

# Zhuoguang Chen

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## Education

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Huazhong University of Science and Technology, China (HUST)

Sep. 2020 - Present

B.S. in Artificial Intelligence.

GPA: 3.87 / 4.0

## Project Experience

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**Design and Implementation of a Quadruped Robot for AI Education**

Mar. 2022 - Mar. 2023

- Completed and Verified the **control algorithm** based on an open-source project.
- Wrote the **servo driver code** to finalize the control of the robot.
- Utilized **visual programming** and integrated **AI modules** to enhance the application of the project in education.
- For further information, please visit [https://github.com/zgchen33/witdog\\_ros](https://github.com/zgchen33/witdog_ros).

**Research on Human-Computer Interaction Technology Based on 3D Gaze Estimation**

Mar. 2022 - Mar. 2023

- Utilized **GazeTR-Hybrid** to extract initial features and estimate the gaze direction.
- Projected gaze vectors in space onto the monitor using spatial geometric projection relationships to compute the **points of regard**.
- Captured image data using **only a webcam** and applied the network to **eSports** for a competitive level comparison demo.
- More information about the eSports demo is available at [https://github.com/zgchen33/GazeTR\\_demo](https://github.com/zgchen33/GazeTR_demo).

**Robust Adversarial Attack for Deep Neural Target Detection Network**

Mar. 2023 - July. 2023

- Explored the adaptability of some classical methods including **DPatch**, **DPAttack**, and **RPAttack** on the **DOTA** dataset.
- Introduced Class Patch Attack (**CPAttack**), a novel class-based geometric transformation robust adversarial method.
- By targeting detection boxes for improved results, and directly applying perturbations based on box categories, **CPAttack** exhibits real-time applicability and practical significance.

## Papers

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- Y. Guan, **Z. Chen**, W. Zeng, Z. Cao and Y. Xiao, "End-to-end Video Gaze Estimation via Capturing Head-face-eye Spatial-temporal Interaction Context," in IEEE Signal Processing Letters, doi: 10.1109/LSP.2023.3332569.

As a **co-first author**. Accepted by **IEEE Signal Processing Letters**.

Code: <https://github.com/zgchen33/MCGaze>

## Awards and Honors

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2020 - 2021	<b>Scholarship:</b> "National Encouragement Scholarship"
2020 - 2021	<b>Honorary Title:</b> "Merit Student"
Dec. 2021	<b>Contest:</b> First Prize at the provincial level in "The Chinese Mathematics Competitions"
Nov. 2021	<b>Contest:</b> Excellent Award in "C Programming Competition" of HUST
2021 - 2022	<b>Scholarship:</b> "Self-improvement Scholarship"

## Technical Skills

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**Programming**

Python, C++, C, MATLAB

**Professional systems**

ROS (Robot Operating System), Linux Operation System, Gazebo

**Others**

PyTorch, Rviz, L<sup>A</sup>T<sub>E</sub>X