Curriculum Vitae

Thomas L. Dean

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Education

Ph.D. May 1986. Yale University. Computer Science.

M.Sc. May 1984. Yale University. Computer Science.

B.A. May 1982. Virginia Polytechnic Institute & State University.
Mathematics — Summa cum Laude — in Honors.

Honors

Elected to the IJCAI Board of Trustees, 1995.

Appointed to Computing Research Association Board, 1995.

Elected as a Fellow of AAAI, 1994.

Elected to the Executive Council of AAAI, 1993.

NSF Presidential Young Investigators Award, 1989.

Publishers Prize AAAI-87, Seattle, Washington, 1987.

IBM Faculty Development Award, 1986–1988.

IBM Graduate Fellowship Award, 1985–1986.

Phi Beta Kappa, 1982.

VPI-SU Distinguished Achievement Award in Mathematics, 1981.

Appointments

[1994–2006] — Professor of Computer Science and Cognitive and Linguistic Science, Brown University, Providence, Rhode Island.

[2003–2005] — Deputy Provost, Brown University, Providence, Rhode Island.

[2001–2002] — Acting Vice President for Computing and Information Services, Brown University, Providence, Rhode Island.

[1997–2002] — Chair of the Department of Computer Science, Brown University, Providence, Rhode Island.

[1994–1995] — Visiting Professor of Computer Science, University of Washington, Seattle, Washington.

[1993–1994] — Professor of Computer Science, Brown University, Providence, Rhode Island.

[1990–1993] — Associate Professor of Computer Science, Brown University, Providence, Rhode Island.

[1990–1991] — Visiting Associate Professor of Computer Science, Stanford University, Stanford, California.

[1986–1990] — Assistant Professor of Computer Science, Brown University, Providence, Rhode Island.

[1984–1986] — Research Assistant, Yale University Department of Computer Science, New Haven, Connecticut.

[1982–1984] — Teaching Assistant, Yale University Department of Computer Science, New Haven, Connecticut.

Invited Talks

2006 Keynote address at the Ninth International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, Florida, January, 2006, *Hierarchical Bayesian Models of the Primate Visual Cortex*.

2005 CMU, Center for Automatic Learning and Discovery (CALD), Pittsburgh, Pennsylvania, November, 2005, *Scalable Inference in Hierarchical Models of the Neocortex*.

2004 Massachusetts School of Law Educational Forum — a one-hour educational television program entitled *Robotics* which aired March, 2004. This episode was the winner of a "Telly Award" honoring outstanding cable programs.

2002 Seventh International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, Florida, January, 2002, *Searching in the Space of Very Large Structured Models*.

2001 Dagstuhl Seminar on the Exploration of Large State Spaces, Schloss Dagstuhl, Germany, November, 2001. *Minimizing Approximate Models versus Approximating Minimal Models*.

2001 Agent Theories, Architectures, and Languages (ATAL) Workshop, Seattle, Washington, August 2001, *Stochastic Models of Web Agents and their Environment*.

1999 IRCS Workshop on Logic and Cognitive Science: Linking Finite Model Theory, Descriptive Complexity, and the Study of Cognition, University of Pennsylvania, Philadelphia, Pennsylvania, April 1999, *Efficiently Identifying and Exploiting Structure in Dynamic Domains*.

1998 Twelfth International Workshop on Qualitative Reasoning, Cape Cod, Massachusetts, May, 1998, *Planning and Decision Making involving Discrete-Time Stochastic Dynamical Systems*.

1998 Symposium on Abstraction, Reformulation and Approximation, Asilomar Conference Center, Pacific Grove, California, May 1998, *Coping with the Blooming Buzzing World that Surrounds Us*.

1998 Stanford University, Stanford, California, May 1998, *Exploiting Structure in Solving Planning Problems*.

1997 MIT, Cambridge, Massachusetts, December, 1997, *Adaptive Problem Framing and Long-life, Life-long Learning*.

1997 AT&T Laboratories, Florham Park, New Jersey, November, 1997, *Algebraic Structure of Sequential Decision Machines*.

1997 European Conference on Planning, Toulouse, France, September, 1997, *Identifying and exploiting useful structure in solving planning problems with very large state and action spaces*.

DARPA Rome Laboratory Planning Initiative Workshop, Lynnfield, Massachusetts, June, 1997, *Solving Very Large Sequential Deployment Problems*.

1997 NSF/CNPQ Workshop on Intelligent Robotic Agents, Porto-Alegre, Brazil, March, 1997, *Model Minimization and Regression in Planning*.

Dagstuhl Workshop on Control of Search in Planning, Dagstuhl, Germany, November, 1996, *Characterizing the Structural Properties of Planning Problems*.

Saarbruecken University (DFKI), Saarbrueken, Germany, August, 1996, *Exploiting Structure in Learning Dynamical Systems*.

European Conference on AI: Workshop on Cross-fertilization in Planning, Budapest, Hungary, August 1996, *Theory and Practice in Automated Planning*.

National Conference on Artificial Intelligence (AAAI-96), Portland, Oregon, August, 1996, *History of the AAAI Robotics Competitions*.

National Conference on Artificial Intelligence (AAAI-96), Portland, Oregon, August, 1996, *Challenges in Automated Planning*.

University of Massachusetts, Amherst, Massachusetts, March, 1996, *Algorithms for Learning Dynamical Systems*.

Duke University, Durham, North Carolina, November, 1995, *Graphical Models for Learning Dynamical Systems*.

First International Workshop on Artificial Intelligence and Operations Research, Timberline, Oregon, June, 1995, *Planning and Scheduling Problems as Markov Decision Processes*.

Los Alamos National Labs, Los Alamos, New Mexico, March, 1995, *Transportation Scheduling in Stochastic Domains*.

Santa Fe Institute, March, Santa Fe, New Mexico, 1995, *Modeling, Learning and Decision Making Under Uncertainty*.

University of Southern California, Los Angeles, California, March, 1995, *Discrete Dynamical Models for Planning and Learning*.

Stanford University, Stanford, California, January, 1995, *Decision Theoretic Planning and Markov Decision Processes*.

University of British Columbia, Vancouver, British Columbia, November, 1994, *Structured Markov Decision Processes*.

Microsoft Corporation, Redmond, Washington, October, 1994, *Decomposition and Abstraction in Markov Processes*.

University of Washington, Seattle, Washington, September, 1994, *Lectures on Uncertainty in Sequential Decision Making*.

Conference on Uncertainty in Artificial Intelligence, Seattle, Washington, August, 1994, *Planning Under Uncertainty*.

Books and Edited Collections

[1] Thomas Dean. *Talking With Computers*. Cambridge University Press, New York, 2005.

[2] Thomas Dean, editor. *Proceedings of the Sixteenth International Joint Conference on Artificial Intelligence, IJCAI-99, Stockholm, Sweden, July 31 – August 6, 1999, 2 Volumes*. Morgan Kaufmann Publishers, San Francisco, California, 1999.

[3] Thomas Dean, James Allen, and Yiannis Aloimonos. *Artificial Intelligence: Theory and Practice*. Addison-Wesley Publishing Company, Reading, Massachusetts, 1995.

[4] Thomas Dean and Kathy McKeown, editors. *Proceedings of the Ninth National Conference on Artificial Intelligence, AAAI-91, Anaheim, California, July 14-19, 1991, 2 Volumes*. MIT Press, Cambridge, Massachusetts, 1991.

[5] Thomas Dean and Michael Wellman. *Planning and Control*. Morgan Kaufmann Publishers, San Francisco, California, 1991.

[6] Thomas Dean. *Temporal Imagery: An Approach to Reasoning about Time for Planning and Problem Solving (Ph.D. Thesis)*. Bell and Howell Information and Learning, Skokie, Illinois, 1985.

Journal and Magazine Articles

[1] Robert Givan, Thomas Dean, and Matthew Greig. Equivalence notions and model minimization in Markov decision processes. *Artificial Intelligence*, 147(1-2):163–223, 2003.

[2] Kee-Eung Kim and Thomas Dean. Solving factored Markov decision processes using non-homogeneous partitions. *Artificial Intelligence*, 147(1-2):225–251, 2003.

[3] Robert Givan, Sonia Leach, and Thomas Dean. Bounded parameter Markov decision processes. *Artificial Intelligence*, 122(1-2):71–109, 2000.

[4] Craig Boutilier, Thomas Dean, and Steve Hanks. Decision theoretic planning: Structural assumptions and computational leverage. *Journal of Artificial Intelligence Research*, 11:1–94, 1999.

[5] Kenneth Basye, Thomas Dean, and Jeffrey Scott Vitter. Coping with uncertainty in map learning. *Machine Learning*, 29(1):65–88, 1997.

[6] Thomas Dean and R. Peter Bonasso. A retrospective on the AAAI robot competitions. *AI Magazine*, 18(1):11–23, 1997.

[7] Jon Doyle and Thomas Dean. Strategic directions in artificial intelligence (Reprint). *AI Magazine*, 18(1):87–101, 1997.

[8] Shieu-Hong Lin and Thomas Dean. Localized temporal reasoning using subgoals and abstract events. *Computational Intelligence*, 12(3):423–449, 1996.

[9] Moises Lejter and Thomas Dean. A framework for the development of multiagent architectures. *IEEE Expert*, 11(6):47–59, 1996.

[10] Jon Doyle and Thomas Dean. Strategic directions in artificial intelligence (Reprinted in *AI Magazine* 18 (1997)). *ACM Computing Surveys*, 28(4):653–670, 1996.

[11] Thomas Dean. Integrating theory and practice in planning. *ACM Computing Surveys*, 28(4):2, 1996.

[12] Lloyd Greenwald and Thomas Dean. Package routing in transportation networks with fixed vehicle schedules: Formulation, complexity results and approximation algorithms. *Networks*, 27(1):81–93, 1996.

[13] Thomas Dean, Dana Angluin, Kenneth Basye, Sean Engelson, Leslie Kaelbling, Evangelos Kokkevis, and Oded Maron. Inferring finite automata with stochastic output functions and an application to map learning. *Machine Learning*, 18(1):81–108, 1995.

[14] Thomas Dean, Leslie Kaelbling, Jak Kirman, and Ann Nicholson. Planning under time constraints in stochastic domains. *Artificial Intelligence*, 76(1-2):35–74, 1995.

[15] Kenneth Basye, Thomas Dean, and Leslie Kaelbling. Learning dynamics: System identification for perceptually challenged agents. *Artificial Intelligence*, 72(1-2):139–171, 1995.

[16] Mark Boddy and Thomas Dean. Decision-theoretic deliberation scheduling for problem solving in time-constrained environments. *Artificial Intelligence*, 67(2):245–286, 1994.

[17] Thomas Dean and R. Peter Bonasso. 1992 AAAI robot exhibition and competition. *AI Magazine*, 14(1):35–48, 1993.

[18] Kenneth Basye, Thomas Dean, Jak Kirman, and Moises Lejter. A decision-theoretic approach to planning, perception, and control. *IEEE Expert*, 7(4):58–65, 1992.

[19] Thomas Dean. Decision-theoretic control of inference for time-critical applications. *International Journal Intelligent Systems*, 6(4):417–441, 1991.

[20] Thomas Dean and Keiji Kanazawa. Persistence and probabilistic inference. *IEEE Transactions on Systems, Man, and Cybernetics*, 19(3):574–585, 1989.

[21] Thomas Dean and Keiji Kanazawa. A model for reasoning about persistence and causation. *Computational Intelligence Journal*, 5(3):142–150, 1989.

[22] Thomas Dean. Using temporal hierarchies to efficiently maintain large temporal databases. *Journal of the ACM*, 36(4):687–718, 1989.

[23] Thomas Dean, R. James Firby, and David P. Miller. Hierarchical planning involving deadlines, travel time and resources (Also appears in "Readings in Planning" (Morgan Kaufmann), edited by James Allen, James Hendler, and Austin Tate, and in "Autonomous Mobile Robots: Control, Planning, and Architecture" (IEEE Computer Society Press), edited by S. S. Iyengar and Alberto Elfes). *Computational Intelligence*, 4(4):381–398, 1988.

[24] Thomas Dean and Mark Boddy. Reasoning about partially ordered events (Also appears in "Readings in Qualitative Reasoning About Physical Systems" (Morgan Kaufmann), edited by Dan Weld and Johan De Kleer). *Artificial Intelligence*, 36(3):375–399, 1988.

[25] Thomas Dean. An approach to reasoning about the effects of actions for automated planning systems. *Annals of Operations Research*, 12(1-4):147–167, 1988.

[26] Thomas Dean and Drew V. McDermott. Temporal data base management (Also appears in "Readings in Planning" (Morgan Kaufmann), edited by James Allen, James Hendler, and Austin Tate). *Artificial Intelligence*, 32(1):1–55, 1987.

[27] Thomas Dean. Handling shared resources in a temporal database management system. *Decision Support Systems*, 2(2):135–143, 1986.

Papers in Conference Proceedings

[1] Thomas Dean. Scalable inference in hierarchical generative models. In *Proceedings of the Ninth International Symposium on Artificial Intelligence and Mathematics*, 2006.

[2] Thomas Dean. A computational model of the cerebral cortex. In *Proceedings of AAAI-05*, pages 938–943, Cambridge, Massachusetts, 2005. MIT Press.

[3] Joel Young and Thomas Dean. Exploiting locality in searching the web. In *Proceedings of the 19th Annual Conference on Uncertainty in Artificial Intelligence (UAI-03)*, pages 608–615, San Francisco, California, 2003. AUAI, Morgan Kaufmann Publishers.

[4] Kee-Eung Kim and Thomas Dean. Solving factored MDPs with large action spaces using algebraic decision diagrams. In Mitsuru Ishizuka and Abdul Satter, editors, *Proceedings of the 7th Pacific Rim International Conference on Artificial Intelligence (PRICAI-02)*, pages 80–89. PRIJCAI, Springer, 2002.

[5] Kee-Eung Kim and Thomas Dean. Solving factored MDPs using non-homogeneous partitions. In *Proceedings IJCAI-01*, pages 683–689, San Francisco, California, 2001. IJCAI, Morgan Kaufmann Publishers.

[6] Kee-Eung Kim, Nicolas Meuleau, and Thomas Dean. Approximate solutions to factored Markov decision processes via greedy search in the space of finite state controllers. In *Proceedings of the 5th International Conference on Artificial Intelligence Planning Systems (ICAPS-2000*, pages 323–330, Menlo Park, California, 2000. AAAI Press.

[7] Nicolas Meuleau, Craig Boutilier, Milos Hauskrecht, Leslie Kaelbling, Kee-Eung Kim, Leonid Peshkin, and Thomas Dean. Solving very large weakly coupled Markov decision processes. In *Proceedings AAAI-98*, pages 165–172, Cambridge, Massachusetts, 1998. AAAI, MIT Press.

[8] Milos Hauskrecht, Nicolas Meuleau, Craig Boutilier, Leslie Pack Kaelbling, and Thomas Dean. Hierarchical solution of Markov decision processes using macro-actions. In *Proceedings of the 14th Conference on Uncertainty in Artificial Intelligence (UAI-98)*, pages 220–229, San Francisco, California, 1998. AUAI, Morgan Kaufmann Publishers.

[9] Lloyd Greenwald and Thomas Dean. A conditional scheduling approach to designing real-time systems. In *Proceedings of the 4th International Conference on Artificial Intelligence Planning Systems (ICAPS-98)*, pages 224–231, 1998.

[10] Thomas Dean, Robert Givan, and Kee-Eung Kim. Solving planning problems with large state and action spaces. In *Proceedings of the 4th International Conference on Artificial Intelligence Planning Systems (ICAPS-98)*, pages 102–110, 1998.

[11] Robert Givan, Sonia Leach, and Thomas Dean. Bounded parameter Markov decision processes. In *Proceedings of the 4th European Conference on Planning*, pages 234–246, 1997.

[12] Robert Givan and Thomas Dean. Model minimization, regression, and propositional STRIPS planning. In *Proceedings IJCAI-97*, pages 1163–1168, San Francisco, California, 1997. IJCAI, Morgan Kaufmann Publishers.

[13] Thomas Dean, Robert Givan, and Sonia Leach. Model reduction techniques for computing approximately optimal solutions for Markov decision processes. In Dan Geiger and Prakesh Pundalik Shenoy, editors, *Proceedings of the 13th Conference on Uncertainty in Artificial Intelligence*, pages 124–131, San Francisco, California, 1997. AUAI, Morgan Kaufmann Publishers.

[14] Thomas Dean and Jean-Luc Marion. Planning and navigation in stochastic environments. In Yiannis Aloimonos, editor, *Visual Navigation: From Biological Systems to Unmanned Ground Vehicles*. Lawrence Erlbaum Associates, Publishers, Mahwah, New Jersey, 1997.

[15] Thomas Dean and Robert Givan. Model minimization in Markov decision processes. In *Proceedings AAAI-97*, pages 106–111, Cambridge, Massachusetts, 1997. AAAI, MIT Press.

[16] Thomas Dean. Context-dependent computational components. *SIGART Bulletin*, 7(2):3–6, 1996.

[17] Bart Selman, Rodney A. Brooks, Thomas Dean, Eric Horvitz, Tom M. Mitchell, and Nils J. Nilsson. Challenge problems for artificial intelligence (panel statements). In *Proceedings of AAAI-96*, pages 1340–1345, Cambridge, Massachusetts, 1996. AAAI, MIT Press.

[18] Michael Littman, Thomas Dean, and Leslie Kaelbling. On the complexity of solving Markov decision problems. In *Proceedings of the 11th Conference on Uncertainty in Artificial Intelligence*, pages 394–402, San Francisco, California, 1995. AUAI, Morgan Kaufmann Publishers.

[19] Shieu-Hong Lin and Thomas Dean. Generating optimal policies for high-level plans with conditional branches and loops. In *Proceedings of the 3rd European Workshop on Planning*, pages 205–218, 1995.

[20] Thomas Dean and Shieu-Hong Lin. Decomposition techniques for planning in stochastic domains. In *Proceedings IJCAI-95*, pages 1121–1127, San Francisco, California, 1995. IJCAI, Morgan Kaufmann Publishers.

[21] Craig Boutilier, Thomas Dean, and Steve Hanks. Planning under uncertainty: Structural assumptions and computational leverage. In *Proceedings of the 3rd European Workshop on Planning*, 1995.

[22] Thomas Dean. Meditations on time and space: Expediting temporal reasoning by exploiting time and space (Abstract). In S.D. Goodwin and H.J. Hamilton, editors, *Proceedings of the First International Workshop on Temporal Representation and Reasoning (TIME-94)*, pages 3–12, May 1994.

[23] Lloyd Greenwald and Thomas Dean. Anticipating computational demands when solving time-critical decision-making problems. In K. Goldberg, D. Halperin, J.C. Latombe, and R. Wilson, editors, *The Algorithmic Foundations of Robotics*. A. K. Peters, Boston, Massachusetts, 1995.

[24] Lloyd Greenwald and Thomas Dean. Monte Carlo simulation and bottleneck-centered heuristics for time-critical scheduling in stochastic domains. In *ARPI Planning Initiative Workshop*, 1994.

[25] Lloyd Greenwald and Thomas Dean. Solving time-critical decision-making problems with predictable computational demands. In Kristian Hammond, editor, *Proceedings of the 2nd International Conference on AI Planning Systems (ICAPS-94)*, pages 25–30. AAAI Press, 1994.

[26] Jak Kirman, Ann Nicholson, Moises Lejter, Thomas Dean, and Eugene Santos Jr. Using goals to find plans with high expected utility. In E. Sandewall and C. Backstrom, editors, *Current Trends in AI Planning*, Amsterdam, 1994. IOS Press.

[27] Shieu-Hong Lin and Thomas Dean. Temporal reasoning: A state-based approach. In S.D. Goodwin and H.J. Hamilton, editors, *Proceedings of the First International Workshop on Temporal Representation and Reasoning (TIME-94)*, pages 3–12, May 1994.

[28] Shieu-Hong Lin and Thomas Dean. Exploiting locality in temporal reasoning. In E. Sandewall and C. Backstrom, editors, *Current Trends in AI Planning*, Amsterdam, 1994. IOS Press.

[29] Thomas Dean, Leslie Kaelbling, Jak Kirman, and Ann Nicholson. Deliberation scheduling for time-critical sequential decision making. In *Proceedings of the 9th Conference on Uncertainty in Artificial Intelligence*, pages 309–316, San Francisco, California, 1993. AUAI, Morgan Kaufmann Publishers.

[30] Thomas Dean, Leslie Kaelbling, Jak Kirman, and Ann Nicholson. Planning with deadlines in stochastic domains. In *Proceedings AAAI-93*, pages 574–579, Cambridge, Massachusetts, 1993. AAAI, MIT Press.

[31] Theodore Camus, Jonathan Monsarrat, and Thomas Dean. Planning and selective perception for mobile robot object retrieval tasks. In *Proceedings of the DARPA Image Understanding Workshop*. DARPA, 1993.

[32] Thomas Dean. Anticipating tomorrow's technology needs. *Omni Magazine*, November 1992.

[33] T. Dean, J. Kirman, and K. Kanazawa. Probabilistic network representations of continuous-time stochastic processes for applications in planning and control. In James Hendler, editor, *Proceedings of the First International Conference on Artificial Intelligence Planning Systems (ICAPS-92)*, pages 273–274. Morgan Kaufmann Publishers, San Francisco, California, 1992.

[34] Thomas Dean, Dana Angluin, Kenneth Basye, Sean Engelson, Leslie Kaelbling, Evangelos Kokkevis, and Oded Maron. Inferring finite automata with stochastic output functions and an application to map learning. In *Proceedings AAAI-92*, pages 208–214, Cambridge, Massachusetts, 1992. AAAI, MIT Press.

[35] Thomas Dean, Ken Basye, and Leslie Kaelbling. Uncertainty in graph-based map learning. In Jonathon Connell and Sridhar Mahadevan, editors, *Robot Learning*. Kluwer, 1992.

[36] Thomas Dean, Ken Basye, and John Shewchuk. Reinforcement learning for planning and control. In Steve Minton, editor, *Machine Learning Methods for Planning and Scheduling*. Morgan Kaufmann Publishers, San Francisco, California, 1992.

[37] Thomas Dean and Jak Kirman. Representation issues in Bayesian decision theory for planning and active perception. In *Proceedings of the DARPA Image Understanding Workshop*, pages 763–768. DARPA, 1992.

[38] Leslie Kaelbling, Kenneth Basye, and Thomas Dean. Learning labelled graphs from noisy data. In *Proceedings of the 7th Yale Workshop on Adaptive and Learning Systems*, pages 149–154. Center for Systems Science, 1992.

[39] Jak Kirman, Kenneth Basye, and Thomas Dean. Sensor abstractions for control of navigation. In *Proceedings of the IEEE International Conference on Robotics and Automation*, pages 2812–2817, 1991.

[40] Mark Boddy. Anytime problem solving using dynamic programming. In *Proceedings AAAI-91*, pages 738–743, Cambridge, Massachusetts, 1991. AAAI, MIT Press.

[41] John Shewchuk and Thomas Dean. Towards learning time-varying functions with high input dimensionality. In *Proceedings of the 5th IEEE International Symposium on Intelligent Control*, pages 383–388. IEEE, 1990.

[42] Thomas Dean, Theodore Camus, and Jak Kirman. Sequential decision making for active perception. In *Proceedings of the DARPA Image Understanding Workshop*, pages 889–894. DARPA, 1990.

[43] Thomas Dean, Keiji Kanazawa, and John Shewchuk. Prediction, observation, and estimation in planning and control. In *Proceedings of the 5th IEEE International Symposium on Intelligent Control*, pages 645–650, 1990.

[44] Thomas Dean, Kenneth Basye, and Moises Lejter. Planning and active perception. In *Proceedings of the DARPA Workshop on Innovative Approaches to Planning, Scheduling, and Control*, pages 271–276. DARPA, 1990.

[45] Thomas Dean, Kenneth Basye, Robert Chekaluk, Seungseok Hyun, Moises Lejter, and Margaret Randazza. Coping with uncertainty in a control system for navigation and exploration. In *Proceedings AAAI-90*, pages 1010–1015, Cambridge, Massachusetts, 1990. AAAI, MIT Press.

[46] Thomas Dean and Greg Siegle. An approach to reasoning about continuous change for applications in planning. In *Proceedings AAAI-90*, pages 132–137, Cambridge, Massachusetts, 1990. AAAI, MIT Press.

[47] D. B. Cooper, T. L. Dean, and W. A. Wolovich. Image understanding research at brown. In *Proceedings of the DARPA Image Understanding Workshop*, pages 131–133. DARPA, 1990.

[48] Keiji Kanazawa and Thomas Dean. A model for projection and action. In *Proceedings IJCAI-89*, pages 985–990, San Francisco, California, 1989. IJCAI, Morgan Kaufmann Publishers.

[49] Thomas Dean and Michael Wellman. On the value of goals. In Josh Tenenberg, Jay Weber, and James Allen, editors, *Proceedings from the Rochester Planning Workshop: From Formal Systems to Practical Systems*, pages 129–140, 1989.

[50] Mark Boddy and Thomas Dean. Approximation algorithms for planning and control. In *Proceedings of the NASA Conference on Telerobotics*, 1989.

[51] Mark Boddy and Thomas Dean. Solving time-dependent planning problems. In *Proceedings IJCAI-89*, pages 979–984, San Francisco, California, 1989. IJCAI, Morgan Kaufmann Publishers.

[52] Kenneth Basye, Thomas Dean, and Jeffrey Scott Vitter. Coping with uncertainty in map learning. In *Proceedings IJCAI-89*, pages 663–668, San Francisco, California, 1989. IJCAI, Morgan Kaufmann Publishers.

[53] Kenneth Basye and Thomas Dean. Map learning with indistinguishable locations. In *Proceedings of the 5th Conference on Uncertainty in Artificial Intelligence*, pages 7–13. AUAI, 1989.

[54] Kenneth Basye and Thomas Dean. Map learning with indistinguishable locations. In *Proceedings of the NASA Conference on Telerobotics*, 1989.

[55] Akira Hayahsi and Thomas Dean. Locating a mobile robot using local observations and a global satellite map. In *Proceedings of the 3rd IEEE International Symposium on Intelligent Control*, pages 135–140. IEEE, 1988.

[56] Thomas Dean and Keiji Kanazawa. Probabilistic causal reasoning. In *Proceedings of the Canadian Society for Computational Studies of Intelligence*, pages 125–132. CSCSI, 1988.

[57] Thomas Dean and Keiji Kanazawa. Probabilistic temporal reasoning. In *Proceedings AAAI-88*, pages 524–528, Cambridge, Massachusetts, 1988. AAAI, MIT Press.

[58] Thomas Dean and Mark Boddy. An analysis of time-dependent planning. In *Proceedings AAAI-88*, pages 49–54, Cambridge, Massachusetts, 1988. AAAI, MIT Press.

[59] Thomas Dean. On the complexity of integrating spatial measurements. In *Proceedings of the SPIE Conference on Advances in Intelligent Robotic Systems*. SPIE, 1988.

[60] Thomas Dean and Mark Boddy. Incremental causal reasoning. In *Proceedings AAAI-87*, pages 196–201, Cambridge, Massachusetts, 1987. AAAI, MIT Press.

[61] Thomas Dean. High-level planning and low-level control. In *Proceedings of the SPIE Conference on Advances in Intelligent Robotic Systems*, pages 496–501. SPIE, 1987.

[62] Thomas Dean. Benchmarks for research in planning. In *Proceedings of the 2nd Workshop on AI and Simulation*, 1987.

[63] Thomas Dean. Experiments in planning and control. In *Proceedings of the AAAI-87 Workshop on Planning for Autonomous Mobile Robots*, 1987.

[64] Thomas Dean. Large-scale temporal databases for planning in complex domains. In *Proceedings IJCAI-87*, pages 860–866, San Francisco, California, 1987. IJCAI, Morgan Kaufmann Publishers.

[65] Thomas Dean. Planning, execution, and control. In *Proceedings of the DARPA Knowledge-Based Planning Workshop*, pages 29:1–10. DARPA, 1987.

[66] Thomas Dean. Planning paradigms. In *Proceedings of the DARPA Knowledge-Based Planning Workshop (also appeared in the Proceedings of the 3rd Annual Workshop of Israel Association for Artificial Intelligence, and in the AI Magazine, Fall 1988)*. DARPA, 1988.

[67] Thomas Dean. Intractability and time-dependent planning. In Michael P. Georgeff and Amy L. Lansky, editors, *Reasoning About Actions and Plans*, pages 245–266. Morgan Kaufmann Publishers, San Francisco, California, 1986.

[68] Thomas Dean. Decision support for coordinated multi-agent planning. In *Proceedings of the 3rd International ACM Conference on Office Information Systems*, 1986.

[69] Yoav Shoham and Thomas Dean. Temporal notation and causal terminology. In *Proceedings 7th Annual Conference of the Cognitive Science Society*, pages 90–99. Cognitive Science Society, 1985.

[70] David P. Miller, James R. Firby, and Thomas L. Dean. Deadlines, travel time, and robot problem solving. In *Proceedings IJCAI-85*, pages 1052–1054, San Francisco, California, 1985. IJCAI, Morgan Kaufmann Publishers.

[71] R. James Firby, Thomas L. Dean, and David P. Miller. Efficient robot planning with deadlines and travel time. In *Proceedings of the 6th International Symposium on Robotics and Automation*. IASTED, 1985.

[72] Thomas Dean. Temporal reasoning involving counterfactuals and disjunctions. In *Proceedings IJCAI-85*, pages 860–866, San Francisco, California, 1985. IJCAI, Morgan Kaufmann Publishers.

[73] Thomas Dean. Planning and temporal reasoning under uncertainty. In *Proceedings of the IEEE Workshop on Principles of Knowledge-Based Systems*, pages 131–138. IEEE, 1984.

[74] Thomas Dean. Managing time maps. In *Proceedings of the Canadian Society for Computational Studies of Intelligence*. CSCSI, 1984.

Articles in Collections

1. *Intractability and Time-Dependent Planning*, in "Reasoning About Actions and Plans" edited by Amy Lansky and Mike Georgeff (Morgan Kaufmann Publishers), 1987.

2. *Robot Problem Solving*, in "Artificial Intelligence Techniques in Engineering" edited by Hojjat Adeli (McGraw-Hill), 1989.

3. *Reinforcement Learning for Planning and Control* (with Ken Basye and John Shewchuk), "Machine Learning Methods for Planning and Scheduling" edited by Steve Minton (Morgan Kaufmann Publishers), 1992.

4. *Uncertainty in Graph-Based Map Learning* (with Ken Basye and Leslie Kaelbling), "Robot Learning" edited by Jon Connell and Sridhar Mahadevan (Kluwer Academic Publishers), 1993.

5. *AI Scheduling Methods*, a review of "Intelligent Scheduling" by Monte Zweben and Mark Fox, in IEEE Expert **7** (1995).

6. *Planning and Navigation in Stochastic Environments* (with Jean-Luc Marion), "Visual Navigation" edited by Yiannis Aloimonos (Lawrence Erlbaum Publishers), 1996.

7. *Planning and Scheduling* (with Subbarao Kambhampati), "CRC Handbook of Computer Science and Engineering" edited by Allen Tucker and Hal Abelson (CRC Press) 1996.

Research Grants

National Science Foundation. 11/15/05–10/31/08. (with Michael Black and Chad Jenkins) "Statistical Models of the Primate Neocortex: Implementation and Application," $480,000.

Defense Advanced Research Projects Agency. 12/01/05–11/30/06. "Bootstrapping Cognitive Systems with Implicit Semantic Knowledge" (with Mark Boddy of Adventium Labs) $84,153.

Brown Brain Science Research Program. "Implementing A Computational Model of the Cortex," $4,000.

Defense Advanced Research Projects Agency. 6/29/00–9/28/02. (with Thomas Hofmann and Eli Upfal) "Stochastic Models for Web Agents and the Web Environment," $550,000.

Defense Advanced Research Projects Agency. 6/1/99–5/31/00. Supplement to "Time-Critical Planning and Scheduling for Aircraft Maintenance and Deployment," $40,000.

Air Force Office of Scientific Research. 12/1/96–11/3/97. "Model Acquisition for Markov Decision Problems ," $116,600.

Defense Advanced Research Projects Agency. 6/1/95–5/31/98. (with Leslie Kaelbling), "Time-Critical Planning and Scheduling for Aircraft Maintenance and Deployment," $924,461.

National Science Foundation. 6/1/94–5/31/95. (with Ruzena Bajcsy and Jean-Claude Latombe), "National Virtual Laboratories," $50,000.

National Science Foundation. 6/1/94–5/31/97. (with Leslie Kaelbling), "Robot Planning, Learning and Selective Perception in Stochastic Domains," $150,000.

Defense Advanced Research Projects Agency. 6/1/91–5/31/94. "Distributed Planning and Control for Applications in Transportation Scheduling," $912,500.

International Business Machines. 1/1/90–12/31/90. "Studies in Integrated Planning and Control." $75,000.

AT&T Foundation. 9/1/89–8/30/90. "Perception for Planning and Control," $20,000.

National Science Foundation. 8/1/89–12/31/94. "Presidential Investigator Award," $125,000.

NSF-DARPA Initiative, IRIS/CISE. 9/1/89–8/30/92. (with David Cooper and William Wolovich), "Image Understanding for Service Robots," $690,000.

AT&T Foundation. 9/1/88–8/30/89. "A Mobile Sensor Platform for Research in Planning and Control," $25,000.

Defense Advanced Research Projects Agency. 9/1/88–8/30/91. "High-Level Planning and Low-Level Control," $440,000.

Jet Propulsion Laboratory. 9/1/87–8/31/88. "Temporal Inference Systems," $30,000.

National Science Foundation. 3/1/87–2/28/89. "Time-Dependent Planning," $133,758.

International Business Machines. 7/1/86–6/30/88. "Faculty Development Award." $60,000.

Service to the University

[2003–2005] — Deputy Provost.

[2004–2005] — Chair of the University Librarian Search Committee.

[2004–2005] — Chair of the Provost's Science Cohort Program Committee.

[2003–2004] — Chair of the Provost's Committee on Digital Initiatives.

[2000–2002] — Member Faculty Advisory Committee on Computing.

[2000–2001] — Chair of the VP for Computing and Information Services Search Committee.

[1997–2002] — Chair of the Computer Science Department.

[1994–1995] — Member of the Search Committee for the Dean of the College.

[1992–1994] — Member of the Faculty Committee on Educational Legislation.

[1991–1994] — Director Graduate Affairs for Computer Science.

[1988–2006] — Freshman and Sophomore Advising Programs.

Teaching [1995–2005]

[2004-2005]
CS-009-02: Talking With Computers

[2003-2004]
CS-009-02: Talking With Computers

[2001-2002]
CS-148: Building Intelligent Robots

[2000-2001]
CS-243: Topics in Machine Learning
CS-148: Building Intelligent Robots

[1998-1999]
CS-141: Introduction to Artificial Intelligence

[1997-1998]
CS-141: Introduction to Artificial Intelligence
CS-242: Advanced Topics in Artificial Intelligence

[1996-1997]
CS-141: Introduction to Artificial Intelligence
CS-242: Advanced Topics in Artificial Intelligence

[1995-1996]
CS-141: Introduction to Artificial Intelligence
CS-242: Advanced Topics in Artificial Intelligence
CS-148: Building Intelligent Robots

Service to the Profession

[2002–2005] — Member of the Science Final Selection Committee for the 2005 Radcliffe Institute for Advanced Study Fellowship Program.

[2003–2005] — Member of the Academic Alliance for the National Center for Women and Information Technology (NCWIT).

[1999–2003] — Member of the Advisory Committee for the Journal of Artificial Intelligence Research.

[1997–2001] — Member of the IJCAI Board of Trustees.

[1997–1999] — Program Chair for the 1999 International Joint Conference on Artificial Intelligence in Stockholm, Sweden.

[1996–1999] — Associate Editor for Journal of Artificial Intelligence Research.

[1996–1996] — Reviewer for the AFOSR Programs in Mathematical and Computer Sciences Board on Mathematical Sciences of the National Research Council.

[1994–1997] — Member of the CRA Board of Directors.

[1994–1997] — Member of the AAAI Executive Council.

[1994–2005] — Senior Member of IEEE.

[1994–2003] — Program committee for the Conference on Uncertainty in Artificial Intelligence (UAI-94, UAI-95, UAI-01, UAI-02, UAI-03).

[1992–1996] — Organized and ran the first AAAI Robotics Competition in 1992 and helped to organize several of the subsequent competitions.

[1991–1994] — Associate Editor for IEEE Transactions on Pattern Analysis and Machine Intelligence.

[1990–1992] — Program chair for the 1991 National Conference on Artificial Intelligence.

[1990–1996] — Program committee for AAAI Symposia.

[1989–2001] — Program committee for the International Joint Conference Artificial Intelligence (IJCAI-89, IJCAI-95, IJCAI-97, IJCAI-01).

[1989–1993] — Artificial Intelligence Area Editor for ACM Press.

[1989–2005] — Member of the IEEE Computer Society.

[1989–2005] — Member of the American Association for Computing Machinery.

[1988–1995] — Referee for IEEE Transactions on Systems, Man, and Cybernetics, Artificial Intelligence, Journal of Computational Intelligence, Machine Learning, Journal of Artificial Intelligence Research.

[1987–1994] — Program committee for the National Conference on Artificial Intelligence (AAAI-87, AAAI-88, AAAI-90, AAAI-91, AAAI-93, AAAI-94).

[1984–2005] — Member of the American Association for Artificial Intelligence.

Graduate Students

Mark Wachsler	1987	M.Sc.
Curt Levey	1987	M.Sc.
Charles Nofsinger	1987	M.Sc.
Woong On Chang	1988	M.Sc.
Akira Hayashi	1988	M.Sc.
John Arnold	1988	M.Sc.
Steve Bowen	1988	M.Sc.
Linda Nunez-Mensinger	1989	M.Sc.
Margaret Randazza	1990	M.Sc.
Robert Chekaluk	1990	M.Sc.
Seungseok Hyun	1990	M.Sc.
Raymond Kozlowski	1990	M.Sc.
Jin Joo Lee	1991	M.Sc.
Tu-Hsin Tsai	1991	M.Sc.
Timothy Good	1992	M.Sc.
Andreas Kaplan	1993	M.Sc.
Mark Boddy	1991	Ph.D.
Keiji Kanazawa	1992	Ph.D.
Kenneth Basye	1993	Ph.D.
Neal Jacobson	1994	M.Sc.
Jak Kirman	1994	Ph.D.
Kate Sanders	1994	Ph.D.
Theodore Camus	1994	Ph.D.
Lloyd Greenwald	1996	Ph.D.
Shieu-Hong Lin	1997	Ph.D.
Kee-Eung Kim	2001	Ph.D.
Joel Young	2004	Ph.D.
Christopher Lee Chin	2005	M.Sc.