

ZHICHENG ZHANG

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BIOGRAPHY

I am currently pursuing a Ph.D. degree at Nankai University, supervised by Prof. Jufeng Yang. My research interests include computer vision and deep learning, particularly focusing on **video understanding** and **video-language multimodal learning**. The main objective of my research is to enable machines to understand high-level instances as humans, including cognitive emotion and geometric primitive.

EDUCATION

Nankai University, <i>Ph.D. student</i> , Advisor: Jufeng Yang	2021.9 - present
Xidian University, <i>B.Eng.</i>	2017.9 - 2021.6

RESEARCH

① *Temporal dynamics in analysing cognitive emotion*

Weakly Supervised Video Emotion Detection and Prediction via Cross-Modal Temporal Erasing Network [code]

2021.11-2022.3

- **Zhicheng Zhang**, Lijuan Wang, Jufeng Yang First author, **CVPR23**
- We introduce a weakly supervised network to exploit keyframes and the necessary context in a unified framework, which encourages the model to extract features from multiple discriminative parts. Our proposed method respectively obtains improvement of 3.2%, 2.9%, and 1.8% on three challenging benchmark datasets.
- To find the discriminative temporal part, we exploit intra- and inter-modal relationships to locate the key temporal segment, with which both holistic representations from the overall video and the local one from keyframes are fused.

Temporal Sentiment Localization: Listen and look in Untrimmed Videos [code] 2021.12-2022.4

- **Zhicheng Zhang**, Jufeng Yang First author, **ACM MM22**
- We propose a weakly-supervised framework to simultaneously locate and classify multiple emotional events, which may convey different categories in a video. When only using categorical labels in the keyframes ($71.39\times$ less annotation burden than the full supervision), our method achieves an mAP of 28.72 and outperforms previous best weakly-supervised methods with a margin of 33.43%.
- Considering that multiple events are derived from multimodal stimuli, we propose a temporal sentiment distribution learning strategy and model the sentiment class conveyed in each segment according to the intensity.

② *Spatial dynamics in recognizing geometric planes*

PlaneSeg: Building a Plug-in for Boosting Planar Region Segmentation [code] 2021.3-2022.3

- **Zhicheng Zhang**, Song Chen, Zichuan Wang, Jufeng Yang First author, **TNNLS23**
- We design a plug-in framework that provides edge-aware features to address the problem of ambiguous boundaries. When integrated into existing methods, our framework brings an average improvement of 7.42%, 3.70%, 10.86%, and 3.67% over PlaneRecNet on plane segmentation, plane detection, plane reconstruction, and depth prediction, respectively.

HONORS AND AWARDS

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| • SK AI Innovation Scholarship (the First Pride) | 2023.4 |
| • Nankai Gongneng Scholarship | 2021.9 |
| • Xidian Special Scholarship | 2020.12 |