Yiduo Wang

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Overall Profile

A current Postdoctoral Research Associate at Australian Centre for Robotics (ACFR), University of Sydney, and a DPhil Engineering Science student at University of Oxford, a graduate with Distinction from MRes Robotics at UCL and a graduate with Class 1 honours from Bachelor of Engineering (Mechatronic) at UNSW:
- Excellent mathematical skills and mechanical and electronic knowledge
- Strong programming and computer skills
- Participation in multiple research projects within different institutes
- Advanced time management and organising/planning abilities

Education Experience

Postdoctoral Research Associate
Australian Centre for Robotics (ACFR)   **Dec 2022 – Present**
University of Sydney
- Researching under Dr Viorela Ila
- ARIA Research project
- Tracking and motion estimation of multiple dynamic objects in visual Simultaneous Localisation and Mapping (SLAM)

Education Experience

DPhil Engineering Science (ORI)   **Octo 2018 – Present**
University of Oxford
- Researching under AProf Maurice Fallon in Oxford Robotics Institute
- Elastic and efficient active mapping in large-scale environments using various robot platforms

MRes Robotics   **Sept 2017 – Sept 2018**
UCL
- Distinction graduation and dissertation
- Researching under Prof Simon Julier
- SLAM with semantic segmentation for dynamic environments

Bachelor of Engineering (Mechatronic)   **Mar 2013 – Dec 2016**
UNSW, Australia
- Class 1 honours and High Distinction results
- Two consecutive The Faculty of Engineering Dean's Awards.

Dissertations

Efficient and Elastic LiDAR reconstruction for Large-Scale Exploration Tasks
- Under the supervision of AProf Maurice Fallon at University of Oxford
- Developed a pipeline that creates efficiently a high-resolution reconstruction of large-scale environments that can be corrected by SLAM loop closures.

SLAM with off-the-shelf semantic segmentation for dynamic environments
- Under the supervision of Prof Simon Julier at UCL
- Developed a system combining a sparse SLAM and a semantic segmentation module to address dynamics in urban environments

2D EKF-based SLAM based on 3D Perception
- Under the supervision of Dr Jose Guivant at UNSW, Australia
- Developed a 2D SLAM algorithm utilising 3D depth vision on a hexapod

Publications
- **Y. Wang**, M. Ramezani and M. Fallon, "Actively Mapping Industrial Structures with Information Gain-Based Planning on a Quadruped Robot," *2020 IEEE International Conference on Robotics and Automation (ICRA)*, 2020.
- M. Ramezani, **Y. Wang**, M. Camurri, D. Wisth, M. Mattamala and M. Fallon, "The Newer College Dataset: Handheld LiDAR, Inertial and Vision with Ground Truth," *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020.
- C. Ye, **Y. Wang**, Z. Lu, I. Gilitschenski, M. Parsley and S. J. Julier, "Exploiting Semantic and Public Prior Information in MonoSLAM," *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020.
- **Y. Wang**, N. Funk, M. Ramezani, S. Papatheodorou, M. Popović, M. Camurri, S. Leutenegger and M. Fallon, "Elastic and Efficient LiDAR Reconstruction for Large-Scale Exploration Tasks," *2021 IEEE International Conference on Robotics and Automation (ICRA)*, 2021.
- **Y.Wang**, M. Ramezani, M. Mattamala, M. Fallon, "Scalable and Elastic LiDAR Reconstruction in Complex Environments Through Spatial Analysis," *2021 European Conference on Mobile Robots (ECMR)*, 2021.
- **Y.Wang**, M. Ramezani, M. Mattamala, S. T. Digumarti, M. Fallon, "Strategies for Large Scale Elastic and Semantic LiDAR Reconstruction," *2022 Journal of Robotics and Autonomous Systems (RAS)*, 2022.

Relevant Experience

University of Oxford	**2019 – 2020**

- AIMS CDT Legged Robots course tutor

UNSW, Australia	**Mar 2017 – June 2017**

- Tutoring MTRN4110 – Robot Design

HUST-Wuxi Research Institute, Computer Vision Team	**Jun 2016 – Jul 2016**

- Participation in the design and development of multiple robot vision systems

UNSW BLUEsat, Off-World Robotics Team   **Jan 2016 – Nov 2016**
- A senior member in electrical department

UNSW Taste of Research Program   **Nov 2015 – Mar 2016**
- Research project *Monitoring Lower Limb Movement Using Only Three Inertia Sensors* under A/Prof. Stephen Redmond

UNSW, Australia   **Aug 2015 – Nov 2015**
- Tutoring MMAN2300 – Engineering Mechanics 2

UNSW Redback Racing   **2013 – Dec 2015**
- The 2015 Electrics Department Head

Skills and Abilities

- Good programming skills in C, C++ and Python, especially involving ROS
- Fluent in English and Chinese