Qingbo Lu

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EDUCATION

2011.9-2015.6	**University of Science and Technology of China (USTC)**	**Ph.D.**
	Major: Signal and information processing	
2007.9-2011.7	**Southeast University**	**Bachelor of Engineering**
	Major: Information engineering	Rank: Top 10%

QUALIFICATIONS & ABILITIES

- Proficient in classical and advanced image processing and image quality assessment algorithm, had nearly five-years research experience in image/video denoising, deblurring, and image quality assessment area
- Rich experiences in sparse representation, low-rank representation, compressive sensing, non-local, and total variation algorithms
- Familiar with classical optimization algorithm design, especially for ALM/ADM
- Experienced in classical machine learning algorithms for image quality assessment
- Proficient in C, skilled in C++ and scripting languages including Matlab and Python
- Excellent communication skills and a good team-player

RESEACH EXPERIENCE

Deblurring for License Plate Image From Fast-Moving Vehicles   *2013.11-2014.06*

- Proposed a robust algorithm to deblur the license plate image which is suffered severe blurring due to the fast motion of vehicles
- Reduced the blur kernel estimation task into parameters' estimation under several reasonable assumptions
- Discovered a useful quasi-convex relationship between kernel parameter and sparse representation coefficients
- Utilized sparse representation and frequency information to estimate the kernel parameters

Image Sharpness Assessment Based on Sparse Representation   *2014.07-2014.11*

- Developed a new algorithm for image sharpness assessment which is consistent with human visual system
- Observed and utilized the important structural information conveyed by sparse representation dictionary atoms
- Combined sparse representation and spatial pyramid model to simulate the coarse-to-fine progress of human visual system
- Achieved promising results on several popular image quality assessment databases

Similar Reference Image Quality Assessment in Big Data Age   *2014.12-2015.06*

- Proposed a novel image quality assessment model in a new view from big data, which is fully different with classical image quality assessment issues
- Developed a novel image quality assessment algorithm with similar reference images on region level

- Utilized image retrieval technique to obtain similar reference images and matched SIFT descriptors to mark the similar regions
- Extracted the image quality assessment features in the similar regions and trained an SVR model

Video Denoising Based on Low-rank and Total Variation   *2011.12-2013.10*

- Designed a robust denoising algorithm for videos corrupted by mixed Gaussian- impulse noise
- Fully utilized the self-similarity of video by block matching to reduce the noise
- Developed the low-rank representation and total variation into a unified optimization framework by inexact alternating direction method
- Designed several efficient optimization algorithms by augmented Lagrange multiplier and Bregman iterative method

PROJECT EXPERIENCE

Shanghai License Plate Bid Assistant System   *2011.11-2014.11*

- Developed a commercial Shanghai license plate bid assistant system which includes client program and backend server to increase the rate of winning the bid
- Designed a friendly human-computer interaction to improve the user experience
- Developed an efficient time and price recognition algorithm to follow the real-time price based on support vector machine
- Built the backend server for information and authorization management

HEVC Stream GUI Analyzer Based on wxWidget   *2013.12-2014.07*

- Co-developed an HEVC Stream GUI analyzer based on wxWidget for non-commercial research
- Extract syntax information of HEVC stream and display such information friendly
- Support several syntax views including motion vector, coding block structure and pixel values

PUBLICATIONS & PATENTS

- **Qingbo Lu**, *et al.* "Robust Blur Kernel Estimation for License Plate Images from Fast Moving Vehicles", *IEEE Trans. on Image Processing,* Vol. 25, No. 5, pp. 2311-2323, May 2016.
- **Qingbo Lu**, *et al.* "A No-Reference Image Sharpness Metric Based on Structural Information Using Sparse Representation", *Information Sciences,* Vol. 369, pp. 335-345, Nov. 2016.
- **Qingbo Lu**, et al. "Similar Reference Image Quality Assessment: A New Database and A Trial with Local Feature Matching", *Sensing and Imaging,* Vol. 17, No. 23, Dec. 2016.
- **Qingbo Lu**, *et al*, "A New Non-local Video Denoising Scheme Using Low-Rank Representation and Total Variation Regularization", Accepted by IEEE International Symposium on Circuits and Systems, 2014
- **Qingbo Lu**, *et al*, "Video Denoising Based on Matrix Recovery with Total Variation Prior", Accepted by IEEE China Summit & International Conference on Signal and Information Processing, 2013
- Houqiang Li (supervisor), **Qingbo Lu**, **,** *et al*, "One Method and System for License Plate Image Deblurring", Patent for Invention in China, Publication No: CN104091315A

AWARDS & HONORS

•	**Chinese Academy of Sciences Dean Award (Top 5%)**	USTC	2016
•	**National Scholarship (Top 2%)**	Southeast University	2010
•	**National Encouragement Scholarship**	Southeast University	2009
•	**National Encouragement Scholarship**	Southeast University	2008
•	**Second Prize, Higher Mathematics Olympiads of Jiangsu Province**		2008
•	**Second Prize, Electronic Design Contest of Jiangsu Province**		2010