

Michael E. Cleary

Curriculum Vitae

Charles Stark Draper Laboratory
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Cambridge, MA 02139
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Educational History

- Ph.D.** Received September 1997, in Computer Science
- College of Computer Science, Northeastern University, Boston, MA
 - Thesis title: Systematic Use of Deictic Commands for Mobile Robot Navigation
 - Thesis advisor: Jill D. Crisman
 - Thesis area: Artificial Intelligence (robotics)
 - Funding: NSF
- M.S.C.S.** Received September 1992, in Computer Science
- College of Computer Science, Northeastern University, Boston, MA
 - Thesis title: From Logical Forms to Knowledge Frames: an Experiment on Scientific Text
 - Thesis advisor: Robert P. Futrelle
 - Thesis area: Artificial Intelligence (natural language understanding)
 - Funding: NSF
- B.A.** Received May 1977, in Philosophy
- University of Notre Dame, Notre Dame, IN
 - Minor: Physics

Employment History

Industrial

Charles Stark Draper Laboratory, Cambridge, MA
Principal Member of Technical Staff, 2001 – present
Senior Member of Technical Staff, 1998 – 2001
John Hancock Mutual Life Insurance Company, Boston, MA
Systems Analyst, 1987 – 1989
Project and Team Manager, 1984 – 1987
Programmer Analyst, 1978 - 1983
Iotron Corp., Bedford, MA
Technician Supervisor, 1977 – 1978

Academic

Electrical and Computer Engineering, Northeastern University
Instructor (Capstone design). 1/98 – 5/98

College of Computer Science, Northeastern University, Boston, MA

Research Assistant, Robotics and Vision Systems Laboratory. 9/92 – 9/97

Instructor (Intro to PC). Summer 1992 and 1993

Research Assistant, Biological Knowledge Laboratory. 1/91 – 9/92

Research Assistant, Computational linguistics project. 1/90 – 1/91

Publications

Book Chapters

Jill D. Crisman, Michael E. Cleary and Juan Carlos Rojas. "The Deictically Controlled Wheelchair." In John Aronis, Vibhu Mittal and Holly Yanco (ed.), *Assistive Technology and Artificial Intelligence*, Springer Verlag, 1998. Series: Lecture Notes in Artificial Intelligence.

In Refereed Journals

Jill D. Crisman, Michael E. Cleary and Juan Carlos Rojas. "The Deictically Controlled Wheelchair," *Image and Vision Computing*, 16(4):235-249, 1998. Special Issue on Vision-Based Aids for the Disabled. Editors: J. Tsotsos and J. Crisman.

In Refereed Conferences

Michael E. Cleary and Jill D. Crisman. "Algorithmic Navigation to Train Deictic Mobile Robot Operators." In *Proc., IEEE International Conference on Robotics and Automation*, 1998.

Michael E. Cleary and Jill D. Crisman. "User Instruction for Semi-Autonomous Mobile Robot Control." In *Proc., International Conference on Advanced Robotics*, pp. 379-384, 1997.

Michael E. Cleary and Jill D. Crisman. "Canonical Targets for Mobile Robot Control by Deictic Visual Servoing." In *Proc., IEEE International Conference on Robotics and Automation*, pp. 3093-3098. 1996.

R. P. Futrelle, M. Pescitelli, J. Alexander, M. Cleary, J. Crisman, C. Dunn, D. Ellis, J. Gauch, I. A. Kakadiaris, S. Mukherjea, D. Nadeau, and N. Nikolakis. "Document analysis, understanding and knowledge access." In *Proc., International Conference on Document Analysis and Recognition*, pp. 101-111. 1991.

Workshops

Mark Abramson, Michael Cleary and Stephan Kolitz, *Steps Toward Robust Autonomy*, January 2001, Draper TR P-3876. Presented at AAAI Spring Symposium on Robust Autonomy, Stanford, Palo Alto, CA, March 2001. (Did not appear in proceedings.)

Michael E. Cleary and Mark Abramson, "Intelligent Autonomy for Small Throwable Land Robots", in *Symposium on Technologies for Law Enforcement* (at Photonics East), Boston, MA, November 2000. SPIE TR 4232A and Draper TR P-3824.

Michael E. Cleary, Mark Abramson, Milton B. Adams and Stephan Kolitz, "Metrics for Embedded Collaborative Intelligent Systems", in Elena Messina and Alex Meystel (ed.), *Workshop on Performance Metrics for Intelligent Systems*, NIST, Gaithersburg, MD, August 2000. Draper TR P-3833.

Jill D. Crisman and Michael E. Cleary. "Progress on the Deictic Controlled Wheelchair." In *Working Notes, Developing Assistive Technology for People with Disabilities*, AAAI Fall Symposium Series, pp. 12-18, 1996.

Jill D. Crisman and Michael E. Cleary. "Adaptive Control of Camera Position for Stereo Vision." In *Proc., Optics, Illumination, and Image Sensing for Machine Vision VIII*, SPIE vol. 2065, pp. 34-45. 1993.

Robert P. Futrelle and Michael E. Cleary. "Tools for Natural Language Processing that can Aid Retrieval from Technical Text." In *Working Notes, Natural Language Text Retrieval*, AAAI Fall Symposium Series. 1991.

Sougata Mukherjea, Michael E. Cleary and Robert P. Futrelle. "Building a Knowledge Base for Scientific Texts." In *Proc., 6th Annual Conceptual Graphs Workshop*. 1991.

Technical Reports

Michael E. Cleary et al., *Hierarchical Decomposition of Autonomy Requirements for Naval UCAVs*, July 2000. Draper report CSDL-2000-044. Funding: ONR.

Michael E. Cleary and Jill D. Crisman. *A Study of 3D Canonical Real World Navigational Targets for Deictically Controlled Robots*. Technical Report 97-07, College of Computer Science, Northeastern University, 1997.

Michael E. Cleary and Jill D. Crisman. *Visual Deictic Commands for Control of Mobile Robots in Cluttered Environments*. Technical Report 97-06, College of Computer Science, Northeastern University, 1997.

Michael E. Cleary, Santosh K. Chandwani and Jill D. Crisman. *Robot Navigation by Visual Pointing*. Technical Report, Robotic and Vision Systems Lab, Northeastern University. 1994.

Carole D. Hafner and Michael E. Cleary. *A Feature-Based English Lexicon Derived from the Tagged Brown Corpus*. Technical Report, College of Computer Science, Northeastern University. 1991.

Michael E. Cleary. *Expert Systems and John Hancock*. Technical Report, John Hancock Mutual Life Insurance Company. 1988.

Magazines

Michael Cleary. "1998 IEEE International Conference on Robotics and Automation" In *D-Bytes, the Draper Laboratory Software Engineering Directorate Newsletter*, 4(6), June 1998.

Research / Tasks

Grants

Draper IRAD. 7/00 – 6/01, \$370,000. Embedded Collaborative Intelligent Systems (ECIS), Co-PIs: M. Cleary, M. Abramson

Contracts with leadership role

ONR/NAVAIR, 9/00 – 2/02. Airborne Battle Management System (ABMS) architecture design and evaluation. On subcontract from Lockheed Martin (Fort Worth).

Projects with team role

ONR, 3/00 – present. Intelligent Autonomy Program (continuing technology evaluation support for Autonomous Operations Future Naval Capabilities program).

ONR, 7/99 – 7/00. Unmanned Combat Air Vehicles (UCAV) 6.2 Evaluation and Roadmap.

Draper IRAD. 5/99 – 6/99. Human-systems interface design for multiple autonomous helicopters.

DARPA, 7/98 – 1/01. Tactical Mobile Robot (TMR) software design for Throwbot autonomy.

Liason

IRAD Champion for Seth Teller (MIT), 7/99 – 6/02. Autonomous Ego-Motion from Omni-Directional Video

IRAD Champion for Karl Kluge (U. of Michigan), 1/01 – 6/01. Monocular Map Building and Localization for Teleoperated Robots in Indoor Hallway Environments

Students Advised

Master's Students

John Fenwick, 5/01, MIT EECS, co-advisor with Prof. John Leonard, thesis: Collaborative Concurrent Mapping and Localization

Henry Wong, 5/01, MIT EECS, co-advisor with Prof. Leslie Kaelbling, thesis: Decentralized Control of Multiple Collaborating Agents

Kin-Joe Sham, 5/02, MIT EECS, co-advisor with Prof. Leslie Kaelbling, thesis: Allocation Algorithms for Real-Time Systems as Applied to Battle Management

Professional Society Memberships

American Association for Artificial Intelligence (AAAI)

Association for Computing Machinery (ACM) – Artificial Intelligence (SIGART), Computer-Human Interaction (SIGCHI)

Institute of Electrical and Electronics Engineers (IEEE)

Professional Activities and Service

Professional Society Service

Vice-chairman, Boston chapter, IEEE Robotics and Automation Society, 1998-1999.

Workshop Organization

2003 AAAI Spring Symposium (proposed), Human Interaction with Autonomous Systems in Complex Environments, with Dave Kortenkamp, et al.

Presentations

"Intelligent Autonomy Technology Roadmap," to the Naval Studies Board (convened by National Academy of Sciences and Engineering), Los Angeles, December 1999, for review of ONR's Unmanned Combat Air Vehicles (UCAV) program.

"Some Advice for Graduate Students," at Upsilon Pi Epsilon induction banquet. Northeastern University, May 1997.

"Mobile Robot Control by Deictic Visual Servoing." Local chapter meeting of IEEE Robotics and Automation Society, Wellesley, MA, November 1995.

"Introduction to using and customizing X11." Graduate student association meeting, College of Computer Science, Northeastern University, Boston, MA, October 1991.

"Introduction to using and customizing Sunview." Graduate student association meeting, College of Computer Science, Northeastern University, Boston, MA, October 1990.

Honors

Upsilon Pi Epsilon, National Honor Society for the Computing Sciences