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, Image/Video quality assessment
- Adviser：Prof. Aidong Men
- Recipient of National Scholarship for Graduate Students, 2015
  56 of about 2300 graduate students in Beijing University of Posts and Telecommunications.
- GPA: 84.3/100, Ranking: 3/65

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

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

Publications

[1] 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.

[2] **Maozheng Zhao**, Qin Tu, Yanping Lu, Yongyu Chang, Bo Yang, **A**idong Men. "No-reference image quality assessment based on phase congruency and spectral entropy." *Picture Coding Symposium (PCS)*, 2015. (**Oral**)

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

[4] **Maozheng Zhao**, Yanping Lu, Cuiwei Li, Ran Gao, Qin Tu, Bo Yang, Aidong Men. "Blind image quality assessment based on phase congruency and spatial-spectral entropy." *International Symposium on Wireless Personal Multimedia Communications (WPMC)*, 2015.

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

[6] Jun Liu, Ran Gao, **Maozheng Zhao**, Yanping Lu, Aidong Men. "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**, Jun Xu and Aidong Men. "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, Congqiang Xu,Liang Chang, Chenwan Li. "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
Image/Video quality assessment

- Realized more than 10 latest image/video quality assessment algorithms.
- Apply natural scene statistics, unsupervised feature learning, SVM, sparse representation, 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 printed circuit by digital images of the circuit.
- 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 month of the project.

BUPT, Boyang Dec 2013 - Apr 2014

Auto-reading of temperature from a 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.
- Write 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.

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

Honors and Awards

- National Scholarship for Graduate Students (2.5%), 2015.
- Outstanding 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.
- The second prize (2'nd prize), Heilongjiang Provence Electronic Design Contest, 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 undergraduate in 2015 for their graduation thesis.
- Set a theme for each student and instructed them to accomplish the project and the thesis.

BUPT, Teaching Assistant Summer 2014, 2015

Course: Introduction to The Video Quality Assessment (Course during the summer semester)

- 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 (GRE 322, TOEFL 102), Native Chinese
Documentation: LATEX, HTML, MS Office
OS: Windows, Linux