburgh, PA, August, 1999.
- N. Roy, W. Burgard, D. Fox & S. Thrun. "Coastal Navigation – Mobile Robot Navigation with Uncertainty in Dynamic Environments". IEEE/RSJ International Conference on Robotics and Automation (ICRA 1999). Detroit, May 1999.
- N. Roy & S. Thrun. "Online Self-Calibration for Mobile Robots". IEEE/RSJ International Conference on Robotics and Automation. Detroit (ICRA 1999), May 1999.
- S. Thrun, M. Bennewitz, W. Burgard, A. Cremers, F. Dellaert, D. Fox, D. Hähnel, C. Rosenberg, N. Roy, J. Schulte & D. Schulz. "MINERVA: A Second-Generation Museum Tour-Guide Robot". IEEE/RSJ International Conference on Robotics and Automation (ICRA 1999). Detroit, May 1999.
- N. Roy, G. Dudek & P. Freedman. "Surface Sensing and Classification for Efficient Mobile Robot Navigation". Proceedings of the IEEE/RSJ International Conference on Robotics and Automation. Minneapolis, 1996.

Refereed Workshop and Symposium Papers

- J. Pineau, N. Roy, M. Montemerlo, S. Thrun, and M. Pollack. "Probabilistic control of human robot interaction: Experiments with a robotic assistant for nursing homes". In G. Giralt and R. Chatila, editors, Proceedings of the IARP-IEEE/RAS Workshop on Robot Dependability, 2002.

- M.E. Pollack, L. Brown, D. Colbry, C. Orosz, B. Peintner, S. Ramakrishnan, S. Engberg, J.T. Matthews, J. Dunbar-Jacobs, C. McCarthy, S. Thrun, M. Montemerlo, J. Pineau, and N. Roy. "Pearl: A mobile robotic assistant to the elderly". In AAI Workshop 2002 notes, Edmonton, AB, 2002.
- 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 2000). Pittsburgh, PA. 2000.
- N. Roy, W. Burgard, D. Fox & S. Thrun. "Coastal Navigation – Robot Motion with Uncertainty". Proceedings of the AAI Fall Symposium: Planning with POMDPs. Orlando, 1998.
- S. Thrun & N. Roy. "Integrating Learning for Robust Development". Proceedings of the AAI Spring Symposium: Integrating Robotic Research. Palo Alto, 1998.
- G. Dudek & N. Roy. "Multi-Robot Rendezvous in Unknown Environments, or, What to do When You're Lost at the Zoo". Proc. of the AAI Nat. Conf. Workshop on Online Search. Providence, 1997.
- N. Roy & G. Dudek. "Learning to Rendezvous during Multi-agent Exploration". Proceedings of the European Workshop on Learning Robots. Brighton, 1997.

Unrefereed Workshop and Conference Papers

- S. Thrun, M. Bennewitz, W. Burgard, A.B. Cremers, F. Dellaert, D. Fox, D. Hähnel, C. Rosenberg, N. Roy, J. Schulte, and D. Schulz. "MINERVA: A tour-guide robot that learns". In Proc. of the 23rd German Conference on Artificial Intelligence, Germany (KI'99). Springer Verlag, 1999.
- M. Bolduc, E. Bourque, G. Dudek, N. Roy & R. Sim. "Autonomous Exploration: An Integrated Systems Approach". Proc. of the AAI Nat. Conf. on Artificial Intelligence. Providence, 1997.
- N. Roy, G. Dudek & M. Daum. "Mobile Robot Navigation and Control: A Case Study". Proceedings of the AAI National Conference on Artificial Intelligence. Portland, 1996.
- N. Roy & G. Dudek. "Multi-agent Rendez-vous", Poster session, IRIS/PREARN conference. Montreal, June 1996.

Awards

- Fonds FCAR Ph.D. Fellowship, 1997-2001
- National Sciences and Engineering Research Council Scholarship (Canada), Awarded 1997
- Fonds pour la Formation de Chercheurs et l'Aide a la Recherche (FCAR) M.Sc. Fellowship, 1997
- Computer Science Fellowship, McGill University, 1995-1997
- Canada Scholarship, 1991
- J.W. McConnell Entrance Scholarship, McGill University, 1991-1995
- British Columbia Provincial Scholarship, 1991

Professional Activities

Reviewing

- International Joint Conferences on Artificial Intelligence (IJCAI) 2003
- International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2003
- National Conference on Artificial Intelligence (AAAI) 2002
- Neural Information Processing Systems (NIPS) 2002
- Journal of Artificial Intelligence Research
- International Conference on Intelligent Robots and Systems
- International Conference on Robotics and Automation

Competitions

- AAI Mobile Robot Challenge, 2002
- AAI Mobile Robot Competition 1996

Software Releases

- Carmen : Carnegie Mellon Navigation system.