## References

- [1] R. Arkin. Motor schema based navigation for a mobile robot: An approach to programming by behavior. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pages 264–271, 1987.
- [2] Y. Björnsson, M. Enzenberger, R. Holte, J. Schaeffer, and P. Yap. Comparison of different grid abstractions for pathfinding on maps. In *Proceedings* of the International Joint Conference on Artificial Intelligence (IJCAI), pages 1511–1512, 2003.
- [3] A. Botea, M. Müller, and J. Schaeffer. Near optimal hierarchical pathfinding. J. of Game Develop., 1(1):7–28, 2004.
- [4] Marco Dorigo, Eric Bonabeau, and Guy Theraulaz. Ant algorithms and stigmergy. Future Generation Computer Systems, 16(9):851–871, 2000.
- [5] Kurt Dresner and Peter Stone. A multiagent approach to autonomous intersection management. *Journal of Artificial Intelligence Research*, 31:591– 656, March 2008.
- [6] D. Ferguson and A. Stentz. Field D\*: An interpolation-based path planner and replanner. In *Proceedings of the International Symposium on Robotics Research (ISRR)*, 2005.
- [7] D. Furcy and S. Koenig. Speeding up the convergence of real-time search. In Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), pages 891–897, 2000.
- [8] D. Furcy and S. Koenig. Limited discrepancy beam search. In Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), pages 125–131, 2005.
- [9] D. Furcy and S. Koenig. Scaling up WA\* with commitment and diversity [poster abstract]. In Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), pages 1521–1522, 2005.
- [10] P. Hart, N. Nilsson, and B. Raphael. A formal basis for the heuristic determination of minimum cost paths. *IEEE Transactions*, SSC-4:100–107, 1968.
- [11] Renee Jansen and Nathan Sturtevant. A new approach to cooperative pathfinding. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS) (Short paper), 2008.
- [12] L. Kavraki and J.-C. Latombe. Randomized preprocessing of configuration space for fast path planning. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pages 2138–2145, 1994.
- [13] S. Koenig. Agent-centered search. Artificial Intelligence Magazine, 22(4):109–131, 2001.

- [14] S. Koenig. Minimax real-time heuristic search. Artificial Intelligence Journal, 129(1-2):165–197, 2001.
- [15] S. Koenig. Topics for future planning competitions [position paper]. In Proceedings of the ICAPS-03 Workshop on the Competition: Impact, Organization, Evaluation, Benchmarks, 2003.
- [16] S. Koenig. A comparison of fast search methods for real-time situated agents. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), pages 864–871, 2004.
- [17] S. Koenig, D. Furcy, and C. Bauer. Heuristic search-based replanning. In Proceedings of the International Conference on Artificial Intelligence Planning and Scheduling (AIPS), pages 294–301, 2002.
- [18] S. Koenig and M. Likhachev. D\* lite. In Proceedings of the AAAI Conference of Artificial Intelligence (AAAI), pages 476–483, 2002.
- [19] S. Koenig and M. Likhachev. Incremental A\*. In Advances in Neural Information Processing Systems (NIPS), pages 1539–1546, 2002.
- [20] S. Koenig and M. Likhachev. Adaptive A\* [poster abstract]. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), pages 1311–1312, 2005.
- [21] S. Koenig and M. Likhachev. Fast replanning for navigation in unknown terrain. *Transactions on Robotics*, 21(3):354–363, 2005.
- [22] S. Koenig and M. Likhachev. A new principle for incremental heuristic search: Theoretical results [poster abstract]. In *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS)*, pages 402–405, 2006.
- [23] S. Koenig and M. Likhachev. Real-time adaptive A\*. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), pages 281–288, 2006.
- [24] S. Koenig, M. Likhachev, and D. Furcy. Lifelong planning A\*. Artificial Intelligence Journal, 155(1-2):93-146, 2004.
- [25] S. Koenig, M. Likhachev, Y. Liu, and D. Furcy. Incremental heuristic search in artificial intelligence. Artificial Intelligence Magazine, 25(2):99– 112, 2004.
- [26] S. Koenig, M. Likhachev, and X. Sun. Speeding up moving-target search. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2007.
- [27] S. Koenig and R.G. Simmons. Real-time search in non-deterministic domains. In Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), pages 1660–1667, 1995.

- [28] S. Koenig and R.G. Simmons. Solving robot navigation problems with initial pose uncertainty using real-time heuristic search. In *Proceedings of* the International Conference on Artificial Intelligence Planning Systems (AIPS), pages 145–153, 1998.
- [29] S. Koenig, Y. Smirnov, and C. Tovey. Performance bounds for planning in unknown terrain. Artificial Intelligence Journal, 147(1-2):253-279, 2003.
- [30] S. Koenig and B. Szymanski. Value-update rules for real-time search. In Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), pages 718–724, 1999.
- [31] S. Koenig, C. Tovey, and W. Halliburton. Greedy mapping of terrain. In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), pages 3594–3599, 2001.
- [32] R. Korf. Real-time heuristic search. Journal of Artificial Intelligence, 42(2-3):189–211, 1990.
- [33] L. Sucar L. Romero, E. Morales. An exploration and navigation approach for indoor mobile robots considering sensor's perceptual limitations. In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), pages 3092–3097, 2001.
- [34] S. LaValle. Rapidly-exploring random trees: A new tool for path planning. Technical Report TR 98-11, Computer Science Department, Iowa State University, Ames (Iowa), 1998.
- [35] M. Likhachev, G. Gordon, and S. Thrun. ARA\*: Anytime A\* with provable bounds on sub-optimality. In Advances in Neural Information Processing Systems (NIPS), 2004.
- [36] M. Likhachev and S. Koenig. Incremental replanning for mapping. In Proceedings of the IEEE International Conference on Intelligent Robots and Systems (IROS), pages 667–672, 2002.
- [37] M. Likhachev and S. Koenig. Speeding up the parti-game algorithm. In Advances in Neural Information Processing Systems (NIPS), pages 1563– 1570, 2003.
- [38] M. Likhachev and S. Koenig. A generalized framework for lifelong planning A\*. In Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS), pages 99–108, 2005.
- [39] M. Likhachev and S. Koenig. Incremental heuristic search in games: The quest for speed [poster abstract]. In *Proceedings of the Artificial Intelligence* and Interactive Digital Entertainment Conference (AIIDE), pages 118–120, 2006.

- [40] Y. Liu, S. Koenig, and D. Furcy. Speeding up the calculation of heuristics for heuristic search-based planning. In *Proceedings of the AAAI Conference* on Artificial Intelligence (AAAI), pages 484–491, 2002.
- [41] V. Lumelsky and A. Stepanov. Path planning strategies for a point mobile automaton moving amidst unknown obstacles of arbitrary shape. *Algorith*mica, 2:403–430, 1987.
- [42] A. Moore and C. Atkeson. The parti-game algorithm for variable resolution reinforcement learning in multidimensional state-spaces. *Machine Learning*, 21(3):199–233, 1995.
- [43] A. Mudgal, C. Tovey, S. Greenberg, and S. Koenig. Bounds on the travel cost of a mars rover prototype search heuristic. SIAM Journal on Discrete Mathematics, 19(2):431–447, 2005.
- [44] A. Mudgal, C. Tovey, and S. Koenig. Analysis of greedy robot-navigation methods. In Proceedings of the International Symposium on Artificial Intelligence and Mathematics (AMAI), 2004.
- [45] A. Nash, K. Daniel, S. Koenig, and A. Felner. Theta\*: Any-angle path planning on grids. In Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), pages 1177–1183, 2007.
- [46] B. Nebel and J. Koehler. Plan reuse versus plan generation: A theoretical and empirical analysis. *Journal of Artificial Intelligence*, 76(1-2):427–454, 1995.
- [47] J. Pearl. Heuristics: Intelligent Search Strategies for Computer Problem Solving (The Addison-Wesley series in artificial intelligence. Addison-Wesley, 1984.
- [48] I. Pohl. Heuristic search viewed as a path problem. Journal of Artificial Intelligence, 1(3):193–204, 1970.
- [49] G. Ramalingam and T. Reps. An incremental algorithm for a generalization of the shortest-path problem. *Journal of Algorithms*, 21(2):267–305, 1996.
- [50] A. Ranganathan and S. Koenig. A reactive robot architecture with planning on demand. In Proceedings of the IEEE International Conference on Intelligent Robots and Systems (IROS), pages 1462–1468, 2003.
- [51] A. Ranganathan and S. Koenig. Pdrrts: Integrating graph-based and cellbased planning. In Proceedings of the IEEE International Conference on Intelligent Robots and Systems (IROS), pages 2799–2808, 2004.
- [52] Craig Reynolds. Steering behaviors for autonomous characters. Game Developers Conference, 1999.
- [53] Craig W. Reynolds. Flocks, herds, and schools: A distributed behavioral model. *Computer Graphics*, 21(4):25–34, 1987.

- [54] S. Russell and P. Norvig. Artificial Intelligence: A Moderns Approach. Prentice Hall, second edition, 2003.
- [55] David Silver. Cooperative pathfinding. In AIIDE, pages 117–122, 2005.
- [56] A. Stentz. The focussed D\* algorithm for real-time replanning. In Proceedings of the International Joint Conference on Artificial Intelligence (IJ-CAI), pages 1652–1659, 1995.
- [57] A. Stentz and M. Hebert. A complete navigation system for goal acquisition in unknown environments. Autonomous Robots, 2(2):127–145, 1996.
- [58] N. Sturtevant and M. Buro. Partial pathfinding using map abstraction and refinement. In *Proceedings of AAAI*, pages 47–52, 2005.
- [59] Nathan Sturtevant and Michael Buro. Improving collaborative pathfinding using map abstraction. In AIIDE, pages 80–85, 2006.
- [60] Nathan R. Sturtevant. Memory-efficient abstractions for pathfinding. In AIIDE, pages 31–36, 2007.
- [61] X. Sun and S. Koenig. The fringe-saving A\* search algorithm a feasibility study. In Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), pages 2391–2397, 2007.
- [62] X. Sun, S. Koenig, and W. Yeoh. Generalized adaptive A\*. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2008.
- [63] S. Thrun, A. Bücken, W. Burgard, D. Fox, T. Fröhlinghaus, D. Hennig, T. Hofmann, M. Krell, and T. Schmidt. Map learning and high-speed navigation in rhino. In D. Kortenkamp, P. Bonasso, and R. Murphy, editors, *Artificial Intelligence and Mobile Robots: Case Studies of Successful Robot* Systems, pages 21–52. AAAI Press, 1998.
- [64] C. Tovey, S. Greenberg, and S. Koenig. Improved analysis of D\*. In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), pages 3371–3378, 2003.