

Chaohao Xie

COMPUTER VISION · DEEP LEARNING

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Education

Harbin Institute of Technology(HIT)

B.ENG. IN SOFTWARE ENGINEERING, SCHOOL OF COMPUTER SCIENCE

- Got a National Encouragement Scholarship which is given to promising students.

Harbin, China

Sep. 2014 - Jun. 2019

Harbin Institute of Technology(HIT)

MASTER IN SOFTWARE ENGINEERING, SCHOOL OF COMPUTER SCIENCE

Harbin, China

Sep. 2019 - Present

Research

Image Inpainting

HIT, Harbin, China

Oct. 2018 - Mar. 2019

- **Chaohao Xie**, Shaohui Liu, Chao Li, Ming-Ming Cheng, Wangmeng Zuo, Xiao Liu, Shilei Wen, Errui Ding. Image Inpainting With Learnable Bidirectional Attention Maps. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 8858-8867. [Paper Link](#)
For image inpainting task, we believe that the valid pixel values may not contribute equally to the damaged portion, pixels near the hole boundary and that far from the holes might have different impact on the missing values. Therefore, we propose a learnable attention map module for soft feature re-normalization to the U-Net architecture, making it more adaptive to handling irregular holes and propagation among layers. In addition, we introduce a reverse attention map for constraining the decoder to focus mainly on recovering the missing parts instead of both holes and known region.

Fault Diagnosis

HIT, Harbin, China

Apr. 2017 - Sep. 2017

- Yuanhang Chen, Gaoliang Peng, **Chaohao Xie**, Wei Zhang, Chuanhao Li, Shaohui Liu. ACDIN: Bridging the gap between artificial and real bearing damages for bearing fault diagnosis. Neurocomputing, Volume 294, 14 June 2018, Pages 61-71. [Paper Link](#)
I mainly contribute the training and testing code for the bearing fault diagnosis work, the proposed method achieves higher performance than previous methods.

Image Segmentation

HIT, Harbin, China

Oct. 2019 - Present

- This is an on going work on weakly supervised image segmentation task as first author. Many CNNs-based weakly supervised image segmentation methods use bounding box annotations with DenseCRF or GrabCut(, etc.) to produce the proposals for training the segmentation network. Our main idea is to design a deep CNN as CRF for generating the pixel-level proposals inside the bbox. Our implemented deeplabv1 and deeplabv2 models have surpassed state-of-the-art methods. I will finish the paper for submitting CVPR 2021.

Honors & Awards

2019 **For Promising Students**, Huawei Scholarship (Only five of the total 270 students get)

HIT, Harbin, China

2019 **Outstanding Student Recommended for Admission (Top 2%)**, HIT

HIT, Harbin, China

2016 **National Encouragement Scholarship**, HIT

HIT, Harbin, China

2016 **The Second Price of Heilongjiang Province**, Lanqiao Cup Programming Competition

HIT, Harbin, China

Internship

Department of Computer Vision Technology (VIS), Baidu Inc.

Beijing, China

ALGORITHM ENGINEER

Mar. 2019 - June. 2019

- Developed deep CNNs-based method for multi-frame video super resolution task, including a spatial transformer module for alignment, a densely connected network sr module, and a self-ensemble module.

Skills

Programming Python, C/C++, Matlab, Lua

Frameworks PyTorch, TensorFlow, Torch, Caffe

Languages English, Chinese (Native speaker)