Xiang Xu

IEEE Student Member

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Education

Ph.D. in **Computer Science**	Aug. 2014 – Present
Dept. of Computer Science, University of Houston	Houston, TX, USA

GPA: 3.8/4.0
Advisor: Prof. Ioannis A. Kakadiaris
Research Interests: Machine Learning and Biometrics

B. Eng. in **Telecommunication Engineering**	Sept. 2009 – Jul. 2013
Beijing University of Posts and Telecommunications	Beijing, China P.R.

Experience

Computational Biomedicine Lab, UH	Houston, TX, USA
Teaching Assistant	Oct. 2014 – May 2015
Reach Assistant	Jun. 2015 – Aug. 2015

Machine Learning with applications to Biometrics

National Engineering Laboratory for Information Security Technology, Institute of Information Engineering, Chinese Academy of Science	Beijing, China P.R.
Research Assistant	Mar. 2013 – Oct. 2013

Machine Learning on Image retrieve

Research

Face Alignment via Regression   Mar. 2015 – Present
Under the supervision of Prof. Ioannis A. Kakadiaris, CBL, UH
- Proposed the hierarchical regression method to align face shape;
- Extended the explicit shape regression and achieved better results.

Head Pose Estimation without landmarks   Aug. 2014 – Mar. 2015
Under the supervision of Prof. Ioannis A. Kakadiaris, CBL, UH
- Proposed a landmark-free approach to estimate the projection matrix;
- Used L2 norm and sparse coding to estimate coarse angles of the face.

Hypothesis Comparison Guided Cross Validation   Apr. 2013 – Oct. 2013
Under the supervision of Dr. Yu Zhou, National ELIST, IIE, CAS
- Collected the data by Kinect and applied the depth information and skin color to segment the gestures;

- Did the experiment with four people's gestures as training set and another three people's gestures as testing set. Did experiments such as dependent and independent validation, supervised and unsupervised cross validation adaption and our proposed hypothesis comparison guided cross validation.

Accurate Eye Localization   May 2012 – Oct. 2012
Under the supervision of Prof. Weihong Deng, PRIS, BUPT
- Proposed a novel model which integrated Bayesian method with means of gradient to gain the accurate pupil and iris location; Proposed an enhance model which took prior knowledge into consideration (similar to Pictorial Structure);
- Yielded an accuracy of 81.4% for pupil localization, 96.8% for iris localization in basic model and achieved an accuracy of 84.1% for pupil localization and 96.3% for iris localization in enhanced model.

Project

FaceLock   Mar. 2015 – May 2015
Team member of 4 people, CV Project, advised by Prof. Ioannis A. Kakadiaris, CBL, UH.
- Designed and built the architecture of the App which aims to lock the door by face;
- Did face detection and face alignment on 2D image in iOS.

Image Retrieve System using Histogram, SIFT   Mar. 2013 – Apr. 2013
- Constructed a comprehensive Image Retrieve System based on MFC and OpenCV 2.4.4;
- Integrated Open Source SIFT code (by Rob Hess) into the system, clustered the SIFT vectors and used it-idf to construct an inverted list to retrieve image faster; Implemented Gray Histogram and Hierarchical Gray Histogram to retrieve image; Integrated OpenCV ORB into the system.

Emotion Processing Software with Expression Recognition: iSee   Jan. 2012 – Mar. 2012
Team Leader of 4 people, Microsoft Imagine Cup 2012, advised by Prof. Weihong Deng, PRIS, BUPT.
- Proposed the idea of this software to reduce the suicide rate caused by stress or depression; Applied Gabor feathers and PCA to construct the models in supervised learning and used K neighbor algorithm to recognize the expression; Achieved the accuracy of 70%+ for each expression recognition;
- Mastered the whole process, allocated the task, constructed the framework of the software by myself and implemented the algorithm to recognize the users' emotion with another teammate.

Cloud Computing Environment Performance Monitoring   Jul. 2010 – May 2011
Team Leader of 3 people, Innovation Project, advised by Prof. Yidong Cui, College of Software, BUPT.
- Aimed to create network performance monitor system in Hadoop which can present network parameter on webpage; Implemented the algorithm to gain delay and jitter between Namenode and Datanodes.

- Modified the source code of Hadoop and constructed a new HTML5 page to present the data by using dynamic line graph wrote in JSP. Integrated the system with Hadoop and wrote a technical documentation.

Interactive Sketchpad using Bluetooth on Android   Jul. 2010 – May 2011
Team Leader of 3 people, Innovation Project, advised by Prof. Yidong Cui, College of Software, BUPT.
- Aimed to create an integrate sketchpad which could be used for educating children using Bluetooth to transfer data between two Android smartphones; Analyzed the children behaviors and designed the whole software carefully to be easy for children using; Created a novel painting form for children enjoyment which used gravity to draw;
- Achieved national third prize in 2nd Google Android Application Development Challenge and good reflection on App Store.

Journal Publication

1. Y. Zhou, X. Yang, Y. Zhang, **X. Xu**, Y. Wang, X. Chai, and W. Lin. Unsupervised adaptive sign language recognition based on hypothesis comparison guided cross validation and linguistic prior filtering. *Neurocomputing*, 149(C): 1604 – 1612, 2015.

Conference Publication

1. **X. Xu**, X. Zhu and W. Deng. Accurate Eye Localization by Fusing Local, Global and Context Information. In Proc. *International Conference on Multimedia and Human-Computer Interaction*, Canada, 2013

Conference Submission

1. Y. Wu, **X. Xu**, and I. A. Kakadiaris. Towards fitting a 3D dense facial model to 2D image without landmarks, in Proc. 7th *International Conference on Biometrics: Theory, Applications and Systems*, Arlington, VA, Sept. 8-11, 2015

Professional Service   .

Reviewer
- IEEE Conference on Computer Vision and Pattern Recognition (2015)
- Asian Conference on Pattern Recognition (2014)

Awards

- Graduate tuition fellowship   Aug. 2014
- China Mobile Special Prize in Campus Group, 11/10000+, 1%   May 2013
- BUPT Imagine Award, Third Prize, 8/142, 6%   Oct. 2012
- Google Android Application Development Challenge, Third Prize   Dec. 2011
  in National Area, 10/1380+, 1%
- BUPT Excellent Student Leader, 6/617, 1%   Nov. 2011

- Google Android Application Development Challenge, Second Prize   Nov. 2011
  in Beijing Area
- BUPT Mobile Internet Creative Competition, Third Prize, 4/64, 7%   Nov. 2011
- Microsoft Great Volunteer Award, 9/60, 15%   Oct. 2011
- Samsung Campus Cup, Excellent Creative Idea Prize, 8/200, 4%   Jun. 2011