

References

- [1] R. Dubé, A. Gawel, C. Cadena, R. Siegwart, L. Freda, and M. Gianni, “3d localization, mapping and path planning for search and rescue operations,” in *2016 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, 2016, pp. 272–273.
- [2] E. Ackerman, “Team costar trains robots for exploring caves on earth and space,” Jun 2021. [Online]. Available: <https://spectrum.ieee.org/team-costar-robots-earth-space>
- [3] H. Pozniak, “Finders, keepers: Search and rescue robots evolve,” Jan 2020. [Online]. Available: <https://eandt.theiet.org/content/articles/2020/01/finders-keepers-search-and-rescue-robots-evolve/>
- [4] A. Chilian and H. Hirschmüller, “Stereo camera based navigation of mobile robots on rough terrain,” *2009 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 4571–4576, 2009.
- [5] R. L. Klaser, F. S. Osório, and D. F. Wolf, “Vision-based autonomous navigation with a probabilistic occupancy map on unstructured scenarios,” *2014 Joint Conference on Robotics: SBR-LARS Robotics Symposium and Robot-control*, pp. 146–150, 2014.
- [6] F. Bourgault, A. Makarenko, S. B. Williams, B. Grocholsky, and H. Durrant-Whyte, “Information based adaptive robotic exploration,” *IEEE/RSJ International Conference on Intelligent Robots and Systems*, vol. 1, pp. 540–545, 2002.
- [7] R. Biswas, B. Limketkai, S. Sanner, and S. Thrun, “Towards object mapping in non-stationary environments with mobile robots,” *IEEE/RSJ Interna-*

- tional Conference on Intelligent Robots and Systems*, vol. 1, pp. 1014–1019, 2002.
- [8] X. Han, Y. Leng, H. Luo, and W. Zhou, “A novel navigation scheme in dynamic environment using layered costmap,” *2017 29th Chinese Control And Decision Conference (CCDC)*, pp. 7123–7128, 2017.
- [9] K. Ratnayake, “Motion planner to explore unknown rough terrain,” 2019, unpublished Bachelor’s Thesis.
- [10] A. Elfes, “Using occupancy grids for mobile robot perception and navigation,” *Computer*, vol. 22, pp. 46–57, 1989.
- [11] A. Hornung, K. M. Wurm, M. Bennewitz, C. Stachniss, and W. Burgard, “Octomap: an efficient probabilistic 3d mapping framework based on octrees,” *Autonomous Robots*, vol. 34, pp. 189–206, 2013.
- [12] O. Khatib, “Real-time obstacle avoidance for manipulators and mobile robots,” *Proceedings. 1985 IEEE International Conference on Robotics and Automation*, vol. 2, pp. 500–505, 1985.
- [13] D. Maier, A. Hornung, and M. Bennewitz, “Real-time navigation in 3d environments based on depth camera data,” *2012 12th IEEE-RAS International Conference on Humanoid Robots (Humanoids 2012)*, pp. 692–697, 2012.
- [14] A. Hornung, M. Phillips, E. G. Jones, M. Bennewitz, M. Likhachev, and S. Chitta, “Navigation in three-dimensional cluttered environments for mobile manipulation,” *2012 IEEE International Conference on Robotics and Automation*, pp. 423–429, 2012.
- [15] C. Wang, L. Meng, S. She, I. M. Mitchell, T. Li, F. Tung, W. Wan, M. Meng, and C. D. Silva, “Autonomous mobile robot navigation in uneven and unstructured indoor environments,” *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 109–116, 2017.

- [16] K. Schmid, T. Tomic, F. Ruess, H. Hirschmüller, and M. Suppa, “Stereo vision based indoor/outdoor navigation for flying robots,” *2013 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 3955–3962, 2013.
- [17] K. Konolige, M. Agrawal, R. C. Bolles, C. Cowan, M. Fischler, and B. Gerkey, “Outdoor mapping and navigation using stereo vision,” in *Springer Tracts in Advanced Robotics*. Springer Berlin Heidelberg, 2008, vol. 39, pp. 179–190.
- [18] J. J. Lopez-Perez, U. H. Hernandez-Belmonte, J. Ramirez-Paredes, M. A. Contreras-Cruz, and V. Ayala-Ramírez, “Distributed multirobot exploration based on scene partitioning and frontier selection,” *Mathematical Problems in Engineering*, vol. 2018, pp. 1–17, 2018.
- [19] U. Jain, R. Tiwari, S. Majumdar, and S. Sharma, “Multi robot area exploration using circle partitioning method,” *Procedia Engineering*, vol. 41, p. 383–387, 12 2012.
- [20] C. Nieto-Granda, I. John G. Rogers, and H. I. Christensen, “Coordination strategies for multi-robot exploration and mapping,” *The International Journal of Robotics Research*, vol. 33, no. 4, pp. 519–533, 2014. [Online]. Available: <https://doi.org/10.1177/0278364913515309>
- [21] W. Burgard, M. Moors, C. Stachniss, and F. Schneider, “Coordinated multi-robot exploration,” *IEEE Transactions on Robotics*, vol. 21, no. 3, pp. 376–386, 2005.
- [22] B. Yamauchi, “A frontier-based approach for autonomous exploration,” *Proceedings 1997 IEEE International Symposium on Computational Intelligence in Robotics and Automation CIRA’97. ‘Towards New Computational Principles for Robotics and Automation’*, pp. 146–151, 1997.

- [23] V. R. Jisha and D. Ghose, “Goal seeking for robots in unknown environments,” *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 4692–4697, 2010.
- [24] M. Keidar, E. Sadeh-Or, and G. Kaminka, “Fast frontier detection for robot exploration,” *The International Journal of Robotics Research*, vol. 33, pp. 281–294, 05 2011.
- [25] P. VaisakhV, “Quick goal seeking algorithm for frontier based robotic navigation,” *International Journal of Computer Applications*, vol. 100, pp. 1–7, 2014.
- [26] M. S. Ramanagopal, A. P.-V. Nguyen, and J. L. Ny, “A motion planning strategy for the active vision-based mapping of ground-level structures,” *IEEE Transactions on Automation Science and Engineering*, vol. 15, pp. 356–368, 2018.
- [27] J. Horner, “Map-merging for multi-robot system,” Bachelor’s thesis, Charles University in Prague, Faculty of Mathematics and Physics, Prague, 2016. [Online]. Available: <https://is.cuni.cz/webapps/zzp/detail/174125/>
- [28] B. Yamauchi, “Frontier-based exploration using multiple robots,” in *Proceedings of the Second International Conference on Autonomous Agents*, ser. AGENTS ’98. New York, NY, USA: Association for Computing Machinery, 1998, p. 47–53. [Online]. Available: <https://doi.org/10.1145/280765.280773>
- [29] F. Benavides, C. Ponzoni Carvalho Chanel, P. Monzón, and E. Grampín, “An auto-adaptive multi-objective strategy for multi-robot exploration of constrained-communication environments,” *Applied Sciences*, vol. 9, no. 3, 2019. [Online]. Available: <https://www.mdpi.com/2076-3417/9/3/573>
- [30] G. Amorín, F. Benavides, and E. Grmapin, “A novel stop criterion to support efficient multi-robot mapping,” in *2019 Latin American Robotics Symposium (LARS), 2019 Brazilian Symposium on Robotics (SBR) and 2019 Workshop on Robotics in Education (WRE)*, 2019, pp. 369–374.

- [31] S. Kohlbrecher, O. von Stryk, J. Meyer, and U. Klingauf, “A flexible and scalable slam system with full 3d motion estimation,” in *2011 IEEE International Symposium on Safety, Security, and Rescue Robotics*. IEEE, November 2011, pp. 155–160.
- [32] R. Mur-Artal, J. M. M. Montiel, and J. D. Tardós, “Orb-slam: A versatile and accurate monocular slam system,” *IEEE Transactions on Robotics*, vol. 31, no. 5, pp. 1147–1163, 2015.
- [33] R. Mur-Artal and J. D. Tardós, “ORB-SLAM2: an open-source SLAM system for monocular, stereo and RGB-D cameras,” *IEEE Transactions on Robotics*, vol. 33, no. 5, pp. 1255–1262, 2017.
- [34] R. Elvira, J. D. Tardos, and J. Montiel, “Orbslam-atlas: a robust and accurate multi-map system,” *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Nov 2019. [Online]. Available: <http://dx.doi.org/10.1109/IROS40897.2019.8967572>
- [35] C. Campos, R. Elvira, J. J. G. Rodríguez, J. M. M. Montiel, and J. D. Tardós, “ORB-SLAM3: an accurate open-source library for visual, visual-inertial and multi-map SLAM,” *CoRR*, vol. abs/2007.11898, 2020. [Online]. Available: <https://arxiv.org/abs/2007.11898>
- [36] M. Labbé and F. Michaud, “Long-term online multi-session graph-based splam with memory management,” *Autonomous Robots*, vol. 42, no. 6, pp. 1133–1150, 2017.
- [37] P. Schmuck and M. Chli, “Ccm-slam: Robust and efficient centralized collaborative monocular simultaneous localization and mapping for robotic teams,” *Journal of Field Robotics*, vol. 36, no. 4, pp. 763–781, 2019. [Online]. Available: <https://onlinelibrary.wiley.com/doi/abs/10.1002/rob.21854>
- [38] L. Riazuelo, J. Civera, and J. M. M. Montiel, “C2tam: A cloud framework for cooperative tracking and mapping,” *Robotics Auton. Syst.*, vol. 62, pp. 401–413, 2014.

- [39] S. S. Ali, A. Hammad, and A. S. T. Eldien, “Cloud-based map alignment strategies for multi-robot fastslam 2.0,” *International Journal of Distributed Sensor Networks*, vol. 15, no. 3, 2019.
- [40] A. Cunningham, M. Paluri, and F. Dellaert, “Ddf-sam: Fully distributed slam using constrained factor graphs,” in *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2010, pp. 3025–3030.
- [41] H. A. Daoud, A. Q. M. Sabri, C. Loo, and A. M. Mansoor, “Slamm: Visual monocular slam with continuous mapping using multiple maps,” *PLoS ONE*, vol. 13, 2018.
- [42] D. Calisi and D. Nardi, “Performance evaluation of pure-motion tasks for mobile robots with respect to world models,” *Autonomous Robots*, vol. 27, pp. 465–481, 2009.
- [43] N. Botteghi, B. Sirmaçek, M. Poel, and C. Brune, “Reinforcement learning helps slam: Learning to build maps,” *ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. 43, pp. 329–336, 2020.
- [44] R. Daher, “Map to map: From slam to cad maps and back using generative models map to map: From slam to cad maps and back using generative models,” Ph.D. dissertation, 12 2020.
- [45] M. Kegeleirs, D. Garzón Ramos, and M. Birattari, “Random walk exploration for swarm mapping,” in *Towards Autonomous Robotic Systems*, K. Althofer, J. Konstantinova, and K. Zhang, Eds. Cham: Springer International Publishing, 2019, pp. 211–222.
- [46] M. H. Shayesteh and M. M. Raeisi, “Technical issues of mrl team for 2021 robocup rescue simulation virtual robot competition.”
- [47] J.-H. Kim, X. Lin, N. Kanyok, A. Shaker, P. Poudel, I. Cardenas, N. K. C. Cabrera, H. Jeong, Gokarna, and P. Sharma, “Robocup rescue 2019 tdp virtual robot simulation atr (us),” 2019.