

Curriculum Vitæ—Oren Salzman

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PERSONAL DETAILS

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ACADEMIC DEGREES

- 2011 – 2016** **School of Computer Science, Tel-Aviv University, Israel**
Ph.D. in Computer Science.
Dissertation Topic: “Efficient high-quality motion planning in tight settings”.
Advisor: Prof. Dan Halperin.
- 2006 – 2011** **School of Computer Science, Tel-Aviv University, Israel**
M.Sc. in Computer Science, *cum laude*.
Thesis Topic: “Motion Planning via Manifold Samples”.
Advisor: Prof. Dan Halperin.
- 1999 – 2003** **Electrical Engineering Faculty, Technion, Israel**
B.Sc. in Computer Engineering, *cum laude*.

ACADEMIC APPOINTMENTS

- 2019 – present** **Technion—Israel Institute of Technology, Israel**
Assistant Professor
- 2018 – 2019** **Robotics Institute, Carnegie Mellon University, USA**
Research Scientist in the Search-Based Planning Lab and at the National Robotics Engineering Center (NREC).
- 2017 – 2018** **Robotics Institute, Carnegie Mellon University, USA**
Postdoctoral Fellow in the Search-Based Planning Lab.
Lab PI: Prof. Maxim Likhachev .
- 2016 – 2017** **Robotics Institute, Carnegie Mellon University, USA**
Postdoctoral Fellow in the Personal Robotics Lab.
Lab PI: Prof. Siddhartha Srinavassa.

PROFESSIONAL EXPERIENCE (outside academia)

2011–2014 3D MTP—SENIOR PROGRAMMER

- Part-time job in algorithmic R&D for computational-geometry related problems in the field of 3D printing.

2010 RAFAEL ADVANCED DEFENSE SYSTEMS—NETWORK RESEARCHER

- Consultant to the Israeli Defence Force as an analyst for network-based topics (e.g., Quality of Service (QoS) research for service providers; Tactical IP middleware simulation).

2003–2009 IDF—SIGNAL OFFICER IN THE ISRAELI DEFENSE FORCES (IDF)

- Unit & Release rank: Communication Development Center, Captain.
- Technical leader of a communication project with a foreign country on behalf of Israel's Ministry of Defense.
- Technical representative for outsourced projects: Designed, characterized, coordinated and managed technical aspects of network projects (tactical routing and data optimization above IP, cellular, VHF and WLAN networks) and video projects (tactical video streaming).
- Programmer for a network-simulation team.
- Job included corresponding, collaborating and conducting negotiations with both technical and managerial personnel in-house, with the Israeli communications industry as well as with foreign industries, and serving as the direct supervisor of three programmers.

2001 IBM—SOFTWARE DEVELOPER IN HARDWARE VERIFICATION TOOLS TEAM (GPRO)

- Part-time job as programmer.

RESEARCH INTERESTS

Robot motion planning, Path planning, Computational geometry.

I seek to deeply understand and to rigorously address the computational challenges that arise when planning for robots. My research lies at the intersection of Computer Science and Robotics and focuses on understanding and analyzing the unique domain-specific computational challenges in robotic planning and, subsequently developing algorithms to address these challenges to provide the robotics community foundational tools to solve real-world problems.

TEACHING EXPERIENCE

LECTURER

Introduction to Artificial Intelligence (236501)	Technion; undergraduate level; 2021b
Algorithmic Motion Planning (236610)	Technion; graduate level; New course 2019a, 2020a
Robotics Seminar (236824)	Technion; graduate level; 2019b, 2020b, 2021b
Technion Robotics Seminar (TSR)	Technion; graduate level; Co-organizer 2019a, 2020b, 2021b

TEACHING ASSISTANT

Computational Models (0368.2200)	Tel-Aviv University; undergraduate level 2013b, 2014b, 2015b, 2016b
Computational Models (0368.2200)	Tel-Aviv University; undergraduate level 2013b, 2014b, 2015b, 2016b
Software Workshop (0368.3500)	Tel-Aviv University; undergraduate level 2012b, 2013b

DEPARTMENTAL ACTIVITIES

Search Committee 2019a, 2020a

PUBLIC PROFESSIONAL ACTIVITIES

JOURNAL EDITORIAL SERVICES

- 2020-2021 Associate Editor for IEEE Robotics and Automation Letters (RA-L).

WORKSHOP ORGANIZER

- “Mathematical Models, Algorithms, and Human-Robot Interaction”—RSS 2017 Workshop.

COMMITTEES

- Program Committee 2021 International Conference on Automated Planning and Scheduling (ICAPS).
- Program Committee 2020 International Joint Conference on Artificial Intelligence (IJCAI).
- Program Committee 2020 Workshop on the Algorithmic Foundations of Robotics (WAFR).

- Program Committee 2020 International Conference on Automated Planning and Scheduling (ICAPS).
- Program Committee 2020 Florida Artificial Intelligence Research Society (FLAIRS) special track on Autonomous Robots and Agents.
- Program Committee 2019 International Joint Conference on Artificial Intelligence (IJCAI).
- Program Committee 2019 International Conference on Autonomous Agents and Multiagent Systems (AAMAS) special track on Robotics .
- Program Committee 2019 Florida Artificial Intelligence Research Society (FLAIRS) special track on Autonomous Robots and Agents.
- Program Committee 2019 Association for the Advancement of Artificial Intelligence (AAAI).
- Program Committee for IROS 2018 Workshop on Machine Learning in Robot Motion Planning.
- Motion Planning for Manipulation subcommittee—IROS 2017 Workshop on development of benchmarking protocols for robotic manipulation.

GRANT REVIEWER

Israel Science Foundation (ISF); Ministry of Science, Technology and Space (MOST);

JOURNAL REVIEWER

International Journal of Robotics Research (IJRR); IEEE Transactions on Robotics (T-RO); IEEE Robotics and Automation Letters (RA-L); ACM Transactions on Human-Robot Interaction (T-HRI); IEEE Transactions on Automation Science and Engineering (T-ASE); Geoinformatica; Advanced Robotics International Journal of Advanced Robotic Systems (IJARS); IEEE Transactions on Aerospace and Electronic Systems (T-AES); Autonomous Robots (AURO); PLOS ONE; Journal of Robotics; Robotics and Autonomous Systems; Computational Intelligence; SIAM Journal on Computing (SICOMP); IEEE Access; Autonomous Agents and Multi-Agent Systems (AGNT);

CONFERENCE REVIEWER

International Workshop on the Algorithmic Foundations of Robotics (WAFR); Robotics: Science and Systems (RSS); IEEE International Conference on Robotics and Automation (ICRA); IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS); ACM Symposium on Computational Geometry (SoCG); Algorithm Engineering & Experiments (ALENEX); Association for the Advancement of Artificial Intelligence (AAAI); IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM); International Symposium on Experimental Algorithms (SEA); ACM Symposium on Principles of Distributed Computing (PODC); International Conference on Intelligent Transportation Systems (ITSC); International Conference on Information, Communication and Automation Technologies (ICAT); International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

FELLOWSHIPS, HONORS AND AWARDS

- 2019** Best Student Paper Award at the International Conference on Automated Planning and Scheduling (ICAPS) (publication **C28**).
- 2018** Best-paper award at the International Conference on Automated Planning and Scheduling (ICAPS) (publication **C16**).
- 2018** RSS Pioneers.
- 2016** Excellency Grant, Deutsch Foundation.
- 2015** Travel Grant, Ministry of Science, Technology, and Space, Israel.
- 2014** Travel Grant, Ministry of Science, Technology, and Space, Israel.
- 2013** Travel Grant, Ministry of Science, Technology, and Space, Israel.
- 2003** Recipient of Electrical Engineering Dean’s Award for final project titled “Self-trained Neural-Network based Backgammon player”.
- 1999** Recipient of the “Prime Minister’s Prize” for History final-term paper on the Holocaust denial phenomenon.
- 1999** Recipient of the “Ghetto Fighter’s Prize” for History final-term paper on the Holocaust denial phenomenon.

GRADUATE STUDENTS

MSC STUDENTS (ONGOING)

- S1** David Alpert “UAV Inspection Planning in GNSS-Outages Regions”
- S2** Doron Pinsky “Efficient near-optimal motion planning for minimal-time curvature-constrained systems”
- S3** Ofir Gordon “Understanding the hardness of the multi-agent path finding problem”
- S4** Nitzan Madar “Leveraging Experience in Multi-Agent Path Finding”
- S5** David Vainshtein “Multi-Agent Terraforming”
- S6** Nir Greshler “Cooperative Multi-Agent Path Finding”

MSC COMMITTEE MEMBER

- CM1** Roe Francos, Technion, “Topics in Multi-A(ge)nt Teamwork”
- CM2** Tomer Shahar, Ben Gurion University, “Multi-Agent Path Finding Under Time Uncertainty”

PHD COMMITTEE MEMBER

- CM1** Fahad Islam, Carnegie Mellon University, “Provably Constant-time Motion Planning”.
- CM2** Sherdil Niyaz, University of Washington, “Optimizing the Design of Robot Environments via Interleaved Optimization and White-Box Motion-Planning”.

- CM3** Mengyu Fu, University of North Carolina, “Efficient and Asymptotically Optimal Inspection and Motion Planning for Medical Robots”.
- CM4** Eli Boyarski, Ben Gurion University, “Pushing the Limits in Multi-Agent Pathfinding”
- CM5** Michael Bentley, University of Utah, “Safer and Reproducible Motion Planning for Continuum Robots”

RESEARCH GRANTS

- G1** Funding agency: Ministry of Science & Technology (MOST)
Role: **PI**
Research topic: What is the right robot for my problems? Evaluating robot suitability for motion-planning tasks via domain coherence
Total amount: 177,635\$
Salzman’s participation: 599,955 NIS = 177,635\$
Years: Dec. 2020 - Nov. 2023
- G2** Funding agency: Bi-national Science Foundation (BSF) under NSF-BSF Information and Intelligence Systems (IIS)
Role: **PI** (with Prof. Ron Alterovitz)
Research topic: Provably High-Quality Robot Inspection Planning—Theory and Application
Salzman’s participation: 675,000 NIS = 198,005\$
Years: Aug. 2020 - Jul. 2023
- G3** Funding agency: Ministry of Science & Technology (MOST) under Czech-Israeli cooperative scientific research
Role: **PI** (with Prof. Jan Faigl)
Research topic: Towards Optimal Curvature-Constrained Tours in Robotic Applications
Total amount: 339,000\$
Salzman’s participation: 619,275 NIS = 173,362\$
Years: Oct. 2019 - Sep. 2022

PUBLICATIONS AND MANUSCRIPTS

BOOK CHAPTERS

- B1** Dan Halperin, **Oren Salzman** and Micha Sharir, Algorithmic Motion Planning. In Third edition of the “Handbook of Discrete and Computational Geometry” edited by Csaba Toth, Joseph O’Rourke, Jacob E. Goodman.

ENCYCLOPEDIA ENTRIES

- E1** **Oren Salzman**, Roadmaps. In “Motion Planning” section of the Encyclopedia of Robotics, Eds. Marcelo H. Ang Jr., Oussama Khatib, and Bruno Siciliano; Section Ed. Lydia E. Kavraki. Springer Press. to appear, 2020

JOURNAL PAPERS

- J1 Oren Salzman**, Michael Hemmer, Barak Raveh and Dan Halperin, “Motion Planning via Manifold Samples.” In *Algorithmica*, 67(4):547-565, 2013.
- J2 Oren Salzman**, Doron Shaharabani, Pankaj K. Agarwal and Dan Halperin, “Sparsification of Motion-Planning Roadmaps by Edge Contraction.” In *International Journal of Robotics Research (IJRR)*, 33(14):1711-1725, 2014.
- J3 Oren Salzman**, Michael Hemmer and Dan Halperin, “On the Power of Manifold Samples in Exploring Configuration Spaces and the Dimensionality of Narrow Passages.” In *IEEE Transactions on Automation Science and Engineering (T-ASE)*, 12(2):529-538, 2015.
- J4 Oren Salzman**, Kiril Solovey and Dan Halperin, “Motion Planning for Multi-Link Robots by Implicit Configuration-Space Tiling.” In *IEEE Robotics and Automation Letters (RA-L)*, 1(2):760-767, 2016.
- J5 Kiril Solovey, Oren Salzman** and Dan Halperin, “Finding a Needle in an Exponential Haystack: Discrete RRT for Exploration of Implicit Roadmaps in Multi-Robot Motion Planning.” In *International Journal of Robotics Research (IJRR)*, special issue dedicated to selected papers from WAFR, 35(5):501-513, 2016.
- J6 Oren Salzman**, and Dan Halperin, “Asymptotically near-optimal RRT for fast, high-quality, motion planning.” In *IEEE Transactions on Robotics (TR-O)*, 32(3):473-483, 2016.
- J7 Yaki Setty and Oren Salzman** “A Methodological, Task-Based Approach to Procedure-Specific Simulations Training.” In *International Journal of Computer Assisted Radiology and Surgery (CARS)*, 11(12): 2317-2324, 2016.
- J8 Kiril Solovey, Oren Salzman** and Dan Halperin “New perspective on sampling-based motion planning via random geometric graphs.” In *International Journal of Robotics Research (IJRR)*, special issue dedicated to selected papers from RSS, 37(1), 2018.
- J9 Pankaj K. Agarwal, Kyle Fox and Oren Salzman** “An Efficient Algorithm for Computing High-Quality Paths amid Polygonal Obstacles.” In *Transactions on Algorithms (TALG)* 14(4): 46:1-46:21 (2018).
- J10 Aviel Atias, Kiril Solovey, Oren Salzman** and Dan Halperin “Effective Metrics for Multi-Robot Motion-Planning.” In *International Journal of Robotics Research (IJRR)*, 37(11-14):1741-1759, 2018.
- J11 Rachel Holladay, Oren Salzman** and Siddhartha Srinivasa “Minimizing Task Space Frechet Error via Efficient Incremental Graph Search.” In *IEEE Robotics and Automation Letters (RA-L)*, 4(2):1999 - 2006, 2019.
- J12 Oren Salzman** “Algorithms in Sample-Based Robot Motion Planning.” In *Communications of the ACM (CACM)*, 62(10): 54 - 63 (2019).
- J13 Vinitha Ranganeni, Sahit Chintalapudi Oren Salzman**, Maxim Likhachev “Effective Foot-step Planning Using Homotopy-Class Guidance.” In *Artificial Intelligence* 286: 103346 (2020)

- J14** Fahad Islam, Aditya Agarwal, **Oren Salzman**, and Maxim Likhachev “Provably Constant-Time Planning and Re-planning for Real-time Grasping Objects off a Conveyor”. In International Journal of Robotics Research (IJRR), special issue dedicated to selected papers from RSS, to appear.

CONFERENCE PROCEEDINGS

- C1** **Oren Salzman**, Michael Hemmer, Barak Raveh and Dan Halperin, “Motion Planning via Manifold Samples.” In European Symposium on Algorithms (ESA), pages 493-505, 2011. Invited to a special issue of *Algorithmica*.
- C2** **Oren Salzman**, Michael Hemmer and Dan Halperin, “On the Power of Manifold Samples in Exploring Configuration Spaces and the Dimensionality of Narrow Passages.” In Workshop on the Algorithmic Foundations of Robotics (WAFR), pages 313-329, 2012. Invited to a special issue of the IEEE Transactions on Automation Science and Engineering (T-ASE).
- C3** Doron Shaharabani, **Oren Salzman**, Pankaj K. Agarwal and Dan Halperin, “Sparsification of Motion-Planning Roadmaps by Edge Contraction.” In IEEE International Conference on Robotics and Automation (ICRA), pages 4083-4090, 2013.
- C4** Kiril Solovey, **Oren Salzman**, and Dan Halperin, “Finding a Needle in an Exponential Haystack: Discrete RRT for Exploration of Implicit Roadmaps in Multi-Robot Motion Planning.” In Workshop on the Algorithmic Foundations of Robotics (WAFR), pages 591-607, 2014. Invited to a special issue of the International Journal of Robotics Research (IJRR).
- C5** **Oren Salzman**, and Dan Halperin, “Asymptotically near-optimal RRT for fast, high-quality, motion planning.” In IEEE International Conference on Robotics and Automation (ICRA), pages 4680-4685, 2014.
- C6** **Oren Salzman** and Dan Halperin, “Asymptotically-Optimal Motion Planning using Lower Bounds on Cost.” In IEEE International Conference on Robotics and Automation (ICRA), pages 4167-4172, 2015.
- C7** Michal Kleinbort, **Oren Salzman** and Dan Halperin, “Efficient High-Quality Motion Planning by Fast All-Pairs r -Nearest- Neighbors.” In IEEE International Conference on Robotics and Automation (ICRA), pages 2985-2990, 2015.
- C8** **Oren Salzman** and Dan Halperin, “Shortest-path planning for a tethered robot: The multi-query case with optimal-solution paths.” In IEEE International Conference on Robotics and Automation (ICRA), pages 4161-4166, 2015.
- C9** Michal Kleinbort, **Oren Salzman** and Dan Halperin “Collision detection or nearest-neighbor search? On the computational bottleneck in sampling-based motion planning.” In Workshop on the Algorithmic Foundations of Robotics (WAFR), 2016.
- C10** Kiril Solovey, **Oren Salzman** and Dan Halperin “New perspective on sampling-based motion planning via random geometric graphs.” In Robots, Science and Systems (RSS), 2016. Invited to a special issue of the International Journal of Robotics Research (IJRR).
- C11** Pankaj K. Agarwal, Kyle Fox and **Oren Salzman** “An Efficient Algorithm for Computing High-Quality Paths amid Polygonal Obstacles.” In ACM-SIAM Symposium on Discrete Algorithms (SODA), pages 1179-1192, 2016.

- C12** **Oren Salzman**, Brian Hou and Siddhartha Srinavassa, “Efficient motion planning for problems lacking optimal substructure”, In International Conference on Automated Planning and Scheduling (ICAPS), pages 531-539, 2017.
- C13** Shushman Choudhury, **Oren Salzman**, Sanjiban Choudhury and Siddhartha Srinavassa “Densification Strategies for Anytime Motion Planning over Large Dense Roadmaps” In IEEE International Conference on Robotics and Automation (ICRA), pages 3770-3777, 2017.
- C14** Sherdil Niyaz, Alan Kuntz, **Oren Salzman**, Ron Alterovitz, and Siddhartha Srinivasa “Following Surgical Trajectories with Concentric Tube Robots via Nearest-Neighbor Graphs.” In International Symposium on Experimental Robotics (ISER), 2018
- C15** Fahad Islam, **Oren Salzman** and Maxim Likhachev “Online, interactive user guidance for high-dimensional, constrained motion planning.” In International Joint Conference on Artificial Intelligence (IJCAI), pages 4921-4928, 2018.
- C16** Nika Haghtalab, Simon Mackenzie, Ariel Procaccia, **Oren Salzman** and Siddhartha Srinivasa “The Provable Virtue of Laziness in Motion Planning.” In International Conference on Automated Planning and Scheduling (ICAPS), pages 106-113, 2018. **Best paper award.**
- C17** Vinitha Ranganeni, **Oren Salzman** and Maxim Likhachev “Focusing footstep planning for humanoids using homotopy-class guidance.” In International Conference on Automated Planning and Scheduling (ICAPS), pages 500-508, 2018.
- C18** Aditiya Mandalika, **Oren Salzman** and Siddhartha Srinivasa “Efficient shortest-path algorithm for graphs with expensive edge evaluation via lazy lookahead.” In International Conference on Automated Planning and Scheduling (ICAPS), pages 476-484, 2018.
- C19** Daqing Yi, Rohan Thakker, Cole Gulino, **Oren Salzman** and Siddhartha Srinivasa “Sampling-based Kinodynamic Planning via Markov Chain Monte Carlo”. In IEEE International Conference on Robotics and Automation (ICRA), pages 7063-7070, 2018.
- C20** Sherdil Niyaz, Alan Kuntz, **Oren Salzman**, Ron Alterovitz, and Siddhartha Srinivasa “Optimizing Motion-Planning Problem Setup via Bounded Evaluation with Application to Following Surgical Trajectories” In IEEE/RSJ International Conference on Intelligent Robots and Systemss (IROS), 2019.
- C21** Wei Du, Sung-Kyun Kim, **Oren Salzman**, and Maxim Likhachev “Efficient Search-Based Kinodynamic Planning using Soft Duplicate Detection” In IEEE/RSJ International Conference on Intelligent Robots and Systemss (IROS), 2019.
- C22** Tushar Kusnur, Shohin Mukherjee, Dhruv Saxena, Tomoya Fukami, Takayuki Koyama, **Oren Salzman**, and Maxim Likhachev “A Planning Framework for Persistent, Multi-UAV Coverage with Global Deconfliction” In Conference on Field and Service Robotics (FSR), 2019.
- C23** Nika Haghtalab, Simon Mackenzie, Ariel Procaccia, **Oren Salzman** and Siddhartha Srinivasa “The Provable Virtue of Laziness in Motion Planning [Extended Abstract].” In International Joint Conference on Artificial Intelligence (IJCAI), pages 6161-6165, 2019. Invited to IJCAI Sister Conference Best Paper Track.
- C24** Mengyu Fu, Alan Kuntz, **Oren Salzman**, and Ron Alterovitz “Towards Asymptotically-Optimal Inspection Planning via Efficient Near-optimal Graph Search”. In Robots, Science

and Systems (RSS), 2019. Invited to a special issue of the International Journal of Robotics Research (IJRR).

- C25** Kalyan Vasudev, **Oren Salzman**, and Maxim Likhachev “Intuitive, reliable plans with contingencies: Planning with Safety Nets for Landmark-Based Routing.” In Symposium on Combinatorial Search (SoCS) pages 2-9, 2019.
- C26** Fahad Islam, **Oren Salzman**, and Maxim Likhachev “Provable Infinite-Horizon Real-Time Planning for Repetitive Tasks” In International Conference on Automated Planning and Scheduling (ICAPS), pages 716-724, 2019.
- C27** Sung-Kyun Kim, **Oren Salzman**, and Maxim Likhachev “POMHDP: Search-based Belief Space Planning using Multiple Heuristics” In International Conference on Automated Planning and Scheduling (ICAPS), pages 734-744, 2019.
- C28** Aditya Mandalika, Sanjiban Choudhury, **Oren Salzman**, and Siddhartha Srinivasa “Generalized Lazy Search for Robot Motion Planning: Interleaving Search and Edge Evaluations via Event-based Toggles” In International Conference on Automated Planning and Scheduling (ICAPS), pages 745-753, 2019. **Best Student Paper Award.**
- C29** Fahad Islam, Aditya Agarwal, **Oren Salzman**, and Maxim Likhachev “Provably Constant-Time Planning and Re-planning for Real-time Grasping Objects off a Conveyor” In Robots, Science and Systems (RSS), 2020. Invited to a special issue of the International Journal of Robotics Research (IJRR).
- C30** Fahad Islam, Anirudh Vemula, Sung-Kyun Kim, Andrew Dornbush, **Oren Salzman** and Maxim Likhachev “Planning, learning and reasoning for robot truck unloading—a system’s case study” In IEEE International Conference on Robotics and Automation (ICRA), 2020.
- C31** **Oren Salzman** and Roni Stern “Research challenges and opportunities in Multi-Agent Path Finding and Multi-Agent Pickup and Delivery Problems” In Blue Sky track of the International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), 2020.
- C32** Mengyu Fu, **Oren Salzman** and Ron Alterovitz “Computationally-Efficient Roadmap-based Inspection Planning via Incremental Lazy Search” In IEEE International Conference on Robotics and Automation (ICRA) 2021 (to appear).
- C33** **Oren Salzman** and Boris Goldin “Approximate bi-criteria search by efficient representation of subsets of the Pareto-optimal frontier” In International Conference on Automated Planning and Scheduling (ICAPS), 2021 (to appear).
- C34** Ofir Gordon, Yuval Filmus and **Oren Salzman** “Revisiting the Complexity Analysis of Conflict-Based Search: New Computational Techniques and Improved Bounds” In Symposium on Combinatorial Search (SoCS) 2021 (to appear).
- C35** Mengyu Fu, **Oren Salzman** and Ron Alterovitz “Toward Certifiable Motion Planning for Medical Steerable Needles” In Robots, Science and Systems (RSS), 2021 (to appear).

JOURNAL PAPERS (UNDER REVIEW)

- J15** Aditya Mandalika, Sanjiban Choudhury, **Oren Salzman**, and Siddhartha Srinivasa “Generalized Lazy Search for Robot Motion Planning.”

- J16** Mengyu Fu, Alan Kuntz, **Oren Salzman**, and Ron Alterovitz “Towards Asymptotically-Optimal Inspection Planning via Efficient Near-optimal Graph Search”.
- J17** Carlos Hernández, William Yeoh, Jorge A. Baier, Han Zhang, Luis Suazo, Sven Koenig and **Oren Salzman** “Simple and Efficient Bi-Objective Search Algorithms via Fast Dominance Checks”

CONFERENCE PAPERS (UNDER REVIEW)

- C36** Michael Bentley, Chakravarthy Reddy, Caleb Rucker, **Oren Salzman**, and Alan Kuntz “A Novel Shaft-to-Tissue Force Model for Safer Motion Planning of Steerable Needles”
- C37** Jaemin Lim, **Oren Salzman** and Panagiotis Tsiotras “Class-Ordered LPA*: An Incremental-Search Algorithm for Weighted Colored Graphs”
- C38** Nir Greshler, Ofir Gordon, **Oren Salzman** and Nahum Shimkin “Cooperative Multi-Agent Path Finding: Beyond Path Planning and Collision Avoidance”

DISSERTATIONS

- D1 Oren Salzman**,
 “Efficient high-quality motion planning in tight settings.”
PhD dissertation, Tel Aviv University, July 2016, Advisor: Prof. Dan Halperin.
- D2 Oren Salzman**,
 “Motion Planning via Manifold Samples.”
Master’s thesis, Tel Aviv University, September 2011, Advisor: Prof. Dan Halperin.

TALKS AND PRESENTATIONS

INVITED TALKS

- T1** “Algorithmic motion planning meets minimally-invasive robotic surgery” The Robotics Colloquium, University of Washington, May 2021 (virtual due to COVID-19).
- T2** “Asymptotically-Optimal Inspection Planning via Efficient Near-Optimal Graph Search with Applications to Bi-criteria Optimization” Learning and Intelligent Systems Group, Max Planck Institute for Intelligent Systems (MPI-IS), September 2020 (virtual due to COVID-19).
- T3** “Toward Asymptotically-Optimal Inspection Planning via Efficient Near-Optimal Graph Search.” ABC Robotics Seminar, Ben Gurion University of the Negev, January 2020.
- T4** “Toward Asymptotically-Optimal Inspection Planning via Efficient Near-Optimal Graph Search.” Rafael Advanced Defense Systems, Carmiel, Israel December 2019.
- T5** “Planning, learning and reasoning for robot truck unloading in warehouse environments.” Amazon Robotics, Boston Massachusetts, May 2019.

- T6** “Toward Asymptotically-Optimal Inspection Planning via Efficient Near-Optimal Graph Search.” Search-based planning laboratory, Carnegie Mellon University, March 2019.
- T7** “Following Task-Space Paths for Robots—Computational Geometry Meets Surgical Robots.” GRAND seminar, George Mason University, October 2018.
- T8** “Computational Challenges and Algorithms in Planning for Robotic Systems.” National Robotics Engineering Center (NREC), May 2018.
- T9** “Computational Challenges and Algorithms in Planning for Robotic Systems.” Interactive Robotics Laboratory (IRL), West Virginia University May 2018.
- T10** “The Provable Virtue of Laziness in Motion Planning.” The Kavraki Lab, Rice University, December 2017.
- T11** “The Provable Virtue of Laziness in Motion Planning.” The Robotics Colloquium, University of Washington, November 2017.
- T12** “The Provable Virtue of Laziness in Motion Planning.” Stanford Laboratory for Autonomous Systems Laboratory, Stanford University, November 2017.
- T13** “The Provable Virtue of Laziness in Motion Planning.” Design of Robotics and Embedded systems, Analysis, and Modeling” Seminars (DREAMS), Berkeley University, November 2017.
- T14** “New perspective on sampling-based motion planning via random geometric graphs.” OR seminar, IE&M faculty, Technion—Israel Institute of Technology, March 2016.
- T15** “Decomposable Configuration Spaces for Faster Online Motion Planning.” Berkeley Laboratory for Automation Science and Engineering, Berkeley University, August 2015.
- T16** “Asymptotically near-optimal RRT for fast, high-quality, motion planning.” Apple, Cupertino, August 2015.
- T17** “Decomposable Configuration Spaces for Faster Online Motion Planning.” Center for foundations of Robotics, Carnegie Mellon University, August 2015.
- T18** “Asymptotically near-optimal RRT for fast, high-quality, motion planning.” Biomedical Robotics Lab, Ben Gurion University of the Negev, July 2015.
- T19** “Efficient Representation and Exploration of High-Dimensional Configuration Spaces.” IBM, Haifa Research Labs, October 2014.
- T20** “Optimality vs. Near-Optimality in Sampling-Based Motion-Planning Algorithms.” Personal Robotics Lab, Carnegie Mellon University, August 2014.
- T21** “Optimality vs. Near-Optimality in Sampling-Based Motion-Planning Algorithms.” Computational Robotics Research Group Seminar, University of North Carolina at Chapel Hill, August 2014.
- T22** “Motion Planning via Manifold Samples.” Theoretical Computer Science Research Group, Freie Universität Berlin, September 2011.

PRESENTATIONS AT SCIENTIFIC MEETINGS

- P1** “Research Challenges and Opportunities in Multi-Agent Path Finding and Multi-Agent Pickup and Delivery Problems.” 4th International Workshop on Multi-agent Path Finding (WoM-APF20), 2020.
- P2** “Approximate bi-criteria search by efficient representation of subsets of the Pareto-optimal frontier.” Heuristics and Search for Domain-independent Planning (HSDIP), 2020.
- P3** “Minimizing the Fréchet Error of Task-Space Paths for Manipulators and Surgical Robots.” RSS Pioneers, 2018.
- P4** “Open problem on risk aware motion planning in the plane.” International Workshop on the Algorithmic Foundations of Robotics (WAFR), 2016.
- P5** “Asymptotically near-optimal RRT for fast, high-quality, motion planning.” Israeli Conference on Robotics (ICR), 2016.
- P6** “Lazy, Goal-Biased LBT-RRT.” Workshop on Optimal Robot Motion Planning—workshop at the International Conference on Robotics and Automation (ICRA) 2015.
- P7** “Sparsification of Motion-Planning Roadmaps by Edge Contraction.” Israeli Conference on Robotics (ICR) 2013.
- P8** “Sparsification of Motion-Planning Roadmaps by Edge Contraction.” Computational Geometry Learning workshop 2013.
- P9** “Motion Planning via Manifold Samples.” Young Researches Forum—workshop at the Symposium on Computational Geometry (SoCG) 2012.

SOFTWARE

- 2015** Developer of an open source nearest-neighbor library based on randomly shifted grids. For more details see <http://acg.cs.tau.ac.il/projects/rtg/RTG>
- 2013** Contributor to the Open Motion Planning Library (OMPL) open source project. Developed and contributed the LBT-RRT algorithm for efficient near-optimal motion planning. For more details see http://ompl.kavrakilab.org/classompl_1_1geometric_1_1LBTRRT.html#gLBTRRT
- 2011 - 2013** Developer in the Computational Geometry Algorithms Library (CGAL) open source project. Developed part of the CGAL `Arrangement_2` package that allows for efficient manipulation of curves represented by rational functions. For more details see http://www.cgal.org/Manual/latest/doc_html/cgal_manual/Arrangement_on_surface_2_ref/Chapter_intro.html