

# Su Wang

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## EDUCATION

**Xi'an Jiaotong University**, Xi'an, China

June 2023

*Master of Computer Science and Technology | Institute of Artificial Intelligence and Robotics (IAIR)*

**Xi'an Jiaotong University**, Xi'an, China

June 2020

*Bachelor of Computer Science and Technology*

## RESEARCH EXPERIENCE (SELECTED)

**Task-Aware Deformable Prediction for Single-Stage 3D Object Detection**

January 2022 – September 2022

- We design TFRA module to extract 3D features with triple scales.
- We propose MSFA module is adopted to fuse features in the scale-aware method.
- We propose a plug-and-play head TADH which is to reduce the misalignment of features in all tasks.

**Rotation Invariant Transformer for Point Cloud Registration**

March 2022 – August 2022

- A rotation invariant representation is applied to feature extraction of point cloud registration
- A fast pre-processing step rotation invariant sampling is proposed

**Multi-level Object Detection by Multi-Sensor Perception of Traffic Scenes**

February 2021 – May 2022

- We improved RetinaNet designed by the optimization of the sub-network of ResNet.
- The centripetal offset module and deformable module to improve the accuracy of corner matching.
- We Proposes a completely new increased steps way to segmente the frustum based on 2D and 3D.

**Reinforced Attentional 3D Object Detection with Residual Sparse Convolution**

October 2021 – July 2022

- We propose the stacked triple attention mechanism to enhance crucial features of the voxels.
- Then ResSpConv3D unit is designed to replace the normal 3D sparse convolution.
- proposed attentional feature fusion (AFF) module is incorporated into the region proposal network.

**Frustum PointNet for 3D Object Detection from Traffic Scenes**

August 2020 – May 2021

- we segment the point cloud frustums evenly and apply multi-scale sliding window to extract local features.
- A new class-aware fusion method based on self-attention for 2D and 3D is developed.

## PUBLICATIONS

- **S. Wang**, Y. Li, M. Yang, J. Nie, R. Huang Y. Liu “TADP: Task-Aware Deformable Prediction for Single-Stage 3D Object Detection.” Submitted to **ICRA 2023**, *CCF-B CORE-B*. (1st author)
- M. Yang, Y. Li, **S. Wang**, S. Yang Y. Liu “RITNet: A Rotation Invariant Transformer based Network for Point Cloud Registration.” Accepted by **ICTAI 2022**, *CCF-C CORE-B*. (2nd stu-author)
- S. Yuan, Q. Zhang, L. Zhu, **S. Wang**, Y. Zang X. Zhao “Multi-level Object Detection by Multi-Sensor Perception of Traffic Scenes.” Accepted by **SCI Neurocomputing**, *JCR Q2*. (2nd stu-author)
- Q. Li, Y. Li, W. T, **S. Wang**, X. Hou Y. Liu “Reinforced SECOND: Attentional 3D Object Detection with Residual Sparse Convolution.” Submitted to **ICRA 2023**, *CCF-B CORE-B*. (3rd stu-author)
- Y. Li, L. Zuo, W. T, **S. Wang** W. Guan “Frustum PointNet for 3D Object Detection from Traffic Scenes.” Submitted to ACM Transactions on Multimedia Computing Communications and Applications. (3rd stu-author)

## PROJECT EXPERIENCE (SELECTED)

**Ascend Ecological Development Department**

March 2022 – June 2022

*Research Assistant*, Huawei Ascend

- Transplanted the deep learning model to Huawei's Ascend AI processor for deployment.
- Completed the compatibility and performance verification of both systems.
- Achieved the required accuracy and performance on the Ascend AI processor about several DL models.

**Boyun Vision (Beijing) Technology**

February 2021 – June 2021

*Research Assistant*, BoYun Vision

- Building a classification detector for photos.
- Building an anomaly detector for road guardrail photos.
- Embed the detector into the app.

## ACTIVITY

- TA of *Principles and Technology of Artificial Intelligence & Data Structure*. 2021 – 2022
- Class Monitor in *Xi'an Jiaotong University*. 2020 – 2023
- Vice Chairman in *Student Union of Xi'an Jiaotong University SuZhou Research Institute*. 2020 – 2021