

# WeiQin Chuah

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## ABOUT ME

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I am a self-motivated and enthusiastic Ph.D. graduate in the School of Engineering (Mechanical, Manufacturing, and Mechatronics) from RMIT University, Australia. I am currently working as a post-doctoral researcher at the same institution, where I conduct cutting-edge research in geometric computer vision, generalizable deep learning, and representation learning. My research interests span machine learning, computer vision, autonomous navigation, and robotics. The developed systems will be highly beneficial for real-life applications such as autonomous driving, robotics, augmented reality, and more.

## PROFESSIONAL EXPERIENCE

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- RMIT University / Ford Motor Company** Melbourne, Australia  
• *Research Assistant (Deep Learning, Computer Vision)*  
*Research and development of an intelligent and automated visual inspection system for self-piercing rivets.*  
Oct 2022 - Current
- RMIT University / Bondi Labs** Melbourne, Australia  
• *Casual Researcher (Deep Learning, Computer Vision)*  
*Research and development of an intelligent and automated visual inspection system for vet-assistive technology.*  
Sept 2022 - Oct 2022
- RMIT University** Melbourne, Australia  
• *Mechatronics Engineering Intern (Machine Learning, Image Processing, Sensor Fusion)*  
*Research and development of an intelligent cow screening and cleaning system*  
Dec 2017 - Feb 2018
- Aubot** Melbourne, Australia  
• *Mechanical Engineer Intern (Mechanical Design)*  
*Research and development of a 6 degree of freedom assistant robotic arm, Jeva*  
Apr 2017 - Oct 2017

## PUBLICATIONS

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- An Information-Theoretic Method to Automatic Shortcut Avoidance and Domain Generalization for Dense Prediction Tasks**  
*IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI) 2023*  
WQ Chuah, R Tennakoon, R Hoseinnezhad, A Bab-Hadiashar, D Suter
- Towards Building a Vet-Assist System: Animal pose estimation and counting walking steps**  
*Australasian Conference on Robotics and Automation (ACRA) 2022*  
WQ Chuah, A Bab-Hadiashar, R Tennakoon, F Zambetta, R Hoseinnezhad, J Hall, J Marshall, S Smith, M Stevenson
- ITSA: An Information-Theoretic Approach to Automatic Shortcut Avoidance and Domain Generalization in Stereo Matching Networks**  
*IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2022*  
WQ Chuah, R Tennakoon, R Hoseinnezhad, A Bab-Hadiashar, D Suter
- Semantic Guided Long Range Stereo Depth Estimation for Safer Autonomous Vehicle Applications**  
*IEEE Transactions on Intelligent Transportation Systems (T-ITS) 2022*  
WQ Chuah, R Tennakoon, R Hoseinnezhad, D Suter, A Bab-Hadiashar
- Deep Learning-Based Incorporation of Planar Constraints for Robust Stereo Depth Estimation in Autonomous Vehicle Applications**  
*IEEE Transactions on Intelligent Transportation Systems (T-ITS) 2021*  
WQ Chuah, R Tennakoon, R Hoseinnezhad, A Bab-Hadiashar
- Machine Vision-Enabled Traffic Controller for Safer and Smoother Traffic Flow Around Construction Sites**  
*IEEE Intelligent Transportation Systems Conference (ITSC) 2019*  
WQ Chuah, R Tennakoon, R Hoseinnezhad, A Bab-Hadiashar
- State Transition for Statistical SLAM Using Planar Features in 3D Point Clouds**  
*Sensors, Volume 19, Issue 1614, 2019*  
AK Gostar, C Fu, WQ Chuah, MI Hossain, R Tennakoon, A Bab-Hadiashar, R Hoseinnezhad

## TEACHING EXPERIENCE

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### Post-graduate

- Computational Machine Learning** RMIT University  
• *Tutor / Lab Demonstrator*  
2021 - 2022
- Deep Learning** RMIT University  
• *Tutor / Lab Demonstrator*  
Semester 2 2022

## Under-graduate

- **Machine Learning** RMIT University  
*Tutor / Lab Demonstrator* 2021 - 2022
- **Digital Fundamentals** RMIT University  
*Lab Demonstrator* Semester 1 2021
- **Mechatronics Principle** RMIT University  
*Teaching Assistant* Semester 1 2020

## EDUCATION

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- **Royal Melbourne Institute of Technology (RMIT)** Melbourne, Australia  
*PhD (School of Engineering)* Feb 2019 - Oct 2022  
Thesis: Passive visual depth estimation in the deep learning era.
- **Royal Melbourne Institute of Technology (RMIT)** Melbourne, Australia  
*BSc (Engineering), Adv. Manufacturing and Mechatronics (First Class Honours)* Mar 2014 - Nov 2018

## PROJECTS

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- **RMIT University** Melbourne, Australia  
*Wide Baseline Stereo Data Collection (Data acquisition, System Integration)* May 2019 - April 2020  
*Real-time driving imageries data collection using multiple cameras, LiDAR and GPS sensor.*
- **RMIT University** Melbourne, Australia  
*Mechatronics Final Year Projects (Computer Vision, Robotics)* Mar 2017 - Oct 2018  
*Development of Statistical SLAM Using Planar Features in 3D Point Clouds*

## SKILLS SUMMARY

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- Languages: Python, C++, MATLAB, Bash
- Frameworks: Pandas, Scikit, OpenCV, TensorFlow, Keras, PyTorch
- Tools/Software: Docker, GIT, Jupyter, Carla, CATIA, Solidworks
- Platforms: Linux, Windows, macOS, Arduino, AWS

## EXTRACURRICULAR EXPERIENCE

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- **High Powered Rocket Team - HIVE RMIT** Jun 2018 - Mar 2019  
*Recovery Systems Team Leader*  
Develop a reliable rocket recovery system to allow sufficient drag and counteract the force of gravity for minimizing the landing impact. Our team won the first place in the Australian Universities Rocket Competition in the 30,000ft category in 2019.
- **RMIT Mates Program** Feb 2016 - Oct 2016  
*Volunteer Mentor*  
Provide practical advice, social interaction and general academic guidance to newly-arrived international, regional or rural/remote students in their first semester of study at RMIT University.
- **RMIT Student Learning Advisor Mentors (SLAMs)** Mar 2016 - Jul 2016  
*Volunteer Mentor*  
Provide academic advice and share strategies with students on time management and study planning to achieve outstanding results.

## REFEREES

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Available upon request.