

Xiaogang Jia

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Education

Harbin Engineering University School of Automation

Harbin, Heilongjiang
Sep. 2015 - Jun. 2019

- Bachelor of Engineering in Automation
- GPA: 91.11/100(ranking:15/285)
- Courses: *Linear Algebra and Analytic Geometry(97/100), Calculus(94/100), Probability and Mathematical Statistics(94/100), Complex Functions and Integral Transforms(97/100), Automatic Control Theory(95/100), Digital Signal Processing(95/100) etc.*

Harbin Institute of Technology School of Astronautics

Harbin, Heilongjiang
Sep. 2019 - PRESENT

- Master of Engineering in Control Engineering
- Courses: *Matrix Analysis (96/100), Machine Vision(89.7/100), Data Analysis and Feature Extraction(88/100) etc.*

Standard Tests

- TOEFL: Reading(29), Listening(24), Speaking(22), Writing(25), Total(100)

Publications

A Modified CenterNet for Crack Detection of Sanitary Ceramics

Xiaogang Jia, Xianqiang Yang, Huijun Gao

Annual Conference of the IEEE Industrial Electronics Society (IECON), 2020

Scale-Adaptive NN-based Similarity for Robust Template Matching

Zhihao Zhang, Xianqiang Yang, Xiaogang Jia

IEEE Transactions on Instrumentation and Measurement

Projects

Intelligent Monitoring System for Conveyor Belt in Coal Industry

Apr. 2019 - Dec. 2019

Main Researcher

- 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.
- Used multiple threads to pull together all subtasks and implemented the communication between **Python** and **C++**(SURF and template matching were realized in OpenCV based on C++ and other deep CNNs were realized using Python).

Defect Detection for Sanitary Ceramics(2018YFB1308404)

Feb. 2020 - May. 2020

Main Researcher

- Collected enough images of Sanitary Ceramics which consist of varied defects.
- Proposed a modified **CenterNet** based on **ResNet18**(including changing the main structure and using an adaptive feature fusion method) to complete full-resolution, robust and real-time detection.
- The detection **AP** of Cracks can achieve 96.16% at present.

License Plate Recognition in Natural Scenes

Nov. 2018 - Jun. 2019

Main Researcher

- Collected car images from cameras and Web Crawler.
- 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.
- Set up the dataset for Plate Characters(except for the collected images, there were also many synthesized License Plates).
- Simplified the standard **YOLOv2** to perform **character detection**(here the character localization and recognition were fused into the detection pattern).

Honors & Scholarships

- 2017 **First Prize Scholarship for Bachelor Students(8%),** Harbin Engineering University
 Merit Student, Harbin Engineering University
- 2016 **Second Prize of National Undergraduate Electronic Design Contest,** Heilongjiang Province

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
- Practice** Reproduced CornerNet, CenterNet, FPN, Scale-Aware training, Feature Slective Module.
- Future study** Excited to do other interesting computer vision research
- Hobbies** Basketball, DC, Harry Potter