Maozheng Zhao

Computer Vision

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Education Background

M.S. (expected Mar. 2016), Information and Communication Engineering,
Beijing University of Posts and Telecommunications (BUPT) (China), 2013 – present

- Research area: Computer Vision, No-reference Image/Video Quality Assessment
- Adviser：Prof. Aidong Men
- Recipient of national scholarship for graduate students (2.5%), 2015
  For my excellent performance in publications, GPAs and other academic activities.
- GPA: 84.3/100, Ranking: 5/62

B.S. in Electronic and Information Engineering,
Harbin Engineering University (China), 2009 –2013

- Thesis: *Automatic image segmentation based on pulse coupling neural network and swarm intelligence optimization.*
  Excellent undergraduate's thesis in Harbin Engineering University (5%).
- Recipient of First-class Scholarship for Outstanding Students (5%), 2010, 2011, 2012
- GPA: 89.5/100, Ranking: 3/122

Publications

[1] **Maozheng Zhao**, Qin Tu, Yanping Lu, et al. "No-reference image quality assessment based on phase congruency and spectral entropy." *Picture Coding Symposium (PCS)*, 2015. (**Oral**)

[2] **Maozheng Zhao**, Ran Gao, Aidong Men, et al. "Opinion-unaware blind image quality assessment based on sparse representation." *International Symposium on Wireless Personal Multimedia Communications (WPMC)*, 2015.

[3] **Maozheng Zhao**, Yanping Lu, Cuiwei Li, et al. "Blind image quality assessment based on phase congruency and spatial-spectral entropy." *International Symposium on Wireless Personal Multimedia Communications (WPMC)*, 2015.

[4] Linlin Mu, **Maozheng Zhao**, Chaozhu Zhang. "Quantum particle swarm optimisation based on chaotic mutation for automatic parameters determination of pulse coupled neural network." *International Journal of Computing Science and Mathematics*, v 4, n 4, p 354-362, 2013.

[5] Yanping Lu, Qin Tu, **Maozheng Zhao**, et al. "Gradient magnitude similarity for tone-mapped image quality assessment." *Visual Communication and Image Processing Conference (VCIP)*, 2015.

[6] Jun Liu, Ran Gao, **Maozheng Zhao**, et al. "Video saliency detection based on mutual information and background prior in compressed domain." *IEEE/CIC International Conference on Communications in China (IEEE/CIC ICCC)*, 2015.

[7] Cuiwei Li, Qin Tu, **Maozheng Zhao**, et al. "A multiscale compressed video saliency detection model based on ant colony optimization." *IEEE/CIC International Conference on Communications in China (IEEE/CIC ICCC)*, 2015.

Patents Pending

[1] **Maozheng Zhao**, Xu Bai, Jingjing Ren. "No-reference image quality assessment based on phase congruency and spectral entropy." Chinese Patent Pending, Publication Patent Number CN104835172A, filed May 2015.

[2] Hongyuan Gao, **Maozheng Zhao**, Yan Sun, et al. "Automatic image segmentation method of continuous quantum goose group algorithm evolution pulse coupling neural network system parameters." Chinese Patent, Publication Patent Number CN103824291A, filed Feb 2014.

Research Projects

BUPT, Aidong Men Aug 2014 –Jun 2015

No-reference Image/Video quality assessment

- Read about 70 papers on this topic.
- Realized more than 10 latest image/video quality assessment algorithms.
- Apply probability distribution models, unsupervised feature learning, SVM, sparse representation, neural networks, natural scene statistics features, etc, to image / video quality assessment.
- Published 3 international conference papers as the first author.

BUPT, Bo Yang Sep 2013 –May 2014

Screen printed touch panel circuit inspection by machine vision

- Designed a no-reference method based on the characteristics of the circuits to automatically locate defect

of the circuit such as open circuit, short circuit and insufficient width of circuit by digital images of the circuits.

- Developed the software with Python, OpenCV and Qt GUI.
- Contributed more than 1,500 lines of codes to the project.
- Leader of the team with 4 students for the last 3 months of the project.

BUPT, Boyang Dec 2013 - Apr 2014

Auto-temperature reading from the picture of a dial thermometer

- Tried different possible solutions for auto-reading from a picture, such as Hough transforming, extracting colors from RGB/HSV color spaces, character recognition, shadow removal, etc.
- Preprocessed the raw images by binarizing, noise reduction, erosion, dialation, etc.
- Leader of the team with 3 students.

BUPT, Jinchun Gao Mar 2014- Jun 2014

Survey of multi-label image annotation

- Retrieved and read most cited papers and latest papers on the topic of multi-label image annotation.
- Wrote a survey on that topic as the term paper for the course of Science & Technology Information Retrieval.

Harbin Engineering University, Hongyuan Gao Feb 2013 – Jun 2013

Automatic image segmentation based on pulse coupling neural network and swarm intelligence optimization.

- Utilizing swarm intelligence optimization to determine the parameters of pulse coupling neural network which automatically segments images.
- Realized 5 different swarm intelligence optimization algorithms
- Proposed 2 new hybrid swarm intelligence optimization algorithms.
- Published one journal paper as the second author and filed one patent as the second author.

Honors and Awards

- National Scholarship for Graduate Students (2.5%), 2015.
- Excellent Graduate Student of Beijing University of Posts and Telecommunications (5%), 2014.
- Excellent Undergraduate's Thesis, 2013.
- First-class Scholarship for Outstanding Students in Harbin Engineering University (5%), 2010, 2011, 2012.
- Merit student of Harbin Engineering University (3%), 2012.
- 2'nd Prize, TI Cup National Undergraduate Electronic Design Contest in Heilongjiang Provence, 2012.
- Special Award for Major Course Learning (1/122), 2012.
- Outstanding Student Leader Awards, 2010.

Teaching Experience

BUPT, Undergraduates graduation thesis instructor assistant Spring 2014,2015

- Instructed one undergraduate in 2014 and two undergraduates in 2015 for their graduation thesis.
- Set a theme for each student and instructed them to accomplish the projects and the theses.

BUPT, Teaching Assistant Summer 2014, 2015

Course: Introduction to Video Quality Assessment (during summer school)

- Prepared courseware, designed homework and answers with MATLAB and FFmpeg, lectured separately to 6 different classes each of which has about 30 students.

BUPT, Teaching Assistant Spring 2014

Course: Digital Signal Processing

- Graded homework weekly, assisted students during office hours, invigilated the mid-term and final exam.
- Lectured a one-hour course explaining answers for important homework problems.

Relevant Courses

- Pattern Recognition
- Digital Image Processing
- Image Coding and Transmission
- Probability Theory & Mathematical Statistics
- Matrix Theory and Methods
- Digital Signal Processing
- Automatic Control Principle
- Information Theory
- Speech Signal Processing
- Object-oriented Technology and C++ Program

Technical Skills

Programming: Matlab, Python, C/C++, OpenCV, Verilog HDL, Keil
Language: Fluent English (TOEFL 102, GRE 322), Native Chinese
Documentation: LATEX, HTML, MS Office

Service

Member of the graduate student union
Party branch secretary of my class (undergraduate)