

VUONG LE

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RESEARCH INTEREST

Image/video processing, Computer vision, Machine learning: Image alignment; Shape modeling; 3D reconstruction; RGB-D signal processing; Object detection and recognition.

Human-computer interaction: Telepresence; Facial animation; Biometrics; Remote education systems.

EDUCATION

- University of Illinois, Urbana-Champaign, Ph.D., Electrical & Computer Engineering** **May 2014**
Advisor: Thomas S. Huang
- University of Illinois, Urbana-Champaign, M.S., Electrical & Computer Engineering** **May 2010**
Advisor: Thomas S. Huang
- Hanoi University of Science and Technology (Hanoi, Vietnam), B.A., Computer Science** **May 2006**
Graduation classification: Excellent. With honors: Talented engineer in CS. GPA: 8.13/10.00

WORK EXPERIENCE

- Amazon.com, Inc. – Software Development Engineer** **May 2014 - Present**
- Designed and implemented computer vision algorithms for distributed systems in a confidential project.
 - Under O1 visa for *Individuals with Extraordinary Ability or Achievement in Science*
 - Two patents pending
- Beckman Institute, University of Illinois at Urbana Champaign - Research Assistant** **Jan 2008 – April 2014**
- Designed a novel algorithm framework for 2D and 3D shape modeling using statistical learning methods. Applied the framework for real-time face reconstruction and tracking on low power devices. In collaboration with Intel, Microsoft. A book chapter and three papers and published.
 - Designed a system for interactive distance learning including 3D lecture delivery and remote student monitoring. In collaboration with Cisco. A monograph and a paper published
 - Developed a novel 3D shape representation based on facial level curves from depth images. Applied the representation for highly accurate emotion recognition. Two papers published in FGR 2011
 - Developed a human action recognition classifier using shape features with IFP-NEC team for TRECVID (ranked first), and UIUC team at Star Challenge competitions (ranked third). Paper published in TRECVID 2008
- HP Labs - Research Intern** **May 2012 – Aug 2012**
- Designed and implemented a simultaneous localization and mapping (SLAM) for reconstruction of 3D scenes and objects using RGB-D data on hand-held devices. Integrated into a cloud based distributed system.
 - One patent granted.
- Adobe Systems Inc. - Research Intern** **May 2011 – Aug 2011**
- Developed a new algorithm for facial feature alignment and automatic portrait editing with efficient user interactivity. Collected a rich facial dataset of natural photos with detail annotation.
 - Four patents granted. Paper published in ECCV2012.

TEACHING EXPERIENCE

- Department of Electrical and Computer Engineering, UIUC - Teaching Assistant** **Jan 2008 – April 2014**
- Developed content, delivered lectures and managed exams, homework, machine problems for university courses:
Topics in Image and Video processing (Graduate level)
Multimedia signal processing (Undergraduate level)
- Hanoi University of Science and Technology – Lecturer** **Sep 2006 – Mar 2007**
- Developed program and delivered lectures to Undergraduate level courses:
Digital image and video processing
Web programming languages
- U.S. National Science Foundation (NSF), Vietnam Education Foundation, HCM City University of Technology - Teaching Assistant to Digital Signal Processing Summer School/Seminar** **Jun 2008 – Jul 2008**

FELLOWSHIPS AND AWARDS

Thomas and Margaret Huang Award for *Graduate Research in Human-Computer Intelligent Interaction*, 2014.

Vietnam Education Foundation Fellowship: The US government funded fellowships “to the most talented Vietnamese for graduate study in the United States”, 2007 – 2014

BOOKS & BOOK CHAPTERS

- **Vuong Le**, Usman Tariq, Pooya Khorrami, Hao Tang, Thomas S. Huang, *Face processing and Applications to Distance Learning*, World Scientific Publishing Company, 2016. Monograph, ISBN: 9789814733021
- Dennis Lin, **Vuong Le**, Thomas S. Huang, *Human-Computer Interaction* (Book chapter), in Visual Analysis of Humans: Looking at People, Springer 2011

PAPERS

- Antoni Liang, Wanquan Liu, Ling Li, Mir Rizwan Farid, **Vuong Le**, *Accurate Facial Landmarks Detection for Frontal Faces with Extended Tree-Structured Models*. ICPR 2014
- Thomas Huang, **Vuong Le**, Thomas Paine, Pooya Khorrami, Usman Tariq, *Visual Media: History and Perspectives*, IEEE Multimedia, April - June 2014
- Pooya Khorrami, **Vuong Le**, John C. Hart, Thomas S. Huang: *A System for Monitoring the Engagement of Remote Online Students*, ICMEWorkshop 2014
- **Vuong Le**, Jonathan Brandt, Lubomir Boudev, Zhe Lin, Thomas S. Huang, *Interactive Facial Feature Localization*, European conference on computer vision ECCV 2012
- **Vuong Le**, Hao Tang, Thomas S. Huang, *Expression Recognition from 3D Dynamic Faces using Robust Spatio-temporal Shape Features*, International Conference on Automatic Face and Gesture Recognition – FGR 2011
- Usman Tariq, Kai-Hsiang Lin, Zhen Li, Xi Zhou, Zhaowen Wang, **Vuong Le**, Thomas S. Huang, Xutao Lv, Tony X. Han: *Emotion recognition from an ensemble of features* - FGR 2011
- **Vuong Le**, Hao Tang, Liangliang Cao, Thomas S. Huang, *Accurate and Efficient Reconstruction of 3D Faces From Stereo Images*, IEEE International Conference on Image Processing 2010 -ICIP 2010
- **Vuong Le**, Yuxiao Hu, Thomas S. Huang, *A Quantitative Evaluation for 3D Face Reconstruction Algorithms*, IEEE International Conference on Acoustics, Speech, and Signal Processing 2009 - ICASSP 2009
- Mert Dikmen, Huazhong Ning, Dennis J. Lin, Liangliang Cao, **Vuong Le**, Shen-Fu Tsai, Kai-Hsiang Lin, Zhen Li, Jianchao Yang, Thomas S. Huang, Fengjun Lv, Wei Xu, Ming Yang, Kai Yu, G. Zhu, Yihong Gong, *Surveillance Event Detection*, TRECVID 2008

PATENTS

- *3D modeling motion parameters*. **Vuong Le**, Wei Hong, Kar-Han Tan, John Apostolopoulos – 2016
US Patent 9,286,717
- *Adjusting a contour by a shape model*. Jonathan W. Brandt, Zhe Lin, **Vuong Le**, Lubomir D. Bourdev – 2015
US Patent 9,202,138
- *Fitting contours to features*. Jonathan W. Brandt, Zhe Lin, Lubomir D. Bourdev, **Vuong Le** – 2015
US Patent 9,158,963
- *Methods and Apparatus for Automated Portrait Retouching Using Facial Feature Localization*. Jonathan Brandt, Zhe Lin, **Vuong Le** – 2014
US Patent 8,811,686
- *Methods and Apparatus for Automated Facial Feature Localization*. Jonathan Brandt, Zhe Lin, **Vuong Le** – 2014
US Patent 8,824,808

PROFESSIONAL SERVICE

Reviewer: ACM Siggraph Asia, Computer Vision and Image Understanding Journal (CVIU), Journal of Visual Communication and Image Representation (JVCI), IEEE multimedia.

SKILLS

Programming Languages: *Proficient:* C, C++, Matlab, Python, Java. *Others:* ASP, CGI, JS, HTML, PHP
Tools / Libraries: OpenCV, OpenGL, STL, CUDA, Qt, Boost, OpenNI, pcl, svn, git, Latex, Vi/Vim

REFERENCES

- Thomas S. Huang** – Professor, Dept. of Electrical and Computer Engineering, University of Illinois
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- Minh N. Do** – Professor, Dept. of Electrical and Computer Engineering, University of Illinois
Email: minhdo@illinois.edu, Phone: +1- 217-244-4782
- Jonathan W. Brandt** - Research Manager, Advanced technology lab, Adobe System Inc.
Email: jbrandt@adobe.com, Phone: +1-408-536-8324