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warner-ng.github.io
Warner-Ng

Binghuan Wu 吴秉寰

And most importantly, have the courage to follow your heart and intuition.

Education

2023.9 - Present **B.E. in Control Engineering**, Junior, *Tongji University*, China.

- GPA 4.4/5.0

Publication

Conference Proceedings

[C1] Kaiyang Ji*, Bingsheng Qian*, **Binghuan Wu***, Kangyi Chen, Ye Shi, and Jingya Wang. DiscoForcing: A unified framework for real-time audio-driven character control with diffusion forcing. ICML 2026 (under review).

Research Experience

2025.9 – 2026.1 **Research Intern**, *ShanghaiTech University*

- Conduct research on real-time generation of humanoid motions conditioned on dynamic environmental inputs
- Train generative models and design model architecture to enable streamed generation under disruption
- Develop structural music encoder to enable strong supervision on motion generation
- Implement retargeting and tracking framework based on ROS2

2024.12 - 2025.6 **Research Intern**, *Shanghai Artificial Intelligence Laboratory*

- Independently explored the use of differential physical simulator in robotics simulation training
- Trained an Unitree H1-2 robots to kneel and walk
- Applied reinforcement learning-based motion retargeting to enable the robot to imitate motion priors from AMASS and HUMOTO datasets
- Contributed engineering code for object-centric motion retargeting for Human-object interaction research

- Learned optimization-based robot control and its implementation in motion retargeting techniques

2024.6 - 2024.7 **Research Intern**, *Institute of Precision Optical Engineering*, Tongji University.

- Acquired fundamental research skills, including paper reading and summarization, and mathematical modeling using MATLAB.
- Contributed to the mathematical modeling of ECDL lasers by developing Matlab code for simulation and analysis.

2023.9 - 2024.12 **Project Leader**, Autonomous Driving Group, *Tongji University Lotus Racing Team.*

- Contributed to the algorithm of Hough Transformation in path planning pipeline, upgraded the performance of path planning by replacing the original MSE method.
- Inplemented different motion planning and control strategy such as Stanley Method, Pure Pursuit and Incremental PID.
- Performed real-vehicle debugging and collected LiDAR point cloud data. Tested the performance of the point cloud clustering algorithm using the ROS RViz tool.

Technical Skills

Programming C++, Python, Swift, MATLAB, Verilog

Fabrication Electrical Design

Tools Linux, ROS1, CUDA(Basic), PyTorch, Isaac Sim/Gym

Control PID, Stanley Method, Kalman Filter (For autonomous driving racecar), MPC(Basic)

Projects and Awards

[1] Reproducing the PULSAR drone system from the University of Hong Kong.

[2] Finish the electrical design of an Running LED with the shape of Open AI logo.

[3] Build an iOS application with the theme of Tongji University.

[4] 3rd Prize in Applied Mechanics, Tongji University, 2024.

[5] Merit Award in Structural Mechanics, Tongji University, 2024.

Student Services

2023 - Present Student Staff, Students' Association for Science and Technology of Tongji Univ.

2023 - Present Long-term Volunteer, Automobile Culture Promotion Society of Tongji Univ.