Michael Katz

Curriculum Vitae

CURRENT APPOINTMENT

Principal Research Scientist, IBM Research T.J. Watson Center, NY, USA

PERSONAL DETAILS

Mailing Address:	11 West Meadow Rd Goldens Bridge, NY 10526, USA
Phone:	+1 914 656 0438
Electronic Mail:	ctpelok@gmail.com
World Wide Web:	https://ctpelok77.github.io/ https://research.ibm.com/people/michael-katz
Google Scholar:	https://scholar.google.com/citations?user=pltkfcMAAAAJ

ACADEMIC DEGREES

Ph.D. 2010, IS, Faculty of Industrial Engineering and Management, Technion, Israel.

B.A. 2002, Math and Computer Science, Faculty of Mathematics, Technion, Israel.

RESEARCH INTERESTS

Intelligent agents, autonomous systems and automated general decision making, efficient decision making with automated planning and reinforcement learning, informed (heuristic) search, efficient planning with language models

TEACHING EXPERIENCE

- *Introduction to Automated Planning*, Haifa University, Spring 2017
- *Heuristic Search Algorithms Seminar*, Saarland University, Winter 2012
- *Automatic Planning*, Saarland University, Winter 2012 (TA)
- *Automated Planning*, Technion (096208), Spring 2008, Spring 2009 (TA)
- *Introduction to Artificial Intelligence*, Technion (096210), Winter 2010 (TA)

PUBLICATIONS

Thesis

- M. Katz, *Implicit Abstraction Heuristics for Cost-Optimal Planning*, PhD Thesis, Faculty of Industrial Engineering and Management, Technion, Israel Institute of Technology, Technion City, Haifa, Israel.
  Winner of the ICAPS Best Dissertation Award 2011.

Journal Papers

1. S. Sohrabi, M. Katz, O. Hassanzadeh, O. Udrea, M. Feblowitz, A. Riabov, *IBM Scenario Planning Advisor: Plan recognition as AI planning in practice*, AI Communications Journal, 2019, Volume 32, pages 1-13.

2. C. Domshlak, J. Hoffmann, M. Katz*, *Red-black planning: a new systematic approach to partial delete relaxation*, Artificial Intelligence Journal (AIJ), 2015, Volume 221, pages 73–114.

3. C. Domshlak, M. Katz*, S. Lefler, *Landmark-Enhanced Abstraction Heuristics*, Artificial Intelligence Journal (AIJ), 2012, Volume 189, pages 48-68.

4. M. Katz, *Implicit Abstraction Heuristics for Cost-Optimal Planning*, AI Communications Journal, 2011, Volume 24, Number 4, pages 343-345.

5. M. Katz, C. Domshlak, *Implicit Abstraction Heuristics*, Journal of Artificial Intelligence Research (JAIR), 2010, Volume 39, pages 51-126.

6. M. Katz, C. Domshlak, *Optimal Admissible Composition of Abstraction Heuristics*, Artificial Intelligence Journal (AIJ), 2010, Volume 174, pages 767-798.

7. M. Katz, C. Domshlak, *New Islands of Tractability of Cost-Optimal Planning*, Journal of Artificial Intelligence Research (JAIR), 2008, Volume 32, pages 203-288.

Conference Papers

1. H. Kokel, M. Katz, K. Srinivas, S. Sohrabi, *ACPBench: Reasoning about Action, Change, and Planning*, The Thirty-Ninth Annual AAAI Conference on Artificial Intelligence (AAAI), 2025, Philadelphia, PA, USA.

2. M. Katz, H. Kokel, K. Srinivas, S. Sohrabi, *Thought of Search: Planning with Language Models Through The Lens of Efficiency*, The Thirty-Eighth Conference on Neural Information Processing Systems (NeurIPS), 2024, Vancouver, Canada.

*Authors are ordered alphabetically

3. M. Katz, J. Lee, J. Kang, S. Sohrabi, *Some Orders Are Important: Partially Preserving Orders in Top-Quality Planning*, The 17th International Symposium on Combinatorial Search (SoCS), 2024, Kananaskis, Canada.

4. M. Katz, J. Lee, S. Sohrabi, *Unifying and Certifying Top-Quality Planning*, The 34th International Conference on Automated Planning and Scheduling (ICAPS), 2024, Banff, Canada.

5. J. Oswald, K. Srinivas, H. Kokel, J. Lee, M. Katz, S. Sohrabi, *Large Language Models as Planning Domain Generators*, The 34th International Conference on Automated Planning and Scheduling (ICAPS), 2024, Banff, Canada.

6. T. Silver, S. Dan, K. Srinivas, J. Tenenbaum, L. Kaelbling, M. Katz, *Generalized Planning in PDDL Domains with Pretrained Large Language Models*, The 38th AAAI Conference on Artificial Intelligence (AAAI), 2024, Vancouver, Canada.

7. T. Caglar, S. Belhaj, T. Chakraborty, M. Katz, S. Sreedharan, *Can LLMs Fix Issues with Reasoning Models? Towards More Likely Models for AI Planning*, The 38th AAAI Conference on Artificial Intelligence (AAAI), 2024, Vancouver, Canada.

8. S. Sreedharan, M. Katz, *Optimistic Exploration in Reinforcement Learning Using Symbolic Model Estimates*, The Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS), 2023, New Orleans, LA, USA.

9. R. Christen, S. Eriksson, M. Katz, C. Muise, A. Petrov, F. Pommerening, J. Seipp, S. Sievers, D. Speck, *PARIS: Planning Algorithms for Reconfiguring Independent Sets*, The 26th European Conference on Artificial Intelligence (ECAI), 2023, Krakow, Poland.

10. H. Kokel, J. Lee, M. Katz, K. Srinivas, S. Sohrabi, *On Reducing Action Labels in Planning Domains*, The 32nd International Joint Conference on Artificial Intelligence (IJCAI), 2023, Macao, SAR.

11. M. Katz, J. Lee, *K* Search Over Orbit Space for Top-k Planning*, The 32nd International Joint Conference on Artificial Intelligence (IJCAI), 2023, Macao, SAR.

12. G. Behnke, D. Speck, M. Katz, S. Sohrabi, *On Partial Satisfaction Planning with Total-Order HTNs*, The 33rd International Conference on Automated Planning and Scheduling (ICAPS), 2023, Prague, Czechia.

13. J. Lee, M. Katz, *On K* Search for Top-K Planning*, The 16th Annual Symposium on Combinatorial Search (SoCS), 2023, Prague, Czechia.

14. M. Katz, J. Lee, *K* and Partial Order Reduction for Top-Quality Planning*, The 16th Annual Symposium on Combinatorial Search (SoCS), 2023, Prague, Czechia.

15. M. Katz, J. Lee, S. Sohrabi, *Generating SAS+ Planning Tasks of Specified Causal Structure*, The 16th Annual Symposium on Combinatorial Search (SoCS), 2023, Prague, Czechia.

16. M. Katz, G. Roeger, M. Helmert, *On Producing Shortest Cost-Optimal Plans*, The Fifteenth Annual Symposium on Combinatorial Search (SoCS), 2022, Vienna, Austria.

17. J. O. de Haro, E. Karpas, M. Katz, M. Toussaint, *A Conflict-driven Interface between Symbolic Planning and Nonlinear Constraint Solving*,in IEEE Robotics and Automation Letters and (IROS), 2022, Kyoto, Japan.

18. J. O. de Haro, E. Karpas, M. Toussaint, M. Katz, *Conflict-Directed Diverse Planning for Logic-Geometric Programming*, The 32nd International Conference on Automated Planning and Scheduling (ICAPS), 2022, Virtual.

19. C. Gehring, M. Asai, R. Chitnis, T. Silver, L. Kaelbling, S. Sohrabi, M. Katz, *Reinforcement Learning for Classical Planning: Viewing Heuristics as Dense Reward Generators*, The 32nd International Conference on Automated Planning and Scheduling (ICAPS), 2022, Virtual.

20. M. Katz, S. Sohrabi, *Who Needs These Operators Anyway: Top Quality Planning with Operator Subset Criteria*, The 32nd International Conference on Automated Planning and Scheduling (ICAPS), 2022, Virtual.

21. M. Katz, S. Sohrabi, O. Udrea, *Bounding Quality in Diverse Planning*, The 36th AAAI Conference on Artificial Intelligence (AAAI), 2022.

22. M. Katz, E. Keyder, *A^* Search and Bound-Sensitive Heuristics for Oversubscription Planning*, The 36th AAAI Conference on Artificial Intelligence (AAAI), 2022.

23. A. Tuisov, M. Katz, *The Fewer the Merrier: Pruning Preferred Operators with Novelty*, The 30th International Joint Conference on Artificial Intelligence (IJCAI), 2021, Montreal, Canada.

24. D. Fiser, D. Gnad, M. Katz, J. Hoffmann, *Custom-Design of FDR Encodings: The Case of Red-Black Planning*, The 30th International Joint Conference on Artificial Intelligence (IJCAI), 2021, Montreal, Canada.

25. C. Allen, M. Katz, T. Klinger, G. Konidaris, M. Riemer, G. Tesauro, *Efficient Black-Box Planning Using Macro-Actions with Focused Effects*, The 30th International Joint Conference on Artificial Intelligence (IJCAI), 2021, Montreal, Canada.

26. D. Speck, M. Katz *Symbolic Search for Oversubscription Planning*, The 35th AAAI Conference on Artificial Intelligence (AAAI), 2021.

27. M. Katz, P. Ram, S. Sohrabi, O. Udrea, *Exploring Context-Free Languages via Planning: The Case for Automating Machine Learning*, The 30th International Conference on Automated Planning and Scheduling (ICAPS), 2020, Virtual.

28. M. Katz, S. Sohrabi, O. Udrea, *Top-Quality Planning: Finding Practically Useful Sets of Best Plans*, The 34th AAAI Conference on Artificial Intelligence (AAAI), 2020, New York, NY, USA.

29. M. Katz, S. Sohrabi, *Reshaping Diverse Planning*, The 34th AAAI Conference on Artificial Intelligence (AAAI), 2020, New York, NY, USA.

30. T. Ma, P. Ferber, S. Huo, J. Chen, M. Katz, *Online Planner Selection with Graph Neural Networks and Adaptive Scheduling*, The 34th AAAI Conference on Artificial Intelligence (AAAI), 2020, New York, NY, USA.

31. M. Vukovic, S. Gerard, R. Hull, M. Katz, L. Shwartz, S. Sohrabi, C. Muise, J. Rofrano, A. Kalia, J. Hwang, D. Yabin, M. Jie, J. Zhuoxuan, *Towards Automated Planning for Enterprise Services: Opportunities and Challenges*, International Conference on Service-Oriented Computing (ICSOC), 2019, Toulouse, France.

32. O. Hassanzadeh, D. Bhattacharjya, M. Feblowitz, K. Srinivas, M. Perrone, S. Sohrabi, M. Katz, *Answering binary causal questions through large-scale text mining: An evaluation using cause-effect pairs from human experts*, 28th International Joint Conference on Artificial Intelligence (IJCAI), 2019, Macao, China.

33. M. Katz, *Red-Black Heuristics for Planning Tasks with Conditional Effects*, The 33rd AAAI Conference on Artificial Intelligence (AAAI), 2019, Honolulu, HI.

34. S. Sievers, M. Katz, S. Sohrabi, H. Samulowitz, P. Ferber, *Deep learning for cost-optimal planning: Task-dependent planner selection*, The 33rd AAAI Conference on Artificial Intelligence (AAAI), 2019, Honolulu, HI, USA.

35. M. Katz, E. Keyder, D. Winterer, F. Pommerening, *Oversubscription Planning as Classical Planning with Multiple Cost Functions*, The 29th International Conference on Automated Planning and Scheduling (ICAPS), 2019, Berkeley, CA, USA.

36. S. Sievers, G. Roeger, M. Wehrle, M. Katz, *Theoretical foundations for structural symmetries of lifted pddl tasks*, The 29th International Conference on Automated Planning and Scheduling (ICAPS), 2019, Berkeley, CA, USA.

37. G. Roeger, S. Sievers, M. Katz, *A Symmetry-based Task Reduction for Relaxed Reachability Analysis*, The 28th International Conference on Automated Planning and Scheduling (ICAPS), 2018, Delft, Netherlands.

38. M. Katz, S. Sohrabi, O. Udrea, D. Winterer, *A Novel Iterative Approach to Top-k Planning*, The 28th International Conference on Automated Planning and Scheduling (ICAPS), 2018, Delft, Netherlands.

39. S. Sohrabi, A. Riabov, M. Katz, O. Udrea, *An AI Planning Solution to Scenario Generation for Enterprise Risk Management*, The 32nd AAAI Conference on Artificial Intelligence (AAAI), 2018, New Orleans, LA, USA.

40. M. Katz, D. Moshkovich, E. Karpas, *Semi-Black Box: Rapid Development of Planning Based Solutions*, The 32nd AAAI Conference on Artificial Intelligence (AAAI), 2018, New Orleans, LA, USA.

41. S. Sievers, M. Wehrle, M. Helmert, M. Katz, *Strengthening Canonical Pattern Databases with Structural Symmetries*, The 10th Annual Symposium on Combinatorial Search (SoCS), 2017, Pittsburgh, PA, USA.

42. D. Winterer, Y. Alkhazraji, M. Katz, M. Wehrle, *Stubborn Sets for Fully Observable Nondeterministic Planning*, The International Conference on Automated Planning and Scheduling (ICAPS), 2017, Pittsburgh, PA, USA.

43. M. Katz, N. Lipovetzky, D. Moshkovich, A. Tuisov, *Adapting Novelty to Classical Planning as Heuristic Search*, The International Conference on Automated Planning and Scheduling (ICAPS), 2017, Pittsburgh, PA, USA.

44. M. Katz, V. Mirkis, *In Search of Tractability for Partial Satisfaction Planning*, 25th International Joint Conference on Artificial Intelligence (IJCAI), 2016, New York, NY, USA.

45. D. Winterer, M. Wehrle, M. Katz, *Structural Symmetries for Fully Observable Nondeterministic Planning*, 25th International Joint Conference on Artificial Intelligence (IJCAI), 2016, New York, NY, USA.

46. A. Shleyfman, M. Katz, M. Helmert, S. Sievers, M. Wehrle, *Heuristics and Symmetries in Classical Planning*, 29th AAAI Conference on Artificial Intelligence (AAAI), 2015, Austin, TX, USA.

47. S. Sievers, M. Wehrle, M. Helmert, A. Shleyfman, M. Katz, *Factored symmetries for merge-and-shrink abstractions*, 29th AAAI Conference on Artificial Intelligence (AAAI), 2015, Austin, TX, USA.

48. S. Sievers, M. Wehrle, M. Helmert, M. Katz, *An Empirical Case Study on Symmetry Handling in Cost-Optimal Planning as Heuristic Search*, 38th German Conference on Artificial Intelligence (KI), 2015, Dresden, Germany.

49. M. Wehrle, M. Helmert, A. Shleyfman, M. Katz, *Integrating Partial Order Reduction and Symmetry Elimination for Cost-Optimal Classical Planning*, 24th International Joint Conference on Artificial Intelligence (IJCAI), 2015, Buenos Aires, Argentina.

50. M. Katz, J. Hoffmann, *Red-Black Relaxed Plan Heuristics Reloaded*, The Sixth Annual Symposium on Combinatorial Search (SoCS), 2013, Leavenworth, WA, USA.

51. M. Katz, J. Hoffmann, C. Domshlak, *Red-Black Relaxed Plan Heuristics*, 27th AAAI Conference on Artificial Intelligence (AAAI), 2013, Bellevue, WA, USA.

52. M. Katz, J. Hoffmann, C. Domshlak, *Who Said we Need to Relax All Variables?*, The International Conference on Automated Planning and Scheduling (ICAPS), 2013, Rome, Italy.

53. C. Domshlak, M. Katz*, A. Shleyfman, *Symmetry Breaking: Satisficing Planning and Landmark Heuristic*, The International Conference on Automated Planning and Scheduling (ICAPS), 2013, Rome, Italy.

54. M. Katz, E. Keyder, *Structural Patterns Beyond Forks: Extending the Complexity Boundaries of Classical Planning*, 26th AAAI Conference on Artificial Intelligence (AAAI), 2012, Toronto, Canada.

55. M. Katz, J. Hoffmann, M. Helmert, *How to Relax a Bisimulation?*, The International Conference on Automated Planning and Scheduling (ICAPS), 2012, Sao Paulo, Brazil.

56. C. Domshlak, M. Katz*, A. Shleyfman, *Enhanced Symmetry Breaking in Cost-Optimal Planning as Forward Search*, The International Conference on Automated Planning and Scheduling (ICAPS), 2012, Sao Paulo, Brazil.

57. E. Karpas, M. Katz*, S. Markovitch, *When Optimal is Just Not Good Enough: Learning Fast Informative Action Cost-Partitioning*, The International Conference on Automated Planning and Scheduling (ICAPS), 2011, Frieburg, Germany.

58. C. Domshlak, M. Katz*, S. Lefler, *When Abstractions Met Landmarks*, The International Conference on Automated Planning and Scheduling (ICAPS), 2010, Toronto, Canada.

59. M. Katz, C. Domshlak, *Structural-Pattern Databases*, The International Conference on Automated Planning and Scheduling (ICAPS), 2009, Thessaloniki, Greece.

60. M. Katz, C. Domshlak, *Structural Patterns Heuristics via Fork Decomposition*, The International Conference on Automated Planning and Scheduling (ICAPS), 2008, Sydney, Australia.

61. M. Katz, C. Domshlak, *Optimal Additive Composition of Abstraction-based Admissible Heuristics*, The International Conference on Automated Planning and Scheduling (ICAPS), 2008, Sydney, Australia.

62. M. Katz, C. Domshlak, *Structural patterns of tractable sequentially-optimal planning*, The International Conference on Automated Planning and Scheduling (ICAPS), 2007, Providence, RI, USA.

Workshop, Preprints, & DC Papers (Non-archival)

1. M. Katz, H. Kokel, C. Muise, S. Sohrabi, S. Sreedharan, *Make Planning Research Rigorous Again!*, Arxiv 2025.

2. H. Kokel, M. Katz, K. Srinivas, S. Sohrabi, *ACPBench: Reasoning about Action, Change, and Planning*, AAAI 2025 Workshop on Planning in the Era of LLMs (LM4Plan), Philadelphia, PA, USA.

3. H. Kokel, M. Katz, K. Srinivas, S. Sohrabi, *ACPBench Hard: Unrestrained Reasoning about Action, Change, and Planning*, AAAI 2025 Workshop on Planning in the Era of LLMs (LM4Plan), Philadelphia, PA, USA.

4. E. Shlomi, G. Azran, E. Shapira, O. Nahum, R.i Reichart, G. Uziel, M. Katz, A. Anaby Tavor, S. Keren, *Transition Function Prediction in AI Planning Using LLMs*, AAAI 2025 Workshop on Planning in the Era of LLMs (LM4Plan), Philadelphia, PA, USA.

5. D. Cao, M. Katz, H. Kokel, K. Srinivas, S. Sohrabi, *Automating Thought of Search: A Journey Towards Soundness and Completeness*, NeurIPS 2024 Workshop on Open-World Agents, Vancouver, Canada.

6. M. Katz, H. Kokel, K. Srinivas, S. Sohrabi, *Planning with Language Models Through The Lens of Efficiency*, NeurIPS 2024 Workshop on System-2 Reasoning at Scale, Vancouver, Canada.

7. B. Rozek, J. Lee, H. Kokel, M. Katz, S. Sohrabi, *Guiding Hierarchical Reinforcement Learning in Partially Observable Environments with AI Planning*, Seventh Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL@ICAPS), 2024, Banff, Canada.

8. J. Vatter, R. Mayer, H.A. Jacobsen, H. Samulowitz, M. Katz, *Choosing a Classical Planner with Graph Neural Networks*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2024, Banff, Canada.

9. M. Katz, J. Lee, J. Kang, S. Sohrabi, *Some Orders Are Important: Partially Preserving Orders in Top-Quality Planning*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2024, Banff, Canada.

10. T. Silver, S. Dan, K. Srinivas, J. Tenenbaum, L. Kaelbling, M. Katz, *Generalized Planning in PDDL Domains with Pretrained Large Language Models*, Sixth Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL@IJCAI2023), 2023, Macao, S.A.R

11. H. Kokel, J. Lee, M. Katz, S. Sohrabi, *Learning Parameterized Policies for Planning Annotated RL*, Sixth Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL@IJCAI2023), 2023, Macao, S.A.R

12. S. Sreedharan, M. Katz, *Optimistic Exploration in Reinforcement Learning Using Symbolic Model Estimates*, Sixth Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL@IJCAI2023), 2023, Macao, S.A.R

13. T. Caglar, S. Belhaj, T. Chakraborti, M. Katz, S. Sreedharan, *Towards More Likely Models for AI Planning*, Sixth Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL@IJCAI2023), 2023, Macao, S.A.R

14. A. Tuisov, M. Katz, *The Fewer the Merrier: Pruning Preferred Operators with Novelty*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2021, Virtual.

15. D. Fiser, D.l Gnad, M. Katz, J. Hoffmann, *Custom-Design of FDR Encodings: The Case of Red-Black Planning*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2021, Virtual.

16. C. Allen, M. Katz, T. Klinger, G. Konidaris, M. Riemer, G. Tesauro, *Efficient Black-Box Planning Using Macro-Actions with Focused Effects*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2021, Virtual.

17. M. Katz, K. Srinivas, S. Sohrabi, M. Feblowitz, O. Udrea and O. Hassanzadeh, *Scenario Planning In The Wild: A Neuro-Symbolic Approach*, ICAPS Workshop on Planning for Financial Services (FinPlan), 2021, Virtual.

18. C. Gehring, M. Asai, R. Chitnis, T. Silver, L. Kaelbling, S. Sohrabi and M. Katz, *Reinforcement Learning for Classical Planning: Viewing Heuristics as Dense Reward Generators*, ICAPS Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL), 2021, Virtual.

19. J. Lee, M. Katz, D. J. Agravante, M. Liu, T. Klinger, M. Campbell, S. Sohrabi and G. Tesauro, *AI Planning Annotation in Reinforcement Learning: Options and Beyond*, ICAPS Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL), 2021, Virtual.

20. M. Feblowitz, O. Hassanzadeh, M. Katz,S. Sohrabi, K. Srinivas, O. Udrea, *IBM Scenario Planning Advisor: A Neuro-Symbolic ERM solution*, AAAI Demo, 2021, Virtual.

21. M. Feblowitz, O. Hassanzadeh, M. Katz,S. Sohrabi, K. Srinivas, O. Udrea, *IBM Scenario Planning Advisor: A Neuro-Symbolic ERM solution*, ICAPS Demo, 2020, Virtual.

22. M. Katz, S. Sohrabi, *Generating Data In Planning: SAS+ Planning Tasks of a Given Causal Structure*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2020, Virtual.

23. M. Katz, S. Sohrabi, O. Udrea, *Bounding Quality in Diverse Planning*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2020, Virtual.

24. P. Ferber, T. Ma, S. Huo, J. Chen, M. Katz, *IPC: A Benchmark Data Set for Learning with Graph-Structured Data*, ICML Workshop on Learning and Reasoning with Graph-Structured Data, 2019, Long Beach, CA, USA.

25. M. Katz, E. Keyder, *A^* Search and Bound-Sensitive Heuristics for Oversubscription Planning*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2019, Berkeley, CA, USA.

26. M. Katz, S. Sohrabi, O. Udrea, *Top-Quality: Finding Practically Useful Sets of Best Plans*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2019, Berkeley, CA, USA.

27. M. Katz, S. Sohrabi, *Reshaping Diverse Planning: Let There Be Light!*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2019, Berkeley, CA, USA.

28. M. Katz, S. Sievers, *Democratizing Usage of Planning Systems by Facilitating Research in Algorithm Selection for Planning*, ICAPS Workshop on The International Planning Competition (WIPC), 2019, Berkeley, CA, USA.

29. M. Katz, S. Sievers, *The Role of IPC in Setting Standards for Experimental Evaluation in Planning Research*, ICAPS Workshop on The International Planning Competition (WIPC), 2019, Berkeley, CA, USA.

30. S. Sohrabi, M. Katz, O. Hassanzadeh, O. Udrea, M. Feblowitz: *IBM Scenario Planning Advisor: Plan Recognition as AI Planning in Practice*, IJCAI Demos, 2018, Stockholm, Sweden.

31. M. Katz, V. Mirkis, F. Pommerening, D. Winterer, *Reformulating Oversubscription Planning Tasks*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2018, Delft, Netherlands.

32. S. Sievers, G. Roeger, M. Wehrle, M. Katz, *Structural Symmetries of the Lifted Representation of Classical Planning Tasks*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2017, Pittsburgh, PA, USA.

33. M. Katz, D. Moshkovich, E. Karpas, *Lifting Delete Relaxation Heuristics To Successor Generator Planning*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2016, London, UK.

34. M. Katz, J. Hoffmann, *Pushing the Limits of Partial Delete Relaxation: Red-Black DAG Heuristics*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2014, Portsmouth, NH, USA.

35. M. Steinmetz, J. Hoffmann, M. Katz, *Catching Label Subsets for Relaxed Bisimulation: An Abstraction Refinement Approach*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2013, Rome, Italy.

36. M. Katz, E. Keyder, *Structural Patterns Beyond Forks: Extending the Complexity Boundaries of Classical Planning*, ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP), 2012, Sao Paulo, Brazil.

37. R. Bahumi, C. Domshlak, M. Katz, *On Satisficing Planning with Admissible Heuristics*, ICAPS Workshop on Heuristics for Domain-independent Planning (HDIP), 2011, Frieburg, Germany.

38. C. Domshlak, M. Katz, S. Lefler, *Abstractions += Landmarks*, ICAPS Workshop on Heuristics for Domain-independent Planning (HDIP), 2009, Thessaloniki, Greece.

39. M. Katz, C. Domshlak, *Structural Patterns Heuristics: Basic Idea and Concrete Instance*, ICAPS Workshop on Heuristics for Domain-independent Planning: Progress, Ideas, Limitations, Challenges (HDIP), 2007, Providence, RI, USA.

40. M. Katz, *Towards Structural-Patterns Admissible Heuristics*, ICAPS Doctoral Consortium, 2007, Providence, RI, USA.

PATENTS

1. Estimating and visualizing collaboration to facilitate automated plan generation (11620486, granted)

2. Methods and systems for diverse instance generation in artificial intelligence planning (11526791 granted)

3. Guided plan recognition (11755923, granted)

4. Iterative generation of top quality plans in automated plan generation for artificial intelligence applications and the like (11727289, granted)

5. Optimizing spatiotemporal computational problems (10635982, granted)

6. Automatic solution to a scheduling problem (10430739, granted)

7. Reusable modeling for solving problems (10169291, granted)

8. PARTIAL ORDER REDUCTION TO INCREASE PLANNER SPEED (20240420020, published)

9. SYMMETRY PRUNING TO INCREASE PLANNER SPEED (20240420038, published)

10. REINFORCEMENT LEARNING USING LIFTED ACTION MODELS (20240370750, published)
11. Identification of Actions in Artificial Intelligence Planning (20240330301, published)
12. GENERATING ARTIFICIAL INTELLIGENCE PLANS OF HIGH DIVERSITY (20230394325, published)
13. Action Space Reduction for Planning Domains (20230342653, published)
14. CREATING SATISFICING PLANNERS WITH DEEP LEARNING (20230206027, published)
15. Method and System for Automating Scenario Planning (20220300852, published)
16. Machine Learning Pipeline Generation (20220188691, published)
17. METHODS AND SYSTEMS FOR IMPROVING HEURISTIC SEARCHES FOR ARTIFICIAL INTELLIGENCE PLANNING (20210216879, published)
18. PROVIDING USEFUL SETS OF TOP-K QUALITY PLANS (20210004741, published)
19. INTELLIGENT CAUSAL KNOWLEDGE EXTRACTION FROM DATA SOURCES (20200401910, published)
20. ARTIFICIAL INTELLIGENCE AUTOMATED PLANNING BASED ON BIOMEDICAL PARAMETERS (20200104782, published)
21. ARTIFICIAL INTELLIGENCE PLANNING INSTANTIATION USING NATURAL LANGUAGE PROCESSING (20200104769, published)
22. GENERATING DIVERSE PLANS (20200074315, published)
23. TIME WINDOW SELECTION FOR VEHICLE ROUTING PROBLEM (20180129985, published)
24. Real-time update of a mobile workforce schedule (20180101809, published)
25. DECOMPOSITION OF MULTISITE HETEROGENEOUS WORKFORCE SCHEDULING PROBLEMS (20170364856, published)
26. Method for assigning time windows for Vehicle Routing problem (20170352009, published)

PUBLIC PROFESSIONAL ACTIVITIES

- Executive Council Board Member at ICAPS International Conference on Automated Planning and Scheduling (6 years term, 2021–2027).
- Competition Liaison, ICAPS Executive Council (2022–current), second term.
- Program Co-Chair at ICAPS'21.
- Tutorial on "AI Planning: Theory and Practice", IJCAI'21, AAAI'22.
- Tutorial on "Finding multiple plans for classical planning problems", ICAPS'24.
- Co-Chair of the Workshop on Planning in the Era of LLMs (LM4Plan) at AAAI'25, ICAPS'25.
- Co-Chair of the Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL) at ICAPS'20,'22,'23, IJCAI'22,'23.
- Co-Chair of the Workshop on Heuristics and Search for Domain-independent Planning (HSDIP) at ICAPS'11,'13,'14,'15,'16,'18,'22.
- Invited Speaker & panelist, AAAI'25 Bridge program PLAN-FM.
- Invited Speaker, Industry session ICAPS'20.
- Publicity Chair and Video Chair at ICAPS'15.
- Lecturer at the ICAPS 2013 Summer School.
- Area Chair: AAAI'24-26, ICAPS'25
- Senior Program Committee: IJCAI'19-'23, AAAI'20,'23, ICAPS'20,'22,'23.
- Program Committee: ICAPS'11-'18,'24, IJCAI'11-'15,'18, AAAI'11,'17-'19, CP4PS'12.
- Reviewer for the AIJ, JAIR, AI Communications journals.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Association for the Advancement of Artificial Intelligence (AAAI), Senior Member

AWARDS AND PRIZES

- ICAPS Influential Paper Award 2023.
- The Independent Set Reconfiguration (ISR) Core Challenge, 2023, 7 gold, 5 silver, 1 bronze medals.

- The Independent Set Reconfiguration (ISR) Core Challenge, 2022, 4 gold, 3 silver, 3 bronze medals.
- ICAPS'22 Best Demo Award runner-up.
- ICAPS'20 Best Demo Award.
- IJCAI'18 Best Demo Award runner-up.
- Winner of the Deterministic Sequential Optimal track 2018, The Ninth International Planning Competition (IPC'18).
- Runner-up of the Deterministic Sequential Satisficing track 2014, The Eighth International Planning Competition (IPC'14).
- Innovative Planner Award 2014, The Eighth International Planning Competition (IPC'14).
- ICAPS Best Dissertation Award 2011.

PROFESSIONAL EXPERIENCE

1. IBM Research T.J. Watson Center, Yorktown Heights, NY, USA
   Principal Research Staff Member: May, 2022 - present.
   Research Staff Member: June, 2017 - May, 2022.
   - Theoretical and applied research in the field of AI Planning

2. Haifa University, Haifa, Israel
   Lecturer: March, 2017 - June, 2017
   - Teaching an introductory level course on Automated Planning

3. IBM Watson Health, Haifa, Israel
   Watson Health Scientist: March, 2016 - June, 2017
   - Automated decision making for Healthcare, focusing on Diabetes

4. IBM Haifa Research Lab, Haifa, Israel
   Research Staff Member: October, 2013 - March, 2016.
   - Automated decision making for mobile analytics
   - Modeling various spatio-temporal planning problems

5. Department of Computer Science, Saarland University, Germany
   Postdoctoral Fellow: May, 2012 - September, 2013. Host: Prof. Jörg Hoffmann.

- Delete relaxation based heuristics for satisficing planning
- Abstraction based heuristics for cost-optimal planning
- Project leading:
  - Development of the "Bisimulator" – abstraction based optimal planner
  - Development of the "Red-Black" – delete relaxation based satisficing planner
  - Development of the "DKS-sat" – symmetry pruning based satisficing planner

6. Institut national de recherche en informatique et en automatique (INRIA), France
   Postdoctoral Fellow: September, 2011 - May, 2012. Host: Prof. Jörg Hoffmann.

   - Abstraction based heuristics for cost-optimal planning
   - Project leading:
     - Development of the "Bisimulator" – abstraction based optimal planner
     - Development of the "DKS-opt" – symmetry pruning based optimal planner

7. Faculty of Industrial Engineering and Management, Technion, Haifa
   Postdoctoral Fellow: September, 2010 - August, 2011. Host: Prof. Avigdor Gal.

   - Solving schema matching and other real life problems with planning
   - Project development:
     - NisB Project: Development of the overall architecture, optimization solutions.

8. Artificial Intelligence Research Group – IE&M, Technion, Haifa
   Researcher: September, 2010 - August, 2011

   - Implicit Abstraction Heuristics
   - Project leading:
     - Development of the "ForkInit" – abstraction based optimal planner
     - Development of the "IForkInit" – abstraction based optimal planner
     - Development of the "LMFork" – abstraction based optimal planner
     - Development of the "ForkUniform" – abstraction based satisficing planner

9. Artificial Intelligence Research Group – IE&M, Technion, Haifa
   PhD candidate: September, 2007 - August, 2010. Advisor: Prof. Carmel Domshlak.

   - Implicit Abstraction Heuristics

- Project leading:
  - Development of the “ForkInit” – abstraction based optimal planner
  - Development of the “IForkInit” – abstraction based optimal planner