

Erkang Cheng (成二康)

Personal Information

Gender Male
Date of Birth Dec 4, 1983
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Education Background

Sept.2006~June.2009
(expected) **M.S. in Pattern Recognition and Intelligent Systems**, School of Information Science and Technology, University of Science and Technology of China (USTC) Hefei, Anhui, P.R.China
Major: *Computer Vision* Supervised by Dr. Bin Kong
GPA: 3.64 86.61/100 Rank: top 10%

Sept.2002~June.2006 **B.S. in Communication Engineering**, School of Computer and Information Engineering, Henan University, Kaifeng, Henan, P.R.China
GPA: 3.38 Rank: 3/60

Research Interests

- 1 Computer Vision including object detection, facial feature detection, visual tracking, video analysis
- 2 Image Processing including texture analysis, pattern recognition, monocular /binocular vision

Professional Experience

Research Assistant **Conducted Projects for Laboratory** (mainly focus on computer vision and image processing)

- **Driver Drowsy Detection**
Developed a system for monitoring the state of driver using eye state detection.
 - 1.Face detection and eye detection based on AdaBoost Algorithm.
 - 2.The linear predictor error distribution of wavelet coefficients was proposed as the statistics model to extract the eye states features.
 - 3.Build on these eye states features and support machine vector (SVM) with RBF kernel a non-linear classifier was obtained by training samples of eye images. Using the classifier we can detect the eye state of driver.
- **Fabric Texture Analysis**
Worked on 4-person team to develop "Fabric Density Analysis System". Analyze the texture of the fabric; obtain the direction and the density of the texture.
 - 1.Computed the Viarogram of the fabric image to estimate the orientation of the fabric.
 - 2.Calculated the density of the fabric using radon projection after orientation was obtained.
- **Shape Matching**
Using Hausdorff distance to realize the shape matching of the Image and the Model.
 - 1.Realized the plat of shape matching using Hasdorff distance with VC&OpenCV.
 - 2.This method also can be used for shape searching such as Eye Detection.
- **Medical Image Processing**
Worked on 5-person team to develop a system for detecting the explosive based on CT technology.
 - 1.Generated the project image from the Model. Used VC to design a platform for generating simulation of the projection data;

Feb.2008-present

Dec.2007-May.2008

Oct.2007-Dec.2007

Oct.2007-Dec.2007C

2.Reconstruct the object using CT Algorithm when the simulation projection data was obtained.

● **Debris Flow Image Analysis**

Aug.2007-Sep.2007

Worked on 5-person team to develop a system to gain the information of Debris Flow using Structure Light and Image Analysis Technology.

1.Using monocular vision measuring system to reconstruct the surface of debris flow.

2.Calculated the information of Debris Flow such as direction and velocity. Took part in the coding of the system and responsible for the test and experiment.

Intern

● **Robot Target Tracking**

Feb.2006-May.2006

Develop a target tracking system using color information in Institute of Intelligent Machine, Chinese Academy of Science.

● **Binocular Vision System**

Jul.2008-Sep.2008

Worked on 5-people team in the project “Pose and Position Measuring System” Institute of Intelligent Machine, Chinese Academy of Science

1.Familiar with Stereo Vision System

2.Responsible for the maintenance of the system and taught freshmen the basic knowledge of the Stereo Vision System.

Awards and Honors (Selected)

- 2007 Guanghua Fellowship for Graduate Student, USTC
- 2006 Admission into Graduate School of University of Science and Technology of China (USTC) exempted from National Graduate Record Exams
- 2006 Outstanding Student Scholarship, HENU
- 2005 Outstanding Student Scholarship, HENU
- 2004 Outstanding Student Scholarship, HENU
- 2003 Outstanding Student Scholarship, HENU

Skills

Programming Languages:

C, C++, C#, etc.

Development and Simulation Environments:

Microsoft Visual C++ 6.0, Microsoft .NET, Matlab, OpenCV, MySQL, etc.

English proficiency proof:

GRE, TOEFL: Result will come soon.

Publications:

- [1] **Erkang Cheng**, Bin Kong, Rongxiang Hu, Fei Zheng, “Eye State Detection in Facial Image based on Linear Prediction Error of Wavelet Coefficients”, *IEEE international conf on Robotics and Biomimetics ROBIO*, 2008
- [2] Jingang Huang, Bin Kong, **Erkang Cheng**, Fei Zheng, “An Improved Model of Producing Saliency Map for Visual Attention System”, *IEEE International Conf on Intelligent Computing ICIC*, 2008
- [3]Xiaozhou Hu, Bin Kong, **Erkang Cheng**, Rongxiang Hu, “An Image Algebraic Reconstruction Technology based on POCS Restriction”, *Journal of Pattern Recognition and Artificial Intelligence*, 2008 (in chinese)
- [4] Qi Guo, Bin Kong, Fei Zheng, **Erkang Cheng**, “A Fast FBP Based on Angle Correlation”, *Journal of Computer Systems & Applications*, 2008 (in chinese)

Activities (conference):

IEEE international conference on Intelligent Computing ICIC 2008, Sep 13-Sep18, Shanghai, China