

# Chao Huang

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## EDUCATION

**Nanjing University**, Nanjing, Jiangsu, China

- B.S. in Electronic Science and Engineering Sep 2015 – Jun 2019
  - Major: Communication Engineering

## RESEARCH EXPERIENCE

### Optical Flow Compensation for Multi-Frames Super-Resolution

- Vision Lab, Nanjing University Feb 2018 – May 2018
- Supervisor: Prof. Zhan Ma
  - Stacked multiple deep convolutional neural networks to deal with different kinds of displacements
  - Proposed a U-net shape CNN to estimate the optical flow between two or more neighboring frames
  - Employed a image warping in the neighboring two frames to estimate the current frame and achieved multi-frames super resolution

### Compressive Sampling for Array Cameras

- Computer Lab, Duke Kunshan University Jun 2018 – Aug 2018
- Supervisor: Prof. David Brady
  - Selected a Compressed-Sensing method to reduce computation in the encoder and processed raw bayer format data from camera
  - Achieved better results than JPEG/JPEG2000: maintaining high quantitative profile like 35dB in PSNR with compression ratio around 1/200
  - Designed an integer kernel strategy for training and reduced the power consumption largely about 10-100 times
  - This work "Compressive Sampling for Array Cameras" was submitted to Nature Communications.

### Extreme Image Compression

- Vision Lab, Nanjing University Sep 2018 – Feb 2019
- Supervisor: Prof. Zhan Ma
  - Adopted generative adversarial networks for extreme image compression
  - Proposed a novel Multi-Scale AutoEncoder framework
  - Reconstructed the images with acceptable perceptual quality at a low bitrate (like 0.03bpp)
  - This work "EXTREME IMAGE COMPRESSION VIA MULTISCALE AUTOENCODERS WITH GENERATIVE ADVERSARIAL OPTIMIZATION" was submitted to ICIP 2019.

### Neural Stitching

- C.I.T.E Lab, Nanjing University Oct 2018 – Dec 2018
- Supervisors: Prof. Xun Cao and Prof. Yue Tao
  - Used a low resolution image as guidance and registered high resolution images to the low-res image
  - Combined plane sweep volume(PSV) method with CNN and accomplished the de-parallax task while maintaining resolution

## OTHER WORK EXPERIENCE

**YANSHENG TECHNOLOGY CO., LTD.**, Guangzhou, Guangdong, China

- Assistant Researcher, Jul 2017 – Aug 2017
  - Improved the storage algorithm and program structure, provided a powerful data analysis function in order to improve Fujian traffic system's efficiency
  - Participated in web page design and helped establish a user friendly interface with quick response and concise style operation

**Aqueti(China) Technology Inc., Co.**, Suzhou, Jiangsu, China

- Assistant Research and Develop Engineer, Jun 2018 – Aug 2018
  - Established multi-views cameras system and collected image datas from different objects and scenes to make training datasets
  - Developed novel convolutional neural network based algorithms for array cameras data processing pipeline

<b>AWARDS &amp; SCHOLARSHIPS</b>	▪ Special-Class People's Scholarship, Nanjing University	Dec 2016
	▪ Second-Class People's Scholarship, Nanjing University	Dec 2017
	▪ Yang Yongman Scholarship, Nanjing University	Jan 2018
<b>CAMPUS ACTIVITIES</b>	<b>Xianyu Sign Language Club</b> , Nanjing University	
	▪ Vice President	Aug 2016 – Jun 2017
	• Organized and held public benefit activities about sign language for students in Nanjing University	
	<b>Academic Department</b> , Nanjing University	
	▪ Vice President	Aug 2016 – Jun 2017
	• Organized and held a series of academic exchange activities such as professional lecture and experience sharing	
<b>LANGUAGES</b>	▪ Mandarin: Native language.	
	▪ English: Fluent (speaking, listening, reading, writing).	
	▪ Cantonese: Fluent (reading, listening, speaking); Intermediate (writing).	
	▪ Russian: Basic (reading, listening, speaking, writing);	
<b>PROGRAMMING SKILLS</b>	▪ <b>Language:</b> MATLAB,C/C++,Python	
	▪ <b>Frameworks:</b> Pytorch, Tensorflow.	
<b>INTERESTS</b>	Computer Vision, Computer Graphics, Deep Learning, Signal Processing.	