Zhang Bin

Position Applied: Computer Vision Researcher Intern

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Education

Southeast University Sep. 2018 - Present

M.S. in Electronic and Communication Engineering, research interest: multivariate signal processing, image processing and computer vision. Recommended postgraduate, IEEE student member and peer reviewer.

Hohai University Sep. 2014 - June 2018

B.S. in Communication Engineering, GPA: 4.82/5.00, chair of student science and technology association.

Internship

ArcSoft Inc. **Computer Vision Intern** Mar. 2019 - Present

- Studied the commonly used noise models of camera, tried to generate sRGB training dataset as similar as possible to the real-world data, and developed a software yielding noisy images for image denoising and super resolution tasks.
- Investigated and studied learning based image denoising algorithms especially for burst of images or videos, and improved them for the better generalization on real-world noisy images. For example, BayerUnify and BayerAug (MEGVII), Kernel Prediction Networks (KPN, Google), Deformable KPN (SenseTime), etc.

GoVion Co. Ltd. **Image Processing Intern** June 2018 - Jan. 2019

- Designed and developed the core algorithms for detecting defects of LCD and OLED displays, such as MURA, bubble, color edges, and so on.
- Some softwares have been embedded into the products.

Projects

EMD and Its Applications on Image Processing - (*Undergraduate and Postgraduate Thesis*)

- Empirical mode decomposition (EMD) is a fully data-driven technique for non-linear and non-stationary signal.
- Proposed a novel bidimensional multivariate EMD (BMEMD), found its application in multi-scale image fusion.
- Developed the fast version based on order statistic filters.

Algorithms of Pedestrian Detection and Action Recognition - (*JSCVC 2018*)

- Pedestrian detection: Faster-RCNN and YOLO, the ResNet50 backbone.
- Action recognition: Temporal Segment Networks with backbone of ResNet50, and 3D Convolutional Networks.

Skills

Programming Languages: Python, C/C++, Matlab

Libraries and Others: PyTorch, OpenCV, Ubuntu, git, docker, LaTeX, TensorFlow

Publications

- Y. Xia, **B. Zhang**, W. Pei, and D. P. Mandic, "Bidimensional Multivariate Empirical Mode Decomposition with Applications in Multi-Scale Image Fusion," *IEEE Access*, 2019. *Under Review*, (**IF=4.098, Q2**)
- **B. Zhang**, Y. Xia, and D. P. Mandic, "Generalized Kernel Prediction Networks for Burst Denoising," *Under revised.*
- Two patents about proposed BMEMD.

Awards

- Nov. 2016, **National Undergraduate Scholarship**.
- Nov. 2016, **Outstanding Science Volunteer**, Changzhou.
- Jan. 2016, **Excellent Student Cadre**, Hohai University.
- Nov. 2018, **Outstanding Winner**, Jiangsu Postgraduate Computer Vision Innovation & Practice Competition.
- Sep. 2017, **First Prise**, National Undergraduate Electronics Design Contest.
- Aug. 2016, **First Prize**, College Student Smart Internet Innovation Application Design Contest.