

Tung-Cheng Wu

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EXPERIENCE

- **DENSO International America, Inc.** [🌐] Nov 2024 - Present
Pittsburgh, PA, USA
Research Engineer
 - Develop motion planning algorithm for autonomous driving system
- **Carnegie Mellon University** [🌐] Nov 2024 - Present
Pittsburgh, PA, USA
Visiting Researcher
 - **Research Topic:** Autonomous driving and uncertainty quantification
- **DENSO Corporation** [🌐] Apr 2020 - Nov 2024
Tokyo, Japan
Research Engineer
 - Develop a DNN-based algorithm for advanced driver assistance systems. This technology can forecast the lane-changing and cut-in intentions of surrounding vehicles early. It has already passed proof-of-concept (PoC) and been transferred to the product team.
- **Industrial Technology Research Institute** [🌐] Jul 2018 - Sep 2018
Hsinchu, Taiwan
Intern
 - Develop a DQN-based navigation algorithm for quadcopter

EDUCATION

- **National Cheng Kung University** Sep 2017 - Jun 2019
Tainan, Taiwan
Master of Science in Engineering Science, GPA: 4.1 / 4.3 (best 0.7%)
 - **Thesis topic:** Design new updating strategy to improve deep reinforcement learning
 - **Major:** Path planning under uncertain situation
- **National Cheng Kung University** Sep 2013 - Jun 2017
Tainan, Taiwan
Bachelor of Science in Psychology, GPA: 3.76 / 4.0
 - **Major:** Computational Cognitive Neuroscience, Statistical learning theory

PUBLICATIONS


C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION, T=THESIS

- [C.1] **Tung-Cheng Wu, Jon-Fan Hu, Shu-Ling Peng.** (2017). **Influences of the Matching Effects of Cognitive and Emotional Factors on Attitude Change**, In *Proceedings of the Annual Meeting of the Cognitive Science Society*, Vol. 39, Cognitive Science Society
- [C.2] **Tung-Cheng Wu, Shau-Yin Tseng, Chin Feng Lai, Chia Yu Ho, Ying Hsun Lai.** (2018). **Navigating Assistance System for Quadcopter with Deep Reinforcement Learning**. In *1st International Cognitive Cities Conference (IC3)*, pp. 16-19. IEEE.
- [T.1] **Tung-Cheng Wu.** (2019). **Moderating Maximal Value - a Practical Expectation-Based Method for Value Function Approximation in Reinforcement Learning**.
- [J.1] **Ying-Hsun Lai, Tung-Cheng Wu, Chin-Feng Lai, Laurence Tianruo Yang, Xiaokang Zhou.** (2020). **Cognitive optimal-setting control of AIoT industrial applications with deep reinforcement learning**. *IEEE Transactions on Industrial Informatics*, vol.17(3), pp.2116-2123, IEEE
- [S.1] **Tung-Cheng Wu, Alexandre Capone, Jeff Schneider.** (2025). **Traffic Density and Episode Length-Based Curriculum Learning for Realistic Driving Simulators**. Under review.
- [S.2] **Eric Shau, Udit Arora, Ayush Tarachandani, Tung-Cheng Wu, Mineui Hong, Alexandre Capone, Jeff Schneider.** (2025). **Learning to Drive from Failures: LLM-guided Reward Shaping for Autonomous Driving**. Under review.

SKILLS

- **Programming Languages:** Python, Matlab, ROS, C++, R
- **Data Science & Machine Learning Toolkit:** PyTorch, TensorFlow, Keras, sk-learn
- **Other Tools & Technologies:** LaTeX, git
- **Research Skills:** Calibration, Data collection

HONORS AND AWARDS

- **Excellent Master Thesis** Dec 2019
Institute of Information & Computing Machinery
◦ Excellent paper of CS theses in the same year from entire country 
- **Excellent Paper Award** Sep 2018
International Cognitive Cities Conference
◦ 1 of 4 excellent papers from entire conference papers
- **Scholar Award** Jul 2018
Department of Engineering Science
◦ awarded to 5% best students across entire department, Aachen, 2016

ADDITIONAL INFORMATION

- **Languages:** Chinese (native), English (fluent), Japanese (intermediate)
- **Interests:** swimming, hiking, real-time strategy (RTS) game

REFERENCES

1. **Jon-Fan Hu**
Associate Professor, Psychology
National Cheng Kung University
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Relationship: Advisor in BS
2. **Chin-Feng Lai**
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