Jin Zeng
曾進

The Hong Kong University of Science and Technology
Clear Water Bay, Kowloon, Hong Kong
852-5483-7412 • jzengab@connect.ust.hk

Profile

- **Research Focus:** graph signal processing, image processing
- **Career Objectives:** a research position on multimedia processing, computer vision, machine learning, AI, *etc.*
- **About me:** analytical thinking, trouble shooter, good learner, exposure to different cultures and adaptive to new environment

Education

2012.9-Present PhD candidate, Department of Electronic and Computer Engineering, HKUST

- Advisors: Prof. Khaled B. LETAIEF and Prof. Gene CHEUNG
- CGA: 3.883/4.3

2008.9-2012.6 B.Sc., School of Electronic Science and Engineering, Nanjing University

- GPA: 4.6/5，Class Rank: 1/177

Visiting/Exchange Experience

2015.1-2016.1 & 2016.6-2017.6 Intern Student, National Institute of Informatics, Japan

- Supervised by Prof. Gene CHEUNG and Prof. Antonio ORTEGA, supported by Oversea Research Award granted by HKUST

2014.6-2014.8 Exchange Student, AOTULE program, Tokyo Institute of Technology, Japan

- Supervised by Prof. Yukihiko Yamashita, supported by JASSO scholarship

2010.9-2011.4 Exchange Student, OJS Program, University of Ottawa, Canada

Research/Project Experience

2017.2-now 3D Point Cloud Denoising with Low-Dimensional Manifold Model

- Proposed a novel low-dimensional patch manifold model for 3D point cloud denoising
- Designed an efficient algorithm with graph Laplacian regularization

2017.1-2017.2 Hyperspectral Image Coding with Graph Wavelets

- Designed a low-complexity and high efficiency compression scheme for hyperspectral images via graph wavelets

2015.1-2017.1 Bipartite Subgraph Decomposition for Critically Sampled Graph Wavelet Filters

- Proposed NEW criteria for graph bipartition to promote compact signal representation in wavelet domain when applying critically sampled wavelet filterbanks on graphs

2014.5-2014.12 Subpixel Image Quality Assessment

- Proposed the FIRST comprehensive objective metric for subpixel images
- Conducted massive online user survey to obtain reliable data for metric training

2013.5-2014.4 Subpixel-based Image Downsampling

- Designed a subpixel image downsampling scheme that well balances the luminance sharpness and color fidelity of the resulting images based on subpixel-rendering

2012.2-2012.6 Stereoscopic Display of 3D Reconstruction Model, Bachelor Degree Thesis

- Developed a system of presenting the result of 3D reconstruction in a stereo fashion

2011.2-2011.4 Hand Rehabilitation Project, DISCOVER Lab, University of Ottawa

- Developed a device for hand rehabilitation, responsible for Java coding

Selected Publications

Jin Zeng, Gene Cheung, Antonio Orgeta, "Bipartite Approximation for Graph Wavelet Signal Decomposition", submitted to IEEE Trans. Signal Processing.

Jin Zeng, Lu Fang, Jiahao Pang, Houqiang Li, Feng Wu, "Subpixel Image Quality Assessment Syncretizing Local Subpixel and Global Pixel Features", IEEE Trans. Image Processing, 2016, 25(12): 5841-5856.

Jin Zeng, Gene Cheung, Yung-Hsuan Chao, Ian Blanes, Joan Serra-Sagrista, Antonio Ortega, "Hyperspectral Image Coding Using Graph Wavelets", IEEE Int. Conf. on Image Processing, 2017.

Jin Zeng, Gene Cheung, Antonio Ortega, "Bipartite Subgraph Decomposition for Critically Sampled Wavelet Filterbanks on Arbitrary Graphs", IEEE Int. Conf. on Acoustics, Speech and Signal Processing, Shanghai, China, March, 2016.

Jin Zeng, Oscar C. Au, Yuanfang Guo, Jiahao Pang, Ketan Tang, Yonggen Ling, "Analysis of Sampling Pattern and Luma-chroma Filter Design for Subpixel-based Image Downsampling", IEEE Int. Conf. on Acoustics, Speech and Signal Processing, Florence, Italy, May, 2014.

Jin Zeng, Oscar C. Au, Wei Dai, Yue Kong, Luheng Jia, Wenjing Zhu, "A Tutorial on Image/Video Coding Standards", APSIPA Annual Summit and Conference (ASC), Kaohsiung, Taiwan, November, 2013.

Co-authored Publications

Jiahao Pang, Lu Fang, **Jin Zeng**, Yuanfang Guo, Ketan Tang, "Subpixel-based Image Scaling for Grid-like Subpixel Arrangements: a Generalized Continuous-domain Analysis Model," IEEE Trans. Image Processing, 25.3 (2016): 1017-1032.

Yonggen Ling, Oscar C. Au, Jiahao Pang, **Jin Zeng**, Yuan Yuan, Amin Zheng, "Image Colorization via Color Propagation and Rank Minimization", IEEE Int. Conf. on Image Processing, Quebec City, Canada, September, 2015.

Jiahao Pang, Oscar C. Au, Yukihiko Yamashita, Yonggen Ling, Yuanfang Guo, **Jin Zeng**, "Self-Similarity-Based Image Colorization", IEEE Int. Conf. on Image Processing, Paris, France, October, 2014.

Haiyan Yang, Oscar C. Au, **Jin Zeng**, Mengqi Ji, Yuan Yuan, Sunil Jaiswal, "A Comprehensive Study on Digital Image Matting", IEEE China Summit and International Conference on Signal and Information Processing, Xi'an, China, July, 2014.

Wenjing Zhu, Oscar C. Au, Wei Dai, Haitao Yang, Rui Ma, Luheng Jia, **Jin Zeng**, Pengfei Wan, "Palette-based compound image compression in HEVC by exploiting non-local spatial correlation", IEEE Int. Conf. on Acoustics, Speech, and Signal Processing, Florence, Italy, May, 2014.

Yonggen Ling, Oscar C. Au, Ketan Tang, Jiahao Pang, **Jin Zeng**, Lu Fang, "An Analytical Study of Subpixel-based Image Down-sampling Patterns in Frequency Domain", IEEE Int. Conf. on Visual Communications and Image Processing (VCIP), Kuching, Sarawak, Malaysia, November, 2013.

Teaching Experience

ELEC2300 Computer Organization(Fall 2014/2013), Teaching Assistant

ELEC4120 Computer Network(Spring 2013), Teaching Assistant

Internship Experience

2011.7-2011.8 China Telecom, Wuxi, China

- Responsible for testing a communication application based on ISMP Platform
- Market analysis about Social Network, Location Based System

Awards

2014.12 Oversea Research Awards, HKUST

2012.5 Outstanding Graduate, Nanjing University

2011.12/2010.12 1st prize of Renmin Scholarship, Nanjing University (top 3% student)

2011.9 National Undergraduate Electronic Design Contest, 1st Prize in Jiangsu Province

2009.11 **National Scholarship** (highest scholarship for undergraduates in China)

Skills

Language

- English (Fluent): TOEFL ibt: 113/120, GRE: 1390/1600, 4.0/6 (writing), CET4: 667/710, CET6: 595/710
- Mandarin (Native), Cantonese (Good) , Japanese (Basic)

Programming Language

- Matlab, C/C++, Java, Assembly language, Verilog HDL

Interests

Instruments: Electronic organ (level 6), piano, guitar

Singing: Top 10 singers in School of EE, Nanjing University