Xiaogang Jia

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Education

Harbin Institute of Technology(HIT) — Harbin, China
Master of Engineering in Control Engineering, School of Astronautics, 2021 — *Sept. 2019 - PRESENT*
- GPA: 87.14/100

University of California, Berkeley — Berkeley, USA
Remote Research Assistant, Mechanical Systems Control Lab — *Jun. 2020 - PRESENT*
- Research Topics: behavior prediction in highly interactive driving scenarios

Harbin Engineering University(HEU) — Harbin, China
Bachelor of Engineering in Automation, School of Automation — *Sept. 2015 - Jun. 2019*
- GPA: 91.11/100 Ranking: 15/285

Publications

- **Xiaogang Jia**, Xianqiang Yang, Huijun Gao. A Modified CenterNet for Crack Detection of Sanitary Ceramics. IECON 2020 - The 46th Annual Conference of the IEEE Industrial Electronics Society.(submitted)
- Zhihao Zhang, Xianqiang Yang, **Xiaogang Jia**. Scale-Adaptive NN-based Similarity for Robust Template Matching. IEEE Transactions on Instrumentation and Measurement, 2020.(submitted)

Research Experiences

Behavior Prediction for Autonomous Driving — Jun. 2020 - PRESENT
Advisor: Prof. Masayoshi Tomizuka, Dr. Wei Zhan, MSC Lab, UC Berkeley
- Modified **Social-Gan** and **Social-STGCNN** to predict trajectories of vehicles.
- Verified both algorithms on the INTERACTION Dataset, which was also a challenge in **CVPR 2020** workshop, "Scalability in Autonomous Driving"
- Achieved a result of ADE=0.55, FDE=1.62, MON=0.22 and ranked **2nd** with MON metirc.

Object Detection in Aerial Images — Feb. 2020 - PRESENT
Advisor: Prof. Huijun Gao, Prof. Xianqiang Yang, Machine Vision Lab, HIT
- Proposed a **point-based** network to localize objects in a low-resolution feature map and generate high-quality clusters.
- Implemented a detector based on **CenterNet** and **FPN** to process both original images and cropped images.
- Merged all predicted bounding boxes by standard NMS.
- Verified the model on VisDrone2019 validation set and achieved an AP of 31.4%.
- Achieved an AP of 23.2% in VisDrone Challenge of **ECCV 2020** workshop, "Computer Vision for UAVs Workshop and Challenge".

License Plate Recognition in Natural Scenes — Nov. 2018 - Jun. 2019
Advisor: Prof. Huijun Gao, Prof. Xianqiang Yang, Machine Vision Lab, HIT
- Used **YOLOv2** to detect all cars in the captured images.
- Proposed a novel **CNN** to predict a set of affine transformation parameters, which were used to extract the areas of License Plates and correct the distorted License Plates.
- Simplified the standard YOLOv2 to perform character detection.
- Achieved an accuracy of 94.5% on the established dataset.

Intelligent Monitoring System for Conveyor Belt in Coal Industry — Apr. 2019 - Dec. 2019
Advisor: Prof. Huijun Gao, Prof. Xianqiang Yang, Machine Vision Lab, HIT
- Implemented the detection for the speed of the conveyor belt based on **SURF** feature detector.
- Modified the original **YOLOv3** to perform the detection of workers, smoke and fire.
- Detected the area of the coal based on **Mask-RCNN** to make sure the normal operation of conveying coal.
- Used **template matching** to detect if the coal piling exceeds the defined height.

Skills & Others

Programming	Python, C/C++, Latex
Technical	Experienced with Opencv, PyTorch, Keras, TensorFlow, ROS under Ubuntu operating system
Deep Learning	In depth knowledge of CNN-based Object Detection and Instance Segmentation
TOEFL	Reading(29), Listening(24), Speaking(22), Writing(25), Total(100)