

Edward Kim, Ph.D.

Contact Information Assistant Professor
Department of Computing Sciences
Villanova University
Phone: 610.519.8695
Email: edward.kim@villanova.edu

Education *Lehigh University, Bethlehem, PA*

Ph.D. Computer Science, 2013
Dissertation: Toward Large Scale Semantic Image Understanding and Retrieval
University of Pennsylvania, Philadelphia, PA

M.S.E. Computer Graphics and Game Technology, 2008
B.S.E. Computer Science, 2003
Minor: Fine Arts, Psychology

Professional and Academic Experience *Villanova University, Villanova, PA* August 2014 - Current

Tenure-Track Assistant Professor of Computer Science
Conduct research in the area of Computer Vision, Computer Graphics, Artificial Intelligence, and Game Technology.

The College of New Jersey, Ewing, NJ August 2012 - May 2014

Tenure-Track Assistant Professor of Computer Science and Interactive Multimedia
Joint appointment in Computer Science and Interactive Multimedia. Conduct research in the area of Computer Vision, Computer Graphics, Artificial Intelligence, and Game Technology.

Lehigh University, Bethlehem, PA August 2008 - May 2013

IDEA Lab Research Assistant
Conduct independent research, publish conference and journal papers related to semantic image/video analysis and medical image processing.

National Institutes of Health, Bethesda, MD May 2010 - August 2010

Summer Research Internship, National Library of Medicine
Research content based image retrieval in large medical image databases.

University of Pennsylvania, Philadelphia, PA August 2006 - August 2008

Senior IT Support Specialist, The Wharton School
Research project programmer using PHP/Javascript/C++/Matlab/MySQL
Server administration of Solaris and Redhat Linux machines.

Moberg Research, Inc., Ambler, PA September 2003 - 2006

Software Engineer,
Software programmer, SBIR grant writer, Lead web developer
Awarded SBIR IOM Education Phase II Grant (2 years - \$700,000) - Lead programmer

**Journal
Publications**

1. J. Park, **E.Kim**, R. Werner, "Inpatient Hospital Charge Variability of U.S. Hospitals", *Journal of Internal Medicine*, May 2015.
Impact factor (3.423).
2. D.Song, **E.Kim**, X.Huang, J.Patrano, H.Munoz-Avila, J.Heflin, L. Rodney Long, S.Antani, "Multi-modal Entity Coreference for Cervical Dysplasia Diagnosis", In *IEEE Transactions on Medical Imaging*, Vol. 34, No. 1, pp.229-245, Jan. 2015.
Impact factor (3.799).
3. **E.Kim**, X.Huang, G.Tan, "Markup SVG - An Online Content Aware Image Abstraction and Annotation Tool", In *IEEE Transactions on Multimedia*, Vol. 13, Issue 5, Oct. 2011.
Impact factor (1.935).

Book Chapters

1. **E.Kim** and X. Huang, "A Data Driven Approach to Cervigram Image Analysis and Classification", In *Color Medical Image Analysis, Lecture Notes in Computational Vision and Biomechanics*, Volume 6, 2013. DOI: 10.1007/978-94-007-5389-1_1

**Peer-Reviewed
Conference
Publications**

1. T.Xu, **E.Kim**, and X.Huang, "Adjustable AdaBoost Classifier and Pyramid Features for Image-based Cervical Cancer Diagnosis", In *International Symposium on Biomedical Imaging*, ISBI 2015.
Acceptance rate N/A.
2. S.Bouloutian and **E.Kim**, "Artificial Intelligence Gaming Assistant for Google Glass", In *International Symposium on Visual Computing*, ISVC, 2014.
Acceptance rate 46% (129/280).
3. **E.Kim**, H.Li, and X.Huang, "A Hierarchical Image Clustering Cosegmentation Framework", In *IEEE Computer Society Conf. Computer Vision and Pattern Recognition*, CVPR 2012.
Acceptance rate 26% (465/1776).
4. T.Shen, X.Huang, H.Li, **E.Kim**, S.Zhang, and J.Huang, "A 3D Laplacian-Driven Parametric Deformable Model", In *IEEE International Conference on Computer Vision*, ICCV 2011.
Acceptance rate 24%.
5. **E.Kim**, X.Huang, and J.Heflin, "Finding VIPS - A Visual Image Persons Search Using A Content Property Reasoner and Web Ontology", In *IEEE International Conference on Multimedia & Expo*, ICME 2011.
Acceptance rate 29% (223/744). Top 8%, oral presentation.

6. **E.Kim**, T.Shen, and X.Huang, "A Parallel Cellular Automata with Label Priors for Interactive Brain Tumor Segmentation", In *The 23RD IEEE International Symposium on Computer-Based Medical Systems*, CBMS 2010. Acceptance rate 45% (81/178). Oral presentation.
7. H.Li, **E.Kim**, X.Huang, and L.He, "Object Matching with a Locally Affine-Invariant Constraint", In *IEEE Computer Society Conf. Computer Vision and Pattern Recognition*, CVPR 2010. Acceptance rate 22.3% (383/1717).
8. **E.Kim**, W.Wang, H.Li, and X.Huang, "A Parallel Annealing Method For Automatic Color Cervigram Image Segmentation", In *Medical Image Computing and Computer Assisted Intervention*, MICCAI-GRID, 2009. (oral presentation)

**Other Publications,
Posters, &
Presentations**

1. **E.Kim**, Z.Baloch, C.Kim, "Computer Assisted Detection and Analysis of Tall Cell Variant Papillary Thyroid Carcinoma in Histological Images", In *SPIE Medical Imaging 2015: Digital Pathology*, 2015. (oral presentation)
2. T.Xu, X.Huang, **E.Kim**, L. Rodney Long, S.Antani, "Multi-test Cervical Cancer Diagnosis with Missing Data Estimation", In *SPIE Medical Imaging 2015: Computer Aided Diagnosis*, 2015. (oral presentation)
3. **E.Kim** and J.Park, "wHealth - A Window to your Future Health." Health 2.0 Conference in Santa Clara, CA. 2013 (oral presentation)
4. **E.Kim**, H.Li, and X.Huang, "A Hierarchical Image Clustering Cosegmentation Framework", In *IEEE International Conference on Computational Photography*, ICCP 2012. (poster)
5. **E.Kim** and X.Huang, "Crowdsourcing Image Segmentation using SVG", In *SVG Open*, 2011. (oral presentation)
6. **E.Kim**, S.Antani, X.Huang, L.R.Long, and D.Demner-Fushman, "Using Relevant Regions in Image Search and Query Refinement for Medical CBIR", In *SPIE Medical Imaging 2011: Advanced PACS-based Imaging Informatics and Therapeutic Applications*, 2011. (oral presentation)
7. **E.Kim**, X.Huang, G.Tan, L.R.Long, and S.Antani, "A hierarchical SVG image abstraction layer for medical imaging", In *SPIE Medical Imaging 2010: Advanced PACS-based Imaging Informatics and Therapeutic Applications*, 2010. (oral presentation)

**Grants and
Monetary Awards**

1. "wHealth - A Window to your future Health." Robert Wood Johnson Foundation and Health 2.0. Games To Generate Data Challenge. Phase II award. Co-PI, \$100,000, 10/1/2013.

2. "A window to hospital pricing." Robert Wood Johnson Foundation and Health 2.0. Hospital Price Transparency Challenge. Static visualization 2nd place award. Co-PI, \$3,500, 10/1/2013.
3. "Advancement of Mobile Game Education and Development." Supported by world renowned artist Faith Ringgold. Co-PI, \$7,467.26, 9/1/2013.
4. "wHealth - A Window to your future Health." Robert Wood Johnson Foundation and Health 2.0. Games To Generate Data Challenge. Phase I award. Co-PI, \$5,000, 3/11/2013.
5. "Web-based Image Annotation and Retrieval: Computer-assisted Technologies for Medical Image Segmentation and Pattern Recognition". National Institutes of Health, National Library of Medicine, Sub-award from Lehigh University, PI, \$30,000, 10/01/2012 - 8/31/2013.

Awards

1. Lilly Teaching Conference Travel Fellowship, Villanova, April 2015.
2. Upsilon Pi Epsilon Member Induction, TCNJ Chapter, May 2013.
3. Sigma Xi Full Member Induction, Lehigh Chapter, April 2013.
4. ICCSA Interdisciplinary Community Catalyzing Scholarly Achievement, TCNJ School of Science, 2013-2014
5. MUSE Mentored Undergraduate Summer Experience, TCNJ, Summer 2013.
6. SOSA Support of Scholarly Activities, TCNJ, 2013-2015.
7. ArtsComm Professional Development Award, TCNJ School of Arts and Communication, 2013.
8. ICCSA Interdisciplinary Community Catalyzing Scholarly Achievement, TCNJ School of Science, 2012-2013
9. CVPR 2012 Outstanding Reviewer Award, Rhode Island, June 2012.
10. P.C. Rossin Doctoral Fellow, Lehigh University, 2011
11. Dean's Doctoral Scholarship, Lehigh University, 2008
12. 1st Place Poster Award at the Computational Engineering and Science / HPC Workshop, 2009

Teaching Experience

Villanova University, Villanova, PA

August 2014 - Current

Computer Science
 Tenure-Track Assistant Professor
 Courses Taught

- Fall 2014- CSC 1052 - Data Structures and Algorithms II
- Fall 2014 - CSC 1990 - Seminar in Computing
- Spring 2015 - CSC 1052 - Data Structures and Algorithms II
- Spring 2015 - CSC 5930-001 Game Development

- Spring 2015 - CSC 9010-005 Computer Vision

The College of New Jersey, Ewing, NJ

August 2012 - May 2014

Computer Science and Interactive Multimedia
Tenure-Track Assistant Professor
Courses Taught

- Fall 2012- CSC 101/IMM 120 - Introduction to Interactive Computing
- Fall 2012 - CSC 365/IMM 360 - Games I : Design and Architecture
- Spring 2013 - CSC 101/IMM120 - Introduction to Interactive Computing
- Spring 2013 - CSC 465/IMM460 - Games II: Implementation
- Spring 2013 - CSC 380 - Artificial Intelligence
- Fall 2013- CSC 101/IMM 120 - Introduction to Interactive Computing
- Fall 2013 - CSC 365/IMM 360 - Games I : Design and Architecture

Delaware County Community College, Media, PA

August 2011 - August 2012

Business and Computer Information Systems
Adjunct Instructor
Courses Taught:

- Fall 2011 - Network Eng 213 - Network Operating Systems Concepts
- Spring 2012 - Network Eng 213 - Network Operating Systems Concepts

Lehigh University, Bethlehem, PA

2009

P.C. Rossin College of Engineering and Applied Science
Teaching Assistant, Engineering 5 - Computer Animation

Lehigh University, Bethlehem, PA

2008

P.C. Rossin College of Engineering and Applied Science
Guest Lecture, GPUs - Graphics Processing Unit, CSE 313 Computer Graphics

University of Pennsylvania, Philadelphia, PA

2002

School of Engineering and Applied Science
Teaching Assistant, CSE 377 - Building Virtual Worlds

Student Research Advising

1. *Password Tracker*, with Computer Science student Santosh Kotha. Graduate Grand Challenges Project. Villanova, Spring 2015.
2. *OCR in Sheet Music Recognition*, with Computer Science student Yizhe Wang. Graduate Grand Challenges Project. Villanova, Spring 2015.
3. *A Study of Hadoop Ecosystem*, with Computer Science student Prateeksha Budhani. Graduate Grand Challenges Project. Villanova, Spring 2015.
4. *Creating Detailed 3D Models of a Room using Image and Depth data*, with Computer Science student Matthew Marzin. Graduate Grand Challenges Project. Villanova, Fall 2014.

5. *Advancement of Mobile Game Education and Development*, with Interactive Multimedia student Kerrin McLaughlin. Grant funded. TCNJ, Fall 2013.
6. *NCAA Bracket Solver using Monte Carlo methods in Objective C*, with Computer Science student Rocco Petrongolo. Mentored research. TCNJ, Fall 2013.
7. *A Usability Study of Diverse Socio-Economic Users in Mobile and Web Layouts*, with Graphic Design student Alex Rowe. Independent study. TCNJ, Fall 2013.
8. *Automated Holograms with the Leap Motion*, with Interactive Multimedia student Jared Krinsky. Independent study. TCNJ, Fall 2013.
9. *Emotion Classification using Mahalanobis Distance*, with Computer Science student Paul Nathan. Mentored research. TCNJ Summer 2013.
10. *Utilization of Autodesk Maya and Microsoft Kinect to Develop Motion Capture Technology*, with Computer Science student Joseph Canero. Mentored research. TCNJ, Spring 2013.

Certifications RHCT - Red Hat Certified Technician #603005827292911, 2005
RHCE - Red Hat Certified Engineer #804005131815456, 2005

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- Other Scholarly Activities**
1. ICCV 2015 Program Referee
 2. IEEE Transactions on Image Processing Reviewer 2015
 3. MICCAI 2015 Program Referee
 4. BMVC 2015 Program Referee
 5. SIGCHI WiP Program Referee 2015
 6. CVPR 2015 Program Referee
 7. CCSC-E Conference Volunteer Coordinator 2013
 8. CVPR 2014 Program Referee
 9. Computer Methods and Programs in Biomedicine 2013
 10. Journal of the American Society for Information Science and Technology Reviewer 2013
 11. Signal Image and Video Processing Reviewer 2013
 12. CVPR 2013 Program Referee
 13. Journal of Computers in Biology and Medicine Reviewer 2012
 14. Journal of Machine Vision and Applications Reviewer 2012
 15. CBMS 2012 Program Referee
 16. IEEE Transactions on Multimedia Reviewer 2012
 17. CVPR 2012 Program Referee
 18. IEEE Transactions on Multimedia Reviewer 2011
 19. ICCV 2011 Program Referee
 20. CVPR 2011 Program Referee
 21. CBMS 2010 Program Referee
 22. IEEE Transactions on Multimedia Reviewer 2010

**Service and
Volunteer
Activities**

Colloquium Committee, Villanova University, 2014.
Programming Team Co-coach, Villanova University, 2014.
Advising Committee, Class of 2017, Villanova University, 2014.
GitHub Workshop, Villanova University, 2014.
WHR Group Founder (whrgroup.org) - 501(c)(3) Health Data Research,, 2013
Whosoever Gospel Mission - GED Math Tutor, Germantown, PA, 2010

Computer Skills

Languages & Software: Java, C++, C, MATLAB, Processing, ObjC (learning), CUDA, PHP, MySQL, OpenCV, QT, HTML, Javascript, CSS, Autodesk Maya, Photoshop, After Effects, Android Application Development, Unity3D
Operating Systems: Linux, Windows, Mac OS.