Ahalya Ravendran

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INTERESTS   Computer Vision, Generative AI, and Large Language Models.

Work Experience

Science Digital CERC Fellow, *CSIRO*, Australia.   Jan, 2024 - Present
Research Project: **Spatial Intelligence Framework for Robotic Agents**

Postdoctoral Research Associate, *The University of Sydney*, Australia.   May, 2023 - Oct, 2023
In collaboration with SCION, New Zealand

Education

PhD in Engineering and Information Technology,   Oct, 2019 - Sep, 2023
Australian Centre for Robotics, The University of Sydney, Australia.

MSc in Engineering and Technology   Aug, 2017 - Jul 2019
Thammasat University, Thailand.

BSc in Mechatronics Engineering   Mar, 2013 - Feb 2017
Sri Lanka Institute of Information Technology, Sri Lanka.

Publications

A. Ravendran, L. Lebrat, R. S. Cruz, H. Zhang, L. Petersson, D. Wang, and X. Li, **LUNA: Low-Light Robust Panoptic Lifting for Adverse Robotic 3D Scene Perception**, Submitted for *IEEE Robotics and Automation Letters (RA-L)*

A. Ravendran, M. Perera, F. Xu, L. Petersson, D. Wang, and X. Li,**IntentFuse: Language-Guided 3D Scene Understanding via Prompt Filtering and Fusion**, Accepted to *International Conference on Digital Image Computing: Techniques and Applications*

X. Li, R. S. Cruz, M. Xi, H. Zhang, M. Perera, Z. Wang, A. Ravendran, B. Matthews, F. Xu, M. Adcock, D. Wang, and J. Liu, **Queryable 3D Scene Representation: A Multi-Modal Framework for Semantic Reasoning and Robotic Task Planning**, Accepted to *ACM Multimedia, 2025*

A. Ravendran, M. Bryson, and D. G. Dansereau, **Learning-Based Burst Feature Extraction for 3D Reconstruction in Low Light**, *International Joint Conference on Neural Networks (IJCNN), 2025*

M. Bryson, A. Ravendran, C. Mercier, T. Frickey, S. Jayathunga, G. Pearse and R. J. L. Hartley, **Domain Adaptation of Deep Neural Networks for Tree Part Segmentation using Synthetic Forest Trees**, *ISPRS Open Journal of Photogrammetry and Remote Sensing, 2024*

A. Ravendran, M. Bryson, and D. G. Dansereau, **Burst Feature Finder for Light-Constrained 3D Reconstruction**, *IEEE Robotics and Automation Letters (RA-L), International Conference on Robotics and Automation (ICRA), vol. 8, no. 12, pp. 8438-8445, 2023*

A. Ravendran, M. Bryson, and D. G. Dansereau, **Burst Imaging for Light-Constrained Structure-from-Motion**, *IEEE Robotics and Automation Letters (RA-L), International Conference on Robotics and Automation (ICRA), vol. 7, no. 2, pp. 1040–1047, 2022.*

S. T. Digumarti, J. Daniel, A. Ravendran, R. Griffiths and D. G. Dansereau, **Unsupervised Learning of Depth Estimation and Visual Odometry for Sparse Light Field Cameras**, *International Conference on Intelligent Robots and Systems (IROS), 2021.*

A. Ravendran and S. Rianmora, **Application of Image-based Acquisition Techniques for Additive Manufacturing using Canny Edge Detection**, *Journal of Computational and Applied Research in Mechanical Engineering, 2021.*

S. Rianmora, I. I. Z. Ridwan and A. Ravendran, **Design and Development of an Intelligent Irrigation System for Thailand: a Kansei Engineering Based Approach**, *Asia-Pacific Journal of Science and Technology*, 2020.

A. Ravendran, P. Ponpai, P. Yodvanich, W. Faichokchai and C. Hsu, **Design and Development of a Low Cost Rescue Robot with Environmental Adaptability**, *IEEE International Conference on System Science and Engineering*, 2019.

A. Ravendran, K. W. T. R. T. De Silva and R. Senanayake, **Moment Invariant Features for Automatic Identification of Critical Malaria Parasites**, *IEEE International Conference on Industrial and Information Systems*, 2015.

Teaching Experience

Tutor, *The University of Sydney*, Australia. 2019 - 2021
  Tutored and evaluated projects based on C, MATLAB and Python.
  Demonstrated multi-sensor robotic platform, UR5e collaborative robotic arm and AI simulators.

Teaching Assistant, *Thammasat University*, Thailand. 2017 - 2019
  Tutored engineering drawing and advanced mechatronics subjects.
  Engaged in interdisciplinary research projects.

Assistant Lecturer, *Sri Lanka Institute of Information Technology*, Sri Lanka. 2017
  Streamlined mechatronics and advanced automation systems laboratory development.
  Evaluated industrial training and final-year projects of undergraduate students.

Industrial Experience

Research Intern, Dec, 2015 - Feb, 2016
Orange Electric, Sri Lanka.

Research Intern, Oct 2014 - Dec 2014
Sri Lankan Airlines, Sri Lanka.

Scholarships and Awards

Young Professional Fellowship, IEEE Intelligent Transportation Systems Society 2023
Career Advancement Award, The University of Sydney 2023
Women Techmakers Ambassador, Google 2022
Science Communication Award, IEEE Robotics and Automation Society ICRA 2022
Engineering and Information Technology Research Scholarship 2019 - 2023
Excellent Foreign Student Scholarship 2017 - 2019
Spring School Scholarship, Sirindhorn International Institute of Technology PARE 2019
Young Research Scholarship Award, EurAsia 2018
Diversity and Inclusion Travel Grants
  Conference on Robotic Learning (CoRL) 2022
  Linux Foundation 2018
  The Robotics: Science and Systems (RSS) 2018
The Walkers CML Award for the overall best performance 2017
Sri Lanka Institute of Information Technology Scholarship based on academic performance 2017
Dean's List for the highest GPA(4.0/4.0) 2014, 2016

Science Outreach

Event Organizer, Tech Ignite 2023
  In collaboration with IEEE Young Professionals, IEEE Women in Engineering and IEEE Intelligent
Transportation Systems Society.

Remote Drone Pilot, Civil Aviation Safety Authority, Australia   2022
    Research data collection in visually challenging conditions.

Super Volunteer, Women in Machine Learning (WiML)   2022
    Social media promotions during NeurIPS and CoRL.

Mentor, Women in Machine Learning (WiML)   2022
    Mentees: Lilya Yahiaoui (Algeria), Oré-Ofè Victoria Sedegan (Côte d'Ivoire)

Executive Committee, Women in Engineering, NSW, Australia   2022
    Webmaster, strategised and implemented new web layout

Keynote, Google I/O Extended, Sydney   2023
    An Odyssey: Pawn Moves to Paint Swirls