

# Guangqi Ye

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## EDUCATION

- Ph.D. in Computer Science**, The Johns Hopkins University, 2005, GPA: 3.9.  
Adviser: Dr. Gregory D. Hager  
Dissertation : Applying Vision to Intelligent Human-Computer Interaction
- M.S.E. in Computer Science**, The Johns Hopkins University, 2002, GPA: 3.9.  
Project 1: Appearance-Based Interaction  
Project 2: Augmented Reality Combining Haptics and Vision
- B.E in Computer Science**, *Cum Laude*, Tsinghua University, 1998, GPA: 3.8.  
Thesis: Face Detection under Complex Background

## SKILLS

- Programming Languages:** C/C++, Java, Perl, Pascal, Assembly, Lisp
- Operating Systems:** Unix, Linux, Windows, DOS, MacOS.
- Development Tools:** MS Visual Studio, Delphi, PowerBuilder.
- Other Skills:** Matlab, SQL, Oracle/Sybase/SQL Server, OpenGL, HTML.
- Key Courses:** Artificial Intelligence, Computer Vision, Information Retrieval, Information Extraction, Database, Computer Graphics, Graph Theory, Robotics, Human-Computer Interaction, Image Processing, Algorithms.

## PROFESSIONAL EXPERIENCES

- Software Engineer** - Google, Sep. 2008 - present  
Project: Built infrastructure and systems to combat online abuse: spam, porn, etc.
- Staff Software Engineer** - PayPal, an eBay Company, Nov. 2005 - Sep. 2008  
Project: Worked in PayPal's Fraud Engineering team to lead design and development of cutting-edge products to fight online fraud.
1. Participated in the PayPal Security Key project, which involved a geographically diverse team of over 140 and multiple third-party companies. Designed and implemented core functionalities of this feature to enable second factor authentication on PayPal.
  2. Led a team to build PayPal's advanced risk rules engine. It allows intuitive rules authoring, fast and flexible rule release, and highly efficient real-time rule execution and evaluation.
  3. Designed and implemented PayPal's Risk Analytics Dynamic Datasets framework to allow quick upload and query of heterogeneous datasets that have varied structure and size.
- Research Assistant** - Dr. Gregory Hager, CIRL Lab, Summer 2001-Current  
Project: Participated in the NSF VICs project. Investigated efficient and robust vision-based techniques to model dynamic gestures as well as composite gestures for human-computer interaction.

1. Proposed a novel and efficient shape/motion descriptor to capture hand motion.
2. Investigated such methods as neural network, extended HMM, finite-state machines to model dynamic gestures.
3. Proposed efficient algorithm to model composite gestures using graphical model and HMM. Composite gestures are sequences of heterogeneous gestures including static, dynamic, and parameterized gestures.
4. Designed and implemented a flexible vision-based HCI platform. Carried out a human factor experiment on this platform. The experiment involved sixteen subjects and twelve gestures.

**Research Assistant** - Dr. Allison Okamura, Haptic Exploration Lab, Summer 2002- Spring 2003

Project: Designing and implementing the VisHap augmented reality system, which uses visual tracking to seamlessly integrate force feedback with tactile feedback to generate a “complete” haptic experience.

**Research Assistant** - Dr. Guangyou Xu, Computer Vision Lab, Tsinghua University, 1997 - 2000

Project: Participating in the face detection, recognition and identification project. Designing and implementing a face identification system with a database of 500 people. The system consists of such key modules such as constrained camera rectification, face detection, facial features extraction, and efficient matching.

**Paper Reviewer:** Journal of the Image and Vision Computing, 2004, IEEE CVPR, 2003.

**Software Project Manager** - Wington Software Inc., 1999.

Project: Lead a team of five engineers to design and implement a MIS system serving the municipal administrative offices of Beijing. Designed the entire database and system framework.

**Software Engineer** - Bluebox Inc., 1998-1999.

Project: Lead a team to design and implement a business management system. PowerBuilder, SQL, MS Visual Studio and InstallShield were used during development.

**Software Engineer** - NaSoft Inc., 1998.

Project: Joined a team of fifteen engineers to implement the Bank Credit Registration System. This distributed system mainly consisted of such modules as server database management, bank operator interface, Internet access support, and middleware. Such tools as SQL, Sybase PowerBuilder, Visual Basic and HTML were used during development. The system is now serving the People’s Bank of China and its over 400 branches and affiliates.

## TEACHING EXPERIENCE

**Teaching Assistant**, Intermediate Java Programming, Dr. Dwight Wilson, Fall 2001. Duties included holding weekly office hours, grading homework and projects.

**Teaching Assistant**, Algorithms, Dr. Baruch Awerbuch, Spring 2001. Duties included holding weekly office hours, providing weekly assignments and two exams, preparing and posting solutions for homework assignments, grading assignments and exams, taking and posting lectures notes, and holding review sessions.

**Teaching Assistant**, Computer Vision, Dr. Gregory Hager, Fall 2000. Duties included holding weekly office hours, grading homework assignments.

## HONORS AND AWARDS

**Meteor Shower Award**, PayPal, an eBay Company, 2007.

**Shining Star Award**, PayPal, an eBay Company, 2006.

**Excellent Graduate Award**, Tsinghua University, 1998

**Excellent Student Scholarship**, Tsinghua University, 1994, 1995 and 1998.

**Zheng Geru Scholarship**, Tsinghua University, 1996 and 1997.

## PUBLICATIONS

### Journal Articles and Book Chapters

1. J. Corso, G. Ye, D. Burschka, and G. D. Hager. A Practical Paradigm and Platform for Video-Based Human-Centered Computing. *IEEE Computer*, 41(5), pages 48-55, 2008.
2. J. Corso, G. Ye, and G. Hager. Analysis of Multi-Modal Gestures with a Coherent Probabilistic Graphical Model. *Virtual Reality*, 8(4), pages 242-252, 2005.
3. G. Ye, J. Corso and G. Hager, Visual Modeling of Dynamic Gestures Using 3D Appearance and Motion Features, in *Real-Time Vision for Human-Computer Interaction*, edited by B. Kisanin, V. Pavlovic and T.S. Huang, Springer-Verlag, 2005.
4. G. Ye, J. Corso, D. Burschka, and G. Hager. VICs: A Modular HCI Framework Using Spatio-temporal Dynamics. *Machine Vision and Applications*, 16(1), pages 13-20, 2004.

### Conference Publications and Workshops

1. G. Ye, J. Corso, G. Hager, and A. Okamura. VisHap: Augmented Reality Combining Haptics and Vision. In *Proceedings of 2003 IEEE International Conference on Systems, Man & Cybernetics*, October 2003.
2. G. Ye, J. Corso, D. Burschka, and G. Hager. VICs: A Modular Vision-Based HCI Framework. In *Proceedings of 3rd International Conference on Computer Vision Systems (ICVS)*, April 2003. Pages 257-267.
3. G. Ye, J. Corso and G. Hager. Gesture Recognition Using 3D Appearance and Motion Features. In *Proceedings of CVPR 2004 Workshop on Real-time Vision for Human-Computer Interaction*, 2004.
4. J. Corso, G. Ye, D. Burschka, and G. Hager. Software Systems for Vision-Based Spatial Interaction. In *Proceedings of 2002 Workshop on Intelligent Human Augmentation and Virtual Environments*. Chapel Hill, North Carolina, October 2002. Pages D-26 and D-56. Poster Presentation.

### Technical Reports

1. D. Burschka, G. Ye, J. Corso, and G. Hager, A Practical Approach for Integrating Vision-Based Methods Into Interactive 2d/3d Applications, CIRL Lab Technical Report CIRL-TR-05-01, The Johns Hopkins University, 2005.
2. G. Ye, J. Corso, and G. Hager, A. Okamura, Augmented Reality Combining Haptics and Vision, CIR Lab Technique Report, The Johns Hopkins University, 2003.
3. G. Ye and G. Hager, Appearance-based Visual Interaction, CIR Lab Technique Report, The Johns Hopkins University, 2002.
4. G. Ye, H. Zhang, and G. Xu, Face Identification: Research and System Implementation, Computer Vision Lab Technique Report, Tsinghua University, 2000.
5. G. Ye, L. Wang, and G. Xu, Projective Rectification for Face Detection, Computer Vision Lab Technique Report, Tsinghua University, 2000.
6. G. Ye and G. Xu, Face Detection under Complex Background, Bachelor Degree Thesis, Department of Computer Science, Tsinghua University, 1998.

## PRESENTATIONS AND TALKS

1. Gesture Recognition Using 3D Appearance and Motion Features, at CVPR 2004 workshop on RTV4HCI, 2004.
2. VisHap: Augmented Reality Combining Haptics and Vision, at ICSMC 2003.

## **RESEARCH INTERESTS**

Computer Vision

Pattern Recognition

Machine Learning

Human-Computer Interaction

## **AFFILIATIONS**

Student Member of IEEE, Computer Society

## **REFERENCES**

Dr. Gregory D. Hager, [hager@cs.jhu.edu](mailto:hager@cs.jhu.edu)

Dr. Allison M. Okamura, [aokamura@jhu.edu](mailto:aokamura@jhu.edu)

Dr. Darius Burschka, [burschka@cs.tum.edu](mailto:burschka@cs.tum.edu)