

# Wenjie Zhang

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## Education

**Shandong University, China.** MS in Control Science and Engineering Sep. 2023 – Present

- Average score: 90.07. Advisor: [Prof. Wei Zhang](#). Award: Youth Science Award of Shandong University (Top 1%).

**Shandong University, China.** BS in Automation Sep. 2019 – Jul. 2023

- Average score: 90.85. Award: Shandong Province Outstanding Undergraduate Graduate.

## Research Projects

**B2Q-Net: Bidirectional Branch Query Network for Online Surgical Phase Recognition** [\[Code\]](#)

- We introduce B2Q-Net, which formulates the online phase recognition task as a bidirectional query between phase-level features and frame-level features. Extensive evaluations on three datasets demonstrate that B2Q-Net consistently outperforms state-of-the-art methods in recognition accuracy while achieving an inference speed of 106 fps. The paper is submitted to IEEE TMI 2025.

**DBR-TAD: Diffusion-Based Boundary Refinement for Temporal Action Detection** [\[Code\]](#)

- We introduce DBR-TAD, a diffusion-based boundary refinement method for temporal action detection TAD. DBR-TAD locates accurate action boundaries from noisy action boundaries through a progressive denoising process. Extensive experiments demonstrate that DBR-TAD achieves the state-of-the-art performance on three single-label datasets and two multi-label datasets. The paper is submitted to IEEE TIP 2025.

**Frequency-Based Adaptive Mutual Learning for Semi-Supervised Medical Image Segmentation**

- We introduce FAM, a framework that enhances the reliability and self-correction capability of pseudo-labels. FAM tackles confirmation bias by incorporating multiple strategies, with distinct inner and outer learning loops designed for progressive optimization. Extensive experiments on the ACDC and PROMISE12 datasets demonstrate that FAM achieves state-of-the-art performance. The paper is submitted to IEEE TIM 2025.

**TriQuery: A Query-Based Model for Surgical Triplet Recognition**

- This work introduced TriQuery, a query-centric model for surgical triplet recognition. Built on a multi-task Transformer framework, TriQuery decomposes the complex triplet task into three semantically aligned subtasks using task-specific query tokens, which are processed through specialized attention mechanisms.

## Competitions

APTOS Big Data Competition of Alibaba Cloud Tianchi @APTOS2025	Runner-up
Action Spotting challenge of the SoccerNet Challenge @CVPR2023.	Winner
Huawei Cup National Graduate Mathematical Modeling Contest.	2nd Prize
Shandong Province Undergraduate Science and Technology Innovation Competition.	1st Prize

## Academic Services

**Conference Reviewer:** International Conference on Artificial Neural Networks (ICANN 2024)