Dr. Ranjit Ray

Principal Scientist, CSIR-CMERI

Full Name : Ranjit Ray

Born on : 17/12/1971

Designation : Principal Scientist

Department : Robotics and Automation

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Research & Education

Research areas :

- **Mobile Robot – Navigation & Control**
- **Machine Vision**

Educational career :

- **B.E. (Mechanical Engineering), IIEST (erstwhile B E COLLEGE, DU), Shibpur**
- **M.E. (Mechanical Engineering), Jadavpur University**
- **Ph.D. (Engg.), IIEST (erstwhile BESU), Shibpur**

Publication

Journal

1. S. Ghosh, R. Ray, SRK Vadali, S. N. Shome, S. Nandy, "Reliable Pose Estimation of Underwater Dock using Single Camera: A Scene Invariant Approach Machine Vision and Applications", Machine Vision and Application (2016) 27:221–236
2. J. Banerjee, R. Ray, SRK Vadali, S. N. Shome, S. Nandy, "Real-time Underwater Image Enhancement: An Improved Approach for Imaging with AUV-150", Sadhana (2016) 41(2):225–238
3. Spandan Roy, Sambhunath Nandy, Ranjit Ray, and Sankar Nath Shome, "Robust Path Tracking Control of Nonholonomic Wheeled Mobile Robot: Experimental Validation", International Journal of Control, Automation, and Systems (2015) 13(4):1-9
4. Habib Masuma, Subhasis Bhaumika, Ranjit Ray, "Conceptual Design of a Powered Ankle-Foot Prosthesis for Walking with Inversion and Eversion", Procedia Technology (2014) 14: 228 – 235
5. Soma Banerjee, Ranjit Ray, Sankar Nath Shome, Goutam Sanyal, "Noise induced feature enhancement and object segmentation of forward looking SONAR image", Procedia Technology (2014) 14: 125 – 132
6. S. Roy, S. N. Shome, S.Nandy, R. Ray,V. Kumar, "Trajectory following control of AUV: A robust approach", Journal of The Institution of Engineers (India): Series C (2013) 94(3): 253-26
7. D Banerji, R. Ray, J. Basu and I. Basak, "Autonomous Navigation by Robust Scan Matching Technique", Int. J. of Innovative Technology and Creative Engineering (2012) 2(10):7-13
8. Rekha Raja, S N. Shome, S. Nandy and R. Ray, "Obstacle Avoidance and Navigation of Autonomous Mobile Robot", Advanced Materials Research (2012) 403-408:4633-4642
9. R. Ray, S. Nandy, S N. Shome and S. Bhaumik, "Towards Dynamics and Control of an Arm-Wheel based Autonomous Stair Climbing Robotic Vehicle", Advanced Materials Research (2012) 403-408:4743-4752
10. S. Datta & R. Ray, D. Banerji, "Development of autonomous mobile robot with manipulator for manufacturing environment", Int. J. Adv. Manufacturing Technology(2008) 38(5-6): 536–542

Book Chapters

1. D. Mahata, Ranjit Ray, Sankar Nath Shome, "Modeling and Simulation of a Near Omni-Directional Hexapod Robot", Dipak Kumar Mandal, Chanan Singh Syan :CAD/CAM, Robotics and Factories of the Future, Lecture Notes in Mechanical Engineering, Springer, 445-453, 2016
2. Jeet Banerjee, , Soma Banerji, Ranjit Ray, Sankar Nath Shome, , "Fuzzy Based Object Shape Recognition

Using Translation, Rotation and Scale Invariant Parameters—An Automatic Approach", Dipak Kumar Mandal, Chanan Singh Syan :CAD/CAM, Robotics and Factories of the Future, Lecture Notes in Mechanical Engineering, Springer, 69-75, 2016

3. Ranjit Ray, Bikash Bepari and Subhasish Bhaumik , "On the Development of an Intelligent Mobile Robotic Vehicle for Stair Navigation", D.K. Pratihar and L.C. Jain (Eds.): Intelligent Autonomous Systems, SCI 275, pp. 87–122, 2010.

4. Bikash Bepari, Ranjit Ray and Subhasish Bhaumik, "Non Contact 2D and 3-D Shape Recognition by Vision System for robotic Prehension", Robot Vision, Aleksandar Lazinica, (Ed.), Vienna, Austria: I-Tech Education and Publishing, pp. 231-260, 2009.

5. S. Datta and R. Ray, "AMR Vision System for Perception and Job Identification in a Manufacturing Environment", Vision Systems: Applications, Goro Obinata & Ashish Dutta, (Ed.), I-Tech, Vienna, Austria, pp. 519-540, 2007.

Proceeding of conference

1. S. Roy, S. Nandy, R. Ray, S. N. Shome, "Time Delay Sliding Mode Control of Nonholonomic Wheeled Mobile Robot: Experimental Validation", IEEE International Conference on Robotics & Automation (ICRA), 2014, 2886-2892

2. S.Ghosh, R. Ray, S. R. K. Vadali, S. N. Shome, "Light-Particle Interaction in Underwater: A Modified PSF", IEEE ICCSP 2013, Tamilnadu, India, 1029-1034

3. S. Banerjee, G. Sanyal, S. Ghosh, R. Ray, S. N. Shome, "Elimination of Marine Snow Effect from Underwater Image - An Adaptive Probabilistic Approach", IEEE SCEECS 2014, Bhopal, India

4. J. Banerjee, R. Ray, S. R. K. Vadali,, S. N. Shome, R. K. Layek , " Shape recognition based on shape-signature identification and condensibility: Application to underwater imagery", NCVPRIPG 2013, Jodhpur, India, 10.1109/NCVPRIPG.2013.6776224

5. J. Pandey, N. S. Reddy, R. Ray and S N. Shome, "Multi-Body Dynamics of A Swimming Frog - A Co-Simulation Approach", IEEE Int. Conf. on Robotics and Biommimetics (ROBIO 2013), China.

6. J. Pandey, N. S. Reddy, R. Ray and S N. Shome, "Biological Swimming Mechanism Analysis and Design of Robotic Frog", IEEE Int. Conf. on Mechatronics and Automation (ICMA 2013), pp. 741-746, Aug. 4-7, 2013, Takamatsu, Kagawa, Japan.

7. S. Roy, S. Nandy, S. N. Shome, R. Ray, "Robust Localization of an Autonomous Underwater Vehicle: A Comparative Study", IEEE Int. Conf. on Automation Science and Engineering (CASE 2013), Aug. 17-21,2013, Madison, WI, USA.

8. R. Ray, D. Banerji, S. Nandy and S N Shome, "Keypoints based Laser Scan Matching – A Robust Approach", IEEE Int. Conf. on Robotics and Biommimetics (ROBIO 2012), pp. 741-746, Guanghou, China.

9. J. Banerjee, R. Ray, S. N. Shome, "A Novel Approach for Freeman Chain Coding with prior modification using Cubic Interpolation", IEEE Int. Conf. on Computation al Intelligence & Computing Research (ICCIC 2012), pp. 1-4, 18-20, Dec., 2012, Coimbatore, India.

10. Debal Saha, R. Ray, S. Bhaumik, "Dynamic modeling of a skid steered twelve wheeled mobile robot using a slip friction co efficient relationship and its trajectory tracking control", IEEE Int. Conf. on Advances in Engineering, Science and Management (ICAESM 2012), pp. 192-197, 30-31 March, 2012, Chennai, India.

11. R. Ray, V. Kumar, D. Banerjee, and S N Shome, "Simultaneous Localisation and Image Intensity Based Occupancy Grid MapBuilding - A New Approach", Int.Conf. on Intelligent Systems Modelling and Simulation (ISMS 2012), pp.143-148, 8-10 Feb, 2012, Kota Kinabalu, Malayasia.

12. N. S. Reddy, R. Ray and S N. Shome, "Modeling and Simulation of a Jumping Frog Robot", Int. Conf. on Mechatronics and Automation (ICMA 2011), pp.1264-1268, 7-10, Aug., 2011, Beijing, China.

13. Shikha Jain, S. Nandy, R. Ray and S N. Shome, "Application of Particle Filtering Technique for Sensor Fusion in Mobile Robotics", Int. Conf. on Mechatronics and Automation (ICMA 2011), pp.2285-2290, 7-10, Aug., 2011, Beijing, China.

14. Shikha Jain, S. Nandy, G. Chakraborty, C.S. Kumar, R. Ray and S N. Shome, "Error Modeling of various sensors for Robotics application using Allan Variance Technique", IEEE Int. Conf. on Signal Processing, Communication and Computing (ICSPCC 2011) , 14-16, Sept, 2011, Xi'an China.

15. Shikha Jain, S. Nandy, G. Chakraborty, C.S. Kumar, R. Ray and S N. Shome, "Error modeling of Laser Range Finder for robotic application using time domain technique", IEEE Int. Conf. on Signal Processing, Communications and Computing (ICSPCC 2011), 14-16, Sept, 2011, Xi'an China.

16. R. Ray, D. K. Biswas and S. N.Shome, "Virtual Modeling and Model Based Control of a Quadrupedal Walking Machine", International & All India Manufacturing Technology Design & Research Conference (AIMTDR), pp: 223-228, 21 -23 December 2006, IIT Roorkee.

17. R. Ray, N. Barai and S. Bhaumik, "Development of a Pay Load Carrier Platform for a Stair Climbing Vehicle", All India Manufacturing Technology Design & Research Conference (AIMTDR), December 2004, VIT. [**Best Paper Award**]