

Ankit Ravankar

Academic Curriculum Vitae

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📄 [ravankit.github.io](https://github.com/ravankit)

Smart Robots Design Lab

Education

- Oct. 2012–Sept. 2015 **Ph.D. Engineering**, *Hokkaido University*, Japan, Human Mechanical Systems and Design Engineering with specialization in Robotics and Artificial Intelligence.
(*High Honors*)
Thesis Title: Probabilistic Approaches and Algorithms for Indoor Robot Mapping in Structured Environments
Supervisor: Prof. Yukinori Kobayashi
- Oct. 2010–Sept. 2012 **Master of Engineering**, *Hokkaido University*, Japan, GPA – 3.9/4
(Top Ranked in graduating class).
Human Mechanical Systems and Design Engineering
- Apr. 2005–Mar. 2009 **Bachelors of Engineering**, *University of Pune*, India, *First Class*.
Production Engineering

Additional Certifications & Diplomas

- 2013–2014 **Diploma in Sustainability Science**, *Special Coordinated Training Program for Sustainability Leaders (StraSS)*, *Center for Sustainability Science*, *Hokkaido University*, Japan.
Environmental Leaders Training Certificate

Professional Experience

- Apr. 2026–present **Associate Professor**, Faculty of Engineering, Department of Robotics, Smart Robots Design Lab, Tohoku University, Sendai, Japan.
- Jul. 2022–Mar. 2026 **Specially Appointed Associate Professor**, Faculty of Engineering, Department of Robotics, Tohoku University, Sendai, Japan.
- Jun. 2021–Jun. 2022 **Specially Appointed Lecturer**, Faculty of Engineering, Department of Robotics, Tohoku University, Sendai, Japan.
- Apr. 2021–May 2021 **Research Associate**, Faculty of Engineering, Department of Robotics, Tohoku University, Sendai, Japan.
- Apr. 2016–Mar. 2021 **Assistant Professor**, Research Faculty of Engineering Division of Human Mechanical Systems and Design, Hokkaido University, Sapporo, Japan.
- Oct. 2015–Mar. 2016 **Assistant Professor**, Institute for the Advancement of Higher Education, Hokkaido University, Sapporo, Japan.
- Dec. 2014–Apr. 2015 **Project Assistant**, Open Education Center, Hokkaido University, Sapporo, Japan.
- Jul. 2010–Sept. 2010 **Network Administrator**, Dewas Public Higher Secondary School, Dewas, India.
- Jun. 2009–Jul. 2010 **Production Engineer**, Vaibhav Industries, Sangli, India.

Research Areas

Autonomous Mobile Robots
Mobile robots and multi-robot systems
Artificial Intelligence
Intelligent Control
Healthcare and Assistive Robotics

Service Robotics
Field Robotics
Navigation
Machine Vision

Scholarships and Awards

• SCHOLARSHIPS

- Oct. 2012–Sept. 2015 **Mombukagakusho** Full MEXT Scholarship (Doctoral Course), Ministry of Education, Culture, Sports, Science & Technology, Japan
- Oct. 2010–Sept. 2012 **Mombukagakusho** Full MEXT Scholarship (Masters Course), Ministry of Education, Culture, Sports, Science & Technology, Japan
- Sept. 2004–Mar. 2005 **Bright Student Scholarship Award** Full scholarship awarded for securing highest marks in Senior High School, Dewas Public H.S. School, Dewas, India

• AWARDS

- Apr. 2025 **Student Outstanding Presentation Faculty Advisor Award**, 2024 Fall Meeting of the Japan Society for Design Engineering, Japan Society for Design Engineering.
Paper title: 「画像認識を用いた筋肉の動きによるロボット制御システムの開発」 (*Development of a Robot Control System Using Muscle Movement with Image Recognition*) Winner: **Ankit A. Ravankar**
- Feb. 2025 **Best Paper Award**, International Conference on Communication, Computing and Data Security, (IC-CCDS) 2025, Mumbai, India
Paper title: *Uncertainty Evaluation in Colorectal Polyp Segmentation* Authors: Ryouya Tazawa, Abhijeet Ravankar, **Ankit A. Ravankar**
- Jan. 2025 **Best Student Paper Award**, IEEE/SICE International Symposium on System Integrations (SII 2025), Munich, Germany, January 2025.
Paper title: *Open Vocabulary Object Search Utilizing Large Language Models and Fuzzy Inferencing* Authors: Akash Chikhalikar, **Ankit A. Ravankar**, Jose Victorio Salazar Luces, and Yasuhisa Hirata
- May 2024 **Best Workshop Paper Award**, IEEE-ICRA 2024 Yokohama, Japan (Workshop on Assistive Systems: Lab to Patient Care).
Paper title: *ROS 2 Healthcare: Closing the Loop Between Human Sensing and Robotic Interventions* Authors: Jorge Peña-Queralta, Ricardo Javier Manriquez Cisterna, Heba Hussein, Alexander Breuss, Oriella Gnarra, Medhi Ejtehadi, **Ankit A. Ravankar**, Jose Victorio Salazar Luces, Yasuhisa Hirata, and Diego Paez Granados
- Feb. 2024 **Best Paper Award**, International Conference on Communication, Computing and Data Security, (IC-CCDS) 2024, Mumbai, India
Paper title: *Distributed Multi-agent Mapping and Localization For Enhanced Autonomous Navigation* Authors: **Ankit A. Ravankar**
- Dec. 2022 **SI2022 Excellent Presentation Award**, Society of Instrument and Control Engineers (SICE) Japan (SICE SI2022 Conference).
Paper title: *Development of a Walking Support Robot for Motivating Human Walking*
- Sept. 2022 **SICE Annual Conference International Award**, Society of Instrument and Control Engineers (SICE) Japan (SICE Annual Conference 2022).
Paper title: *Automatic Dimensional Inspection System of Railcar Wheelset for Condition Monitoring*, Awarding Organization: The Society of Instrument and Control Engineers, JAPAN
- Sept. 2021 **SICE Best Paper Award**, Society of Instrument and Control Engineers (SICE) Japan Best Paper Award for the article published in 2020.
Paper title: *Line Segment Extraction and Polyline Mapping for Mobile Robots in Indoor Structured Environments Using Range Sensors*, Awarding Organization: The Society of Instrument and Control Engineers, JAPAN
- Dec. 2020 **SI2020 Excellent Presentation Award**, 21st SICE System Integration (SI2020) Conference, 2020 (online)
Paper title (in Japanese): 「UAV を用いた自動スペクトル計測システムにおけるジンバル制御」 Gimbal Control in Automatic Spectrum Measurement System Using UAV
- Dec. 2020 **SI2020 Excellent Presentation Award**, 21st SICE System Integration (SI2020) Conference, 2020 (online)
Paper title (in Japanese): 「積雪環境におけるスキャンマッチングを用いた自己位置推定性能の改善」 Improving Self-Positioning Performance Using Scan Matching in Snow-Covered Environments

- Feb. 2020 **Best Paper Award**, 25th International Symposium on Artificial Life and Robotics (AROB), 2020, Beppu, Japan,
Paper title: *Path Planning for Service Robots in Continuous Operation*
- Oct. 2019 **Honorable Mention Award (top 5% paper)**, 8th International Congress on Advanced Applied Informatics, International Conference on Data Science and Institutional Research (DSIR 2019),
Paper title: *Managing the Project: The Essential Need for Project Management Training and Education in Graduate Schools*
- Jun. 2018 **Best Poster and Presentation Award for Young Scientist**, 6th AGH Poland- Hokkaido University, Japan (AGH-HU) Joint Symposium,
Paper title: *Development of port facilities inspection robot using multi-copter*
- Feb. 2018 **Young Author Award**, 23rd International Symposium on Artificial Life and Robotics (AROB), 2018, Beppu, Japan, Paper title: *Autonomous mobile robot mapping and navigation using topological and semantic information*
- Jan. 2018 **6U-Happier Travel Grant**, 2nd Taiwan-Japan International Forum, 28 Feb- 3 March, 2018, Taipei, Taiwan
- Oct. 2015 **Student Best Paper Award**, 15th International Conference on Control, Automation and Systems, Busan, S. Korea,
Paper title: *Path smoothing extension for various robot path planners*
- Nov. 2015 **Best Paper Award**, 4th International Doctoral Symposium in Mechanical Engineering, Hokkaido University, Japan
- Dec. 2011 **IEEE Young Author Award Finalist**, IEEE/SII (Annual International Conference on System Integration, Society of System Integration and Control Engineering), Kyoto, Japan,
Paper title: *Map building from laser range sensor information using mixed data clustering and singular value decomposition in noisy environment.*
- 2007 **Best Paper Award** – -Best paper award in technical paper presentation, Sinhgad College of Engineering, Pune, India
- 2008 **Best Paper Award** – -Best paper award in technical paper presentation at the annual technical festival -Kshitij, Indian Institute of Technology, Kharagpur, India
- 2005 **Best Outgoing Student Award**, Dewas Public H.S. School, Dewas, India
- 1994–2004 Consistent **Proficiency Award in Studies** for scoring the highest marks in school examinations for 10 years straight.

Research Grants and Competitive Funds

- 2026–2027 「科学技術 インド若手科学頭脳循環プログラム」 Japan Science and Technology Agency (JST) (LOTUS Programme : India-Japan Circulation of Talented Youths in Science Programme) 「高齢者支援のための AI 駆動巧緻マニピュレーションと自律化」 “AI-Driven Dexterous Manipulation for Autonomous Tasks in Elderly Support ”, (Principal investigator) (3.4 Million JPY)
- 2024–2028 「日本学術振興会 科学研究費助成事業 基盤 (C)」 Japan Society for the Promotion of Science (JSPS) Kakenhi Grant-in-Aid for Scientific Research(C) “Integrating Large Language Models for Long Horizon Task Planning in Multi-robot Scenarios”, (Principal investigator) (4.4 Million JPY)
- 2025–2029 「日本学術振興会 科学研究費助成事業 基盤 (C)」 Japan Society for the Promotion of Science (JSPS) Kakenhi Grant-in-Aid for Scientific Research(C) 脊髄性筋萎縮症 (SMA) 患者向け完全自律移動車椅子ロボットの開発 “Development of a Fully Autonomous Mobility Wheelchair Robot for Spinal Muscular Atrophy (SMA) Patients”, (Co-Principal investigator) (4.3 Million JPY)
- 2021–2025 「日本学術振興会 科学研究費助成事業 若手研究」 Japan Society for the Promotion of Science (JSPS) (KAKENHI), Grant-in-Aid for Early-Career Scientists “Development of Lifelong SLAM System for Service Robots using Deep Semantic Information”, (Principal investigator) (4 Million JPY)
- 2022–2024 「精神状態推定及び改善技術の研究」 (AWL Inc. Japan) “Development of Mental Health Improvement System using Robots and Computer Vision”, (Co-Principal investigator) (1.5 Million JPY per year)
- 2021–2023 「鉄道車両における画像診断と CAD データを使用した検査システム “Inspection System for Railway Vehicles using Image Diagnosis and CAD data”, Kawasaki Heavy Industries Limited, Japan (Principal investigator) (2M JPY)
- 2020–2021 「令和 2 年度「創成若手研究加速支援事業」 URA 北海道大学」 “Long Term Autonomous Navigation of Multi-robot Systems considering Semantic Features”, SOUSEI Support Program for Young Researchers in FY 2020, Hokkaido University (Principal investigator) (1 Million JPY)

- 2020–2021 「令和 2 年度 f3 プロジェクト研究」 “Heterogeneous Aerial and Ground Multi-robot collaborative System for Navigation in Cluttered Environment”, F3 Project, Department of Aerospace Engineering, Hokkaido University (Principal investigator) (0.65 Million JPY)
- 2020–2021 「鉄道車両における画像診断と CAD データを使用した検査システム “Inspection System for Railway Vehicles using Image Diagnosis and CAD data, Kawasaki Heavy Industries Limited”, Japan (Principal investigator) (0.8 Million JPY)
- 2019–2020 「鉄道車両における画像診断と CAD データを使用した検査システム “Inspection System for Railway Vehicles using Image Diagnosis and CAD data”, Kawasaki Heavy Industries Limited, Japan (Principal investigator) (1 Million JPY)
- 2018–2020 「ロバスト農林水産工学研究プログラム “Development of a Deep Learning based Knowledge Sharing Cloud System for Robust Agriculture”, Hokkaido University Research and Education center for Robust Agriculture, Forestry and Fisheries Industry. (Co-investigator) (1.5 Million JPY)
- 2018–2020 「ロバスト農林水産工学研究プログラム “Development of an autonomous weeding robot for agriculture fields”, Hokkaido University Research and Education Center for Robust Agriculture, Forestry and Fisheries Industry. (Co-investigator) (1.5 Million JPY)
- 2016–2018 「UAV による港湾設備点検の自動化を支援する高精度自己位置同定システムの開発」平成 29 年度港湾空港総合技術センター研究開発助成 “Development of high accuracy self-position identification system to support automation of port facility inspection using UAV”, Service center of Port Engineering, Ministry of Economy, Trade and Industry (METI), Japan. (Co-investigator) (2 Million JPY)
- 2016–2020 「積雪寒冷地の交通弱者支援のための雪道走行を可能とする自動運転技術の開発」平成 29 年度中小企業経営支援等対策費補助金（戦略的基盤技術高度化支援事業） “Development of autonomous driving technology to support traffic vulnerability in snow cold areas”, Strategic foundation technology advancement support project, Ministry of Economy, Trade and Industry, (METI), Japan. (Co-investigator) (15 Million JPY)
- 2016–2019 「深層学習の特徴点抽出機能に基づく非人工環境下におけるロバストな SLAM の実現」H29 年度科研費：基盤研究（C） “Realization of robust SLAM under non-artificial environment based on feature extraction and deep learning”, Grant-in-aid for scientific research (C), Japan Society for the Promotion of Science (JSPS). (Co-investigator) (5 Million JPY)
- 2017–2020 「素材流通の ICT 化に伴う木材検知システム研究」地方創生推進交付金「地域資源活用による基盤産業ブランド力連携プロジェクト事業」の再委託 “Research on timber detection system accompanying ICT conversion of material distribution”, Regional industrial resource utilization project, Ministry of Economy, Trade and Industry (METI), Japan. (Co-investigator) (1.5 Million JPY)
- 2017–2018 「マルチモーダル深層学習を用いた農業環境におけるロバスト画像認識システムの構築」人工知能研究振興財団 “Development of robust computer vision system for agricultural environment using multi-modal deep learning”, Artificial Intelligence Research Promotion Program (Co-investigator) (0.5 Million JPY)

Research Profile

Research impact 2,520 citations (31 Jan. 2026) ▪ h-index: 27 (Google Scholar), 19 (Scopus)
 Profiles [ORCID](#): 0000-0002-5104-9782 | [Google Scholar](#) | [Scopus](#) | [Web of Science](#)

Refereed Journal Publications

2026

- [J.1] ***ROS 4 healthcare: a framework for physiological human sensing for social, assistive, rehabilitation, and medical robotics***, Ricardo Manriquez-Cisterna, Pranjal Mishra, Jorge Peña-Queralta, Monica Perez-Serrano, Spyridon Garyfallidis, Lucas Kupper, Mehdi Ejtehadi, Alexander Breuss, **Ankit A. Ravankar**, Jose Victorio Salazar Lucas, Robert Riener, Yasuhisa Hirata and Diego Paez-Granados, in *Frontiers in Robotics and AI* 13 (2026): 1745197. Apr. 2026, DOI: 10.3389/frobt.2026.1745197.
- [J.2] ***3D-LiDAR point cloud data classification using deep learning for mobile robots***, Abhijeet Ravankar, **Ankit A. Ravankar**, and Arpit Rawankar, in *Artificial Life and Robotics*, Springer Nature, January 2026, DOI: 10.1007/s10015-026-01115-8.

2025

- [J.3] ***Real-Time Geometric-Registration-Based Precision Localization for Autonomous Docking in Unstructured Factory Environment***, Sebastian Fernando Chinchilla Gutierrez, Manaru Watanabe, and Masahiro Ooyama, Takayuki Yamada, Tomoaki Yamada, Naoto Toshiki, Satsuki Yamane, Jose Victorio Salazar Luces, **Ankit A. Ravankar**, and Yasuhisa Hirata, in IEEE Robotics and Automation Letters (IEEE RA-L), vol. 10, no. 7, pp. 7198–7205, Jul. 2025, DOI: 10.1109/LRA.2025.3575646.
- [J.4] ***Development of Robot Control by Muscle Movement Using Image Recognition***, Kohei Gotou, Abhijeet Ravankar, and **Ankit A. Ravankar** in Journal of Japan Society for Design Engineering, vol. (60)8, pp. 429–433, 2025.
- [J.5] ***Target specific multi-image 3D scrambling algorithm for security cameras***, Abhijeet Ravankar, Arpit Rawankar, and **Ankit A. Ravankar**, in Artificial Life and Robotics, Springer, pp. 1–11, May 2025, DOI: 10.1007/s10015-025-01033-1.
- [J.6] ***Development of a brain – machine interface based robot navigation system for disabled people***, Abhijeet Ravankar, Arpit Rawankar, and **Ankit A. Ravankar**, in Artificial Life and Robotics, Springer, pp. 1–9, May 2025, DOI: 10.1007/s10015-025-01024-2.
- [J.7] ***Robot Control by Muscle Movement Using Image Recognition***, Goto Kohei, Abhijeet Ravankar, **Ankit A. Ravankar**, in Journal of Japan Society for Design Engineering, 60(8):2025.8.
- [J.8] ***Task Planning for a Factory Robot Using Large Language Model***, Yosuke Tsuhima, Shu Yamamoto, **Ankit A. Ravankar**, Jose Victorio Salazar Luces, and Yasuhisa Hirata, in IEEE Robotics and Automation Letters (IEEE RA-L), vol. 10, no. 3, pp. 2383–2390, Mar. 2025, DOI: 10.1109/LRA.2025.3531153.

2024

- [J.9] ***Concept and Prototype Development of Adaptive Touch Walking Support Robot for Maximizing Human Physical Potential***, Junya Terayama, **Ankit A. Ravankar**, Jose Victorio Salazar Luces, Seyed Amir Trafrishi and Yasuhisa Hirata, in IEEE Robotics and Automation Letters (IEEE RA-L), vol. 9, no. 8, pp. 6935–6942, Aug. 2024, DOI: 10.1109/LRA.2024.3415928.
- [J.10] ***Semantic-Based Multi-Object Search Optimization in Service Robots Using Probabilistic and Contextual Priors***, Akash Chikhalikar, **Ankit A. Ravankar**, Jose Victorio Salazar Luces, and Yasuhisa Hirata, in IEEE Access, vol. 12, pp. 113151–113164, 2024, DOI: 10.1109/ACCESS.2024.3444478.
- [J.11] ***Automatic inspection of wheel surface defects using a combination of laser sensors and machine vision***, Takeshi Emoto, **Ankit A. Ravankar**, Abhijeet Ravankar, Takanori Emaru, Yukinori Kobayashi, SICE Journal of Control, Measurement, and System Integration, 17(1), 57 – 66. (2024) DOI: 10.1080/18824889.2024.2314800.
- [J.12] ***A method for detecting wear and damage on railcar wheel tread surface using a combination of laser measurement and machine vision***, Takeshi Emoto, Takanori Emaru, **Ankit A. Ravankar**, Abhijeet Ravankar, Yukinori Kobayashi, JSME Mechanical Engineering Journal, vol. 11 (3), p. 23-00352, 2024, DOI: 10.1299/mej.23-00352.

2023

- [J.13] ***Video stabilization algorithm for field robots in uneven terrain***, Abhijeet Ravankar, Arpit Rawankar, and **Ankit A. Ravankar**, Artificial Life and Robotics, vol. 28, pp. 502 – 508 (2023). DOI: 10.1007/s10015-023-00883-x.
- [J.14] ***Real-time monitoring of elderly people through computer vision***, Abhijeet Ravankar, **Ankit A. Ravankar** and Arpit Rawankar, Artificial Life and Robotics, vol. 28, pp. 496 – 501 (2023). DOI: 10.1007/s10015-023-00882-y.
- [J.15] ***Running Guidance for Visually Impaired People Using Sensory Augmentation Technology Based Robotic System***, Z. Liao, J. V. S. Luces, **Ankit A. Ravankar** and Y. Hirata, IEEE Robotics and Automation Letters, vol. 8, no. 9, pp. 5323–5330, Sept. 2023, DOI: 10.1109/LRA.2023.3294718.
- [J.16] ***A Performance Evaluation of Overground Gait Training With a Mobile Body Weight Support System Using Wearable Sensors***, Z. Dong, J. V. S. Luces, **Ankit A. Ravankar**, S. A. Tafrishi and Y. Hirata, in IEEE Sensors Journal, vol. 23, no. 11, pp. 12209–12223, DOI: 10.1109/JSEN.2023.3269031.
- [J.17] ***CARE: Cooperation of AI-Robot Enablers***, **Ankit A. Ravankar**, Seyed A. Tafrishi, Jose V. L. Salazar, Fumi Seto, and Yasuhisa Hirata, IEEE Robotics & Automation Magazine 30, no. 1, pp. 8–23, (Mar. 2023), DOI: 10.1109/MRA.2022.3223256. (**Selected as IEEE RAM Featured Paper 2023**)

2022

- [J.18] ***Real-time Monitoring of Elderly People through Computer Vision***, Abhijeet Ravankar, **Ankit A. Ravankar**, Arpit Rawankar, Artificial Life and Robotic, Springer.

2021

- [J.19] ***Multi-Modal Sensor Fusion-Based Semantic Segmentation for Snow Driving Scenarios***, Sirawich Vachmanus,

Ankit A. Ravankar, Takanori Emaru, and Yukinori Kobayashi, IEEE Sensors Journal, vol. 21, no. 15, pp. 16839–16851, DOI: 10.1109/JSEN.2021.3077029.

- [J.20] *Autonomous and Safe Navigation of Mobile Robots in Vineyard with Smooth Collision Avoidance*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Arpit Rawankar, and Yohei Hoshino, Agriculture. 2021; 11(10):954, DOI: 10.3390/agriculture11100954. (***Equal Contribution**)

2020

- [J.21] *HPPRM: Hybrid Potential Based Probabilistic Roadmap Algorithm For Improved Dynamic Path Planning Of Mobile Robots*, **Ankit A. Ravankar***, Abhijeet Ravankar, Takanori Emaru and Yukinori Kobayashi, IEEE ACCESS, vol. 8, pp. 221743–221766, 2020; DOI: 10.1109/ACCESS.2020.3043333.
- [J.22] *Autonomous VTOL-UAV Docking System for Heterogeneous Multi-Robot Team*, Eduardo Narvaez, **Ankit A. Ravankar***, Takanori Emaru and Yukinori Kobayashi, IEEE Transactions on Instrumentation & Measurement, vol. 70, pp. 1–18, 2020 (***Joint First Author**); DOI: 10.1109/TIM.2020.3039649.
- [J.23] *Multi-robot path planning for smart access of distributed charging points in map*, Abhijeet Ravankar, **Ankit A. Ravankar**, Michiko Watanabe, Yohei Hoshino, and Arpit Rawankar, Artificial Life and Robotics, 2020, DOI: 10.1007/s10015-020-00612-8.
- [J.24] *Transient Virtual Obstacles for Safe Robot Navigation in Indoor Environments*, Abhijeet Ravankar, **Ankit A. Ravankar**, Yohei Hoshino, Michiko Watanabe, and Arpit Rawankar, Information Engineering Express, 2020, vol. 6(1), 59-69; <http://www.iaiai.org/journals/index.php/IEE/issue/view/51>
- [J.25] *Measuring Student Learning Outcomes in Introductory Project Management Course in Graduate Schools*, **Ankit A. Ravankar**, Abhijeet Ravankar, and Shotaro Imai, International Journal of Institutional Research and Management, 2020, vol. 4(1), 66-86; <http://hdl.handle.net/2115/78726>
- [J.26] *Development of a Low-Cost Semantic Monitoring System for Vineyards Using Autonomous Robots*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Michiko Watanabe, Yohei Hoshino, and Arpit Rawankar, Agriculture, 2020, vol. 10(5), 182; DOI: 10.3390/agriculture10050182. (***Equal Contribution**)
- [J.27] *Safe mobile robot navigation in human-centered environments using a heat map-based path planner*, Abhijeet Ravankar, **Ankit A. Ravankar**, Yohei Hoshino, Michiko Watanabe, and Yukinori Kobayashi, Artificial Life and Robotics, 2020, vol. 25, pp. 264–272, DOI: 10.1007/s10015-020-00591-w.
- [J.28] *Google Earth Engine for the Detection of Soiling on Photovoltaic Solar Panels in Arid Environments*, Hitesh Supe, Ram Avtar, Deepak Singh, Ankita Gupta, Ali P Yunus, Jie Dou, **Ankit A. Ravankar**, Geetha Mohan, Saroj Kumar Chapagain, Vivek Sharma, Chander Kumar Singh, Olga Tutubalina, Ali Kharrazi, Remote Sensing 2020, vol. 12(9), 1466, DOI: 10.3390/rs12091466.
- [J.29] *Line Segment Extraction and Polyline Mapping for Mobile Robots in Indoor Structured Environments Using Range Sensors*, **Ankit A. Ravankar**, Abhijeet Ravankar, Takanori Emaru, and Yukinori Kobayashi, SICE Journal of Control, Measurement, and System Integration 2020, vol. 13(3), pp. 138–147; DOI: 10.9746/jcmsi.13.138. (**SICE Best Journal Paper Award 2020**)

2019

- [J.30] *ITC: Infused Tangential Curves for Smooth 2D and 3D Navigation of Mobile Robots*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Yohei Hoshino, and Yukinori Kobayashi, Applied Sciences 2019, vol. 9(13), 2753, DOI: 10.3390/s19204384. (***Equal Contribution**)
- [J.31] *On Sharing Spatial Data with Uncertainty Integration Amongst Multiple Robots Having Different Maps*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Arpit Rawankar, Yohei Hoshino, and Yukinori Kobayashi, Sensors 2019, vol. 19(20), 4384, DOI: 10.3390/app9132753. (***Equal Contribution**)
- [J.32] *A Novel Approach for Lidar-based Robot Localization in a Scale-drifted Map Constructed using Monocular SLAM*, Wang Su, Yukinori Kobayashi, **Ankit A. Ravankar**, Abhijeet Ravankar, and Takanori Emaru, Sensors 2019, vol. 19(10), 2230; DOI: 10.3390/s19102230.
- [J.33] *Bio-inspired Structure and Behavior of Self-recovery Quadruped Robot with a Limited Number of Functional Legs*, Sarun Chattunyakit, Yukinori Kobayashi, Takanori Emaru, and **Ankit A. Ravankar**, Applied Sciences 2019, vol. 9(4), DOI: 10.3390/app9040799.

2018

- [J.34] *Path Smoothing Techniques in Robot Navigation: State-of-the-Art, Current and Future Challenges*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Yukinori Kobayashi, Yohei Hoshino, and Chao-Chung Peng, Sensors 2018, vol. 18(9), DOI: 10.3390/s18093170. (***Equal Contribution**)

- [J.35] *Hitchhiking Based Symbiotic Multi-Robot Navigation in Sensor Networks*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Yukinori Kobayashi, Yohei Hoshino, Chao-Chung Peng and Michiko Watanabe, Robotics 2018, 7(3), 37, DOI: 10.3390/robotics7030037. (*Equal Contribution)
- [J.36] *A Single LiDAR-Based Feature Fusion Indoor Localization Algorithm*, Yun-Ting Wang, Chao-Chung Peng, **Ankit A. Ravankar**, and Abhijeet Ravankar, Sensors 2018, vol. 18(4), 1294, DOI: 10.3390/s18041294.
- 2017**
- [J.37] *Hitchhiking Robots: A Collaborative Approach for Efficient Multi-Robot Navigation in Indoor Environments*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Yukinori Kobayashi, and Takanori Emaru, Sensors 2017, vol. 17(8), 1581, DOI: 10.3390/s17081878. (*Equal Contribution)
- [J.38] *Symbiotic Navigation in Multi-Robot Systems with Remote Obstacle Knowledge Sharing*, Abhijeet Ravankar*, **Ankit A. Ravankar***, Yukinori Kobayashi, and Takanori Emaru, Sensors 2017, vol. 17(7), 1581; DOI: 10.3390/s17071581. (*Equal Contribution)
- [J.39] *Effect of Instructor's Actions and Attitudes on Student's Motivation and Discussion Process in TBL Class for Graduate Students*, Shotaro Imai, **Ankit A. Ravankar**, Michiyo Shimamura, Taichi Takasuka, Go Chiba, Yasuhiro Yamanaka, International Journal of Institutional Research and Management, vol. 1(2), p. 17-35, 2017
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- [D.104] 林業フィールドにおける樹木の認識と自己位置推定, 長井一弘, 江丸貴紀, 小林幸徳, **Ankit A. Ravankar**, 計測自動制御学会北海道支部学術講演会論文集, 2017
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- [D.106] 葉を特徴点として利用した実環境における農作物の検出・判別システムの提案, 影山藍, 江丸貴紀, 小林幸徳, **Ankit A. Ravankar**, 計測自動制御学会北海道支部学術講演会論文集, 2017

Invited Lecture and Workshops

- 2025 **AI-Enabled Collaborative Robots and Human-Robot Interaction**, FDP on Industry 5.0: Human-centric, Sustainable and Resilient Manufacturing, 15th Jun. 2025 (Organized by TCET, Mumbai, India) (Invited Lecture)
- 2025 **Collaborative Multi-robot Framework for Elderly Care**, HeKKSaGOn Working Group, Digital Solutions for Aging Societies: Harnessing AI and Robotics for Personalized Assistance, 20th January 2025, Karlsruhe Institute of Technology (Invited Lecture)
- 2024 **India-Japan Study Programs and Opportunities**, India-Japan Innovation Symposium, Advancing Research, Networking, and Industry Partnerships, Indian Institute of Technology (IIT), Gandhinagar, 11th Mar. 2024 (Invited Lecture)
- 2024 **Collaborative and Cooperative Multi-robot Systems and Human-Robot Interactions**, SysCon Talks, Department of Systems and Control Engineering (SysCon), Indian Institute of Technology (IIT), Mumbai, 13th Mar. 2024 (Invited Lecture)
- 2024 **Advances in Multi-robot Systems and Human Robot Interactions**, Department of Electronics & Telecommunication (E&TC) Engineering, Thakur College of Engineering & Technology (TCET), Kandivali, Mumbai, Technical Seminars for third year E&TC students, 15th Mar. 2024 (Invited Lecture)

- 2022 **Robot Exploration and Mapping of Unstructured Indoor Environments using segment-based Clustering of Range Data with Uncertainty**, 2022 Robotics Symposia, March 17, 2022, Tokyo, Japan (Invited Lecture)
- 2020 **Recent Advances in Autonomous Mobile Robot Navigation and SLAM**, Advancement in Mobile Robot Navigation (Emerging Research Trends on Robotics and it's Applications (ERTRA 2020) - Phase III, Department of Electronics and Communication Engineering, MEPCO SCHLENK ENGINEERING COLLEGE (AUTONOMOUS), SIVAKASI, India), 2020, 10 (Invited Lecture)
- 2019 **チュートリアル：ゼロからはじめる OpenCV によるコンピュータビジョン** (OpenCV: Computer Vision from Zero to Advanced), Abhijeet Ravankar and Ankit A. Ravankar, 第 62 回自動制御連合講演会, 札幌コンベンションセンター, 札幌市, November 11th, 2019 (Tutorial Workshop- Presenter)
- 2018 **Autonomous mobile robot mapping and navigation using topological and semantic information**, AGH University of Science and Technology, Krakow, Poland, May. 14–16, 2018 (Invited Lecture)
- 2018 **Autonomous Mobile Robot Mapping and Navigation using Topological and Semantic Information**, Ankit A. Ravankar, Abhijeet Ravankar, Yukinori Kobayashi, and Takanori Emaru, Hokkaido University-Zhejiang University Joint Symposium on Mechanical Engineering, Zhejiang, China, 27-28 March, 2018 (Invited Lecture)
- 2018 **Semantic Navigation for Mobile Robot using a Hybrid Topo-Metrological SLAM**, (Zhejiang University, Institute of Cyber Systems and Control, China), 27 March, 2018. (Invited Lecture)
- 2018 **Mobile Robot Mapping and Localization in Indoor Structured Environment using Sensor Fusion**, 2nd Taiwan-Japan International Engineering Forum, Taipei, 1st March, 2018 (Invited Lecture)
- 2017 **Large Scale Mapping using Semantic and Topological Information for Autonomous Mobile Robot Navigation**, Ankit A. Ravankar, Abhijeet Ravankar, Yukinori Kobayashi, and Takanori Emaru, The 7th East-Asia Mechanical and Aerospace Engineering Workshop, Nov. 27–29, 2017, Sapporo, Japan. (Invited Lecture)
- 2016 **Algorithms for Robust Mapping and Multi-Robot Path Planning in Indoor Structured Environments**, Ankit A. Ravankar, The 12th Joint Symposium on Mechanical and Aerospace Engineering, December 19-20, 2016, Sapporo, Japan. [Invited Talk]

Courses and Teaching

Undergraduate	Applied Mathematics 1
Undergraduate	Technical English for Engineering
Undergraduate	Exercise on Control Engineering
Undergraduate	Laboratory Exercise on Vibration of Beam
Undergraduate	Laboratory Exercise on Mechatronics Engineering
Graduate	Introduction to Robotics
Graduate	Advanced Robotics
Graduate	Project Management - Special Course for Nitobe School - Course Director
Graduate	PBL training- Problem Finding - Special Course for Nitobe School (2015–2018)

Societies and Contribution

○ Societies

- 2012–present **Full Member** – IEEE, USA
- 2012–present **Full Member** – IEEE, Robotics and Automation Society (IEEE-RAS), USA
- 2022–present **Full Member** – IEEE, Standards Association (IEEE SA), USA
- 2016–present **Full Member** – Society of Instrument and Control Engineers, SICE, Japan
- 2017–present **Full Member** – Japan Society of Mechanical Engineers, JSME, Japan

■ Education and University Committees

- 2026–present **Faculty Lead (Robotics Area)** – Double Degree Doctoral Program with the Indian Institute of Technology Bombay
- 2016–2021 **International Steering Committee** – International Research Skills Program for Developing Sustainable Transportation System and Infrastructure (STSI), Hokkaido University, Japan
- 2015–2018 **Course Design Committee** – Nitobe Graduate School Program, Hokkaido University, Japan
- 2015–2017 **Core Committee** – Nitobe Graduate School Program, Hokkaido University, Japan

2019–2021 **Doctoral Thesis Reviewer** – University of Technology Sydney, Sydney, Australia.

• **Conference Activities and Society Committees**

- 2025–present **Associate Editor** – Frontiers in Robotics and AI
- 2025–present **Associate Editor** – Frontiers in Manufacturing
- 2025–present **Associate Editor** – Springer Nature Evolutionary Intelligence
- 2025 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2026, Jan. 11–14, Cancun, Mexico 2026.
- 2025 **ICRA EXPO Co-Chairman** – 2025, IEEE International Conference on Robotics and Automation (ICRA), Atlanta, Georgia, USA, May. 18–23, 2025.
- 2024–present **Junior Editorial Board Member** – Journal of Intelligent & Robotics.
- 2024–present **Associate Editor** – IEEE Internet of Things Journal.
- 2024 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2025, Jan. 21–25, Munich, Germany 2025.
- 2024 **ICRA EXPO Organizing Committee** – 2024, IEEE International Conference on Robotics and Automation (ICRA), Yokohama, Japan, May. 12–17, 2024.
- 2024 **ICRA EXPO Editor**, IEEE International Conference on Robotics and Automation (ICRA), Yokohama, Japan, May. 12–17, 2024.
- 2024 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2024, Jan. 8–11, Ha Long, Vietnam, 2024.
- 2024 **Special Session Organizer** – IEEE/SICE International Symposium on System Integration SII2024, Special session on Robotics and AI for Home Automation, Healthcare and Ambient Assistive Living, Jan. 8–11, Ha Long, Vietnam, 2024.
- 2023–present **Guest Editor** – MDPI Sensors Journal, Advanced Research in Intelligent Autonomous Mobile Robots System, Learning and Control (Ongoing)
- 2023 **Special Session Organizer** – IEEE/SICE International Symposium on System Integration SII2023, Special session on Robotics and AI for Home Automation, Healthcare and Ambient Assistive Living, Jan. 17–20, Atlanta, GA, USA, 2023
- 2023–2025 **IEEE SA Working Group Vice Chairman** – IEEE SA P7017 Recommended Practice for Design-Centered Human-Robot Interaction (HRI) and Governance
- 2023–2025 **Planning Committee Chairman** – 41st Annual Conference of the Robotics Society of Japan (RSJ) 2023, Sendai, Japan.
- 2023 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2023, Jan. 17–20, Atlanta, GA, USA, 2023.
- 2022 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2022, (Online Event)
- 2021–2022 **Elected Representative** – Japan Society of Instrumentation and Control Engineering (SICE)
- 2016–2021 **Steering Committee** – Hokkaido Robot Triathlon Contest 北海道ロボットトライアスロン大会
- 2019–present **International Program Committee** – International Symposium on Artificial Life and Robotics, ISAROB
- 2019 **Workshop Tutorial Committee** – 第 62 回自動制御連合講演会札幌 11 月 8 日、2019
- 2019 **Local Organizing Committee** – 第 62 回自動制御連合講演会札幌 11 月 8 日、2019
- 2019 **Workshop organizer** – ゼロからはじめる OpenCV によるコンピュータビジョン、第 62 回自動制御連合講演会札幌 11 月 8 日、2019
- 2019 **Program Committee** – IIAI- 8th International Conference on Data Science and Institutional Research (DSIR2019)
- 2018 **Program Committee** – IIAI - 7th International Conference on Data Science and Institutional Research (DSIR2018)
- 2018 **Local Committee Organizer** – 8th International Conference on Indoor Positioning and Indoor Navigation (IPIN 2018), Sept. 18–21, 2018, Sapporo, Japan
- 2017 **Program Committee and Session Organizer** – IEEE/SICE International Symposium on System Integration SII 2017, Special session on Autonomous Mobile Robots and Intelligent System: Recent Trends and Applications, Dec. 11–14, 2017, Taipei, Taiwan
- 2017 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2017, Dec. 11–14, Taipei, Taiwan, 2017.

- 2016 **Program Committee and Session Organizer** – IEEE/SICE International Symposium on System Integration SII 2016, Special session on Autonomous Mobile Robots and Intelligent System: Recent Trends and Applications, Dec. 13–15, 2016, Sapporo, Japan
- 2016 **Associate Editor** – IEEE/SICE International Symposium on System Integration SII2016, Dec. 13–15, 2016, Sapporo, Japan.
- 2016 **Program Committee and Local Organizing committee** – 4th International Doctoral Symposium on Mechanical Engineering at Hokkaido University (IDSHU), 2015, Sapporo, Nov. 5–7, Japan, 2015.

References

- **Yasuhisa Hirata** – Professor and Head of Department of Robotics, Faculty of Mechanical and Aerospace Engineering, Tohoku University, Sendai, Japan (Moonshot Goal 3 Program Manager)
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