

Dechuan Liu

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PROFILE

- Motivated Mechatronics and Computer Science student at the University of Sydney with skills in programming, mechanical design, and manufacturing.
- Strong problem solver with a passion for innovation and technology, experienced in successful project delivery in surgical robotics, human imitation robotics, collaboration robotics, and lunar rover research.
- Skilled communicator and teacher, with experience as a tutor in multiple engineering fields.
- Proficient in multiple programming languages and software design patterns, seeking a challenging and dynamic environment to apply knowledge and skills.

EDUCATION

Bachelor of Engineering Honours and Bachelor of Science Mar.2019 – Nov.2023 (Expected)

Major: Mechatronics and Computer Science

The University of Sydney

- Credit Average (WAM: 87.3 in 2019, 94.1 in 2020, 91.6 in 2021, 90.2 in 2022)
- Dean's List of Excellence in Academic Performance (2019)
- Dean's List of Excellence in Academic Performance (2020)
- University of Sydney Academic Merit Prize (2020)

Employment

Mechatronic Engineer (Part-time), Department of Hardware Development

July.2022 – Now

Sphere Group, Alexandria, NSW, Australia

- Integrated the control system of Boston Dynamic Spot into the website.
- Designed and tested the network structure for remote communication with Spot.
- Customising Spot interface for specific requirements from Rio Tinto.
- Building visualisation system and interface under both Python and Javascript.

Tutor, School of Electrical and Information Engineering

Mar.2021 – Now

University of Sydney, Camperdown, NSW, Australia

- Tutoring student with basics of Electric circuits and Semiconductor.
- Providing personalised tutoring and targeted support.

Tutor, School of Computer Science

Feb.2022 – July. 2022

University of Sydney, Camperdown, NSW, Australia

- Tutoring basic programming skills and knowledge.
- Providing guidance on coding and fundamental program structure.

Tutor, School of Aerospace, Mechanical and Mechatronic Engineering

June.2021 – Dec.2021

University of Sydney, Camperdown, NSW, Australia

- Tutoring implementation of basic electronic components and circuits in embedded systems
- Providing circuit debug and hardware support

Promoter, Department of Marketing

Jun.2019 – Oct.2020

Ettason Pty Ltd, Villawood, NSW, Australia

- Promoted products/brand promotion - Successfully promoted products to over 60 customers per day.
- Performing market and customer survey on various grocery product for better retail management.

PROJECT EXPERIENCE

University of Sydney – Surgical Robot Research Internship

Dec.2022 – Feb.2023

- Developed and tested control algorithms for a surgical robot arm in skin preparation task
- Collaborated with a team of engineers and medical professionals
- Implementing recurrent equilibrium neural network (REN) in Kuka Med 14 arm control with Julia
- \$4000 Scholarship awarded.

University of Sydney – Human Imitation Robot Arm Research Internship

June.2022 – Aug.2022

- Developed deep understanding of the robot kinematics, dynamics, and control
- Conducting research in image processing with the aid of machine learning (MediaPipe)
- \$2400 Scholarship awarded.

University of Sydney – Collaboration Robot Research Internship

Dec.2021 – Feb.2022

- Designed and implemented a voice-based human-robot interaction
- Applying ABB-Yumi robot arm manipulation under ROS and Linux
- Implementing object identification and localisation with Intel D435i
- \$4800 Scholarship awarded

University of Sydney – Lunar Rover Research Internship

June.2021 – Aug.2021

- Engaged with path planning for off-road automotive vehicle.
- Explore on the Stereo SLAM simulation under Lunar environment (ROS - Linux System)
- \$3000 Scholarship awarded.

OTHER EXPERIENCE

University of Sydney – Mentor

July.2020 – Oct.2020

- Mentored first year students in the Faculty of Engineering, the University of Sydney.
- Provided advice and guidance on their study, as well as leading them through the start of Uni life.

QUT Robotics Club – Brisbane, QLD - Group member

April.2019 – July.2019

- Set up calibrated machinery to meet specific competition requirements and meet desired tolerances as a group member in USYD Robotics Club.
- Monitored operating machinery to assess progress and maintain desired tension and speeds.
- 2nd PLACE, \$300 awarded.

SKILLS, CERTIFICATIONS & OTHERS

- **Languages:** English (Fluent), Chinese (Native)
- **Programming language and software:** Assembly, C, C++, Java, Python, MatLab, Solidworks, Labview,...
- **Familiar Microcontroller:** Motorola 68HC11, PIC16F452

Referees available on request.