Yuhai Wang

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https://yuhaiw.github.io/

EDUCATION

University of Southern California | CA, United States *Jan.2023 – Now*
Master of Science in *Analytics*
Relevant Courses: Data Mining, Predictive Analytics, Introduction to Data management

Tiangong University | Tianjin, China *Aug. 2018 – Jul. 2022*
Bachelor of Science in *Internet of Things Engineering (GPA 3.7/4)*
Relevant Courses: Python, MATLAB, C, Cloud Computing and Cloud Storage, Database Principles and Applications
Honors and Rewards: Third Prize Scholarship (2019), Social Activities Individual Scholarship (2019), the Second Prize Scholarship (2020), Excellent Student Cadre (2019, 2021), Extracurricular Competition Scholarship (2021)

PROFESSIONAL EXPERIENCE

Tsinghua University | Beijing
Institute for AI Industry Research (AIR), Tsinghua University *Aug. 2021 – Feb.2022*
Research Engineer/Advisor: Guyue Zhou

- Adopted various programming languages in robotics-related tasks, including using **C** to conduct gait planning of the biped robot ARX-3 and using **MATLAB** to solve the **inverse kinematics** of robotic arms
- Completed camera **calibration**, and detected and return position information of ArUco markers back to **ROS** with Intel® RealSense™ Depth Camera D435i using **OpenCV** library
- Integrated action and vision system of robot arm by using **ROS** in the **Linux** environment**.**
- Connected the simulation and the real machine of the robotic arms and conducted collision detection, trajectory planning, and obstacle avoidance using **MoveIt** and **RViz**
- Contributed to the development of the simulator and competition system for RoboMaster University Sim2Real Challenge at **IEEE ICRA 2022**, resulting in a successful competition.

ACADEMIC PROJECTS

Robotic Development | Tianjin *Oct. 2019 – Oct. 2021*
Tianjin Key Laboratory of Autonomous Intelligence Technology and Systems
Team leader/Advisor: Jianming Wang

- *Designed* a novel transformable mechanism based on four-bar linkage and calculated the robot's kinematics and inverse kinematics; verified the calculation by developing a **C** program
- Created a **simulation** robot model using **Webots** and implemented movement functions via C to simulate two different movements of robot
- Developed controlling programs using **MATLAB** and evaluated locomotion capability in different movements and quadruped structure
- Published a paper at the IEEE International Conference on Robotics and Automation (**ICRA**)
- Applied for a national utility model patent (patent number: 202020868918.9)

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EXTRACURRICULAR ACTIVITIES

Digit Recognizer using Convolutional Neural Networks (CNNs) | Online *Mar. 2023*

- Implemented a **TinyVGG** (CNNs) using **PyTorch** to classify hand-written digits from the MNIST dataset.
- Trained the model for a specific number of epochs using the **cross-entropy** loss function and the Adam optimizer.
- Plot a **confusion matrix** comparing model's predictions to the truth labels and achieved an accuracy of 98.5%.

Digit Recognizer Compare between GANs and DCGANs | Online *Apr. 2023*

- Implemented **DCGANs** using PyTorch to learn a deep representation of the MNIST dataset without any supervision.
- Trained the model with unsupervised learning techniques and generated realistic-looking digit images.
- Compared the outcome of **DCGANs** to traditional **GANs** and analyzed the advantages and disadvantages of both approaches.
- Code: [https://github.com/YuhaiW/00/blob/main/DCGAN.ipynb]

Mathematical Contest in Modeling | Online *Feb. 2020*
Team Leader

- Transformed textual information into mathematical symbols using **NLP models** and modified the model parameters to improve transformation accuracy
- Developed customer satisfaction models with a principal component comprehensive evaluation model to analyze three products on the shopping website and received an **honorable mention prize** issued by the organizer

ADDITIONAL

Technical Skills: Python, PyTorch, R, MATLAB, ROS, Linux, Machine Learning, Deep Learning, C
Publications: Lywal: a Leg-Wheel Transformable Quadruped Robot with Picking up and Transport Functions, 2021 IEEE International Conference on Robotics and Automation (ICRA), 2021. (Xue Yongjiang, Yuan Xichen, Wang Yuhai et al.)