

Edward Kim, Ph.D.

Contact Information Associate Professor
Department of Computer Science
Drexel University
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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 *Drexel University, Philadelphia, PA* August 2019 - Current

Associate Professor of Computer Science
Conduct research in the area of Computer Vision, Neuro-Inspired Machine Learning, Sparse Coding, and Neural Networks.

Villanova University, Villanova, PA August 2014 - May 2019

Assistant Professor of Computer Science
Conduct research in the area of Computer Vision, Machine Learning, Sparse Coding, Computer Graphics, Artificial Intelligence, and Simulation.

Naval Research Laboratory, Washington DC June 2018 - August 2018

Visiting Faculty
Visiting Faculty in the Navy Center for Applied Research in AI sponsored by the Office of Naval Research. Conduct research in Artificial Intelligence, Robotics, and Sparse Coding.

University of Delaware, DE January 2018 - June 2018

Visiting Scholar of Computer Science
Visiting Scholar in the Department of Computer and Information Sciences. Conducted research in Multimodal Deep Learning for Accessibility.

Los Alamos National Laboratory, Los Alamos, NM June 2017 - August 2017

Visiting Faculty Scholar
Visiting Faculty Program sponsored by the Department of Energy Office of Science. Conduct research in Biologically Inspired Neural Networks.

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

Conference Publications

1. J. Carter, J. Rego, D. Schwartz, V. Bhandawat, and **E. Kim**. "Learning Spiking Neural Network Models of Drosophila Olfaction." In *International Conference on Neuromorphic Systems, ICONS* pp. 1-5. 2020.
2. **E.Kim**, J. Rego, Y. Watkins, G. Kenyon, "Modeling Biological Immunity to Adversarial Examples", In *IEEE Computer Society Conf. Computer Vision and Pattern Recognition, CVPR* 2020.
Acceptance rate 22% (1470/6656).
3. Y. Watkins, **E.Kim**, A. Sornborger, G. Kenyon, "Using Sinusoidally-Modulated Noise as a Surrogate for Slow-Wave Sleep to Accomplish Stable Unsupervised Dictionary Learning in a Spike-Based Sparse Coding Models", In *IEEE Computer Society Conf. Computer Vision and Pattern Recognition Workshops, CVPR-W* 2020.
4. J. Marharjan, B. Mitchell, V.W.S. Chan, **E.Kim**, "Guided Ultrasound Imaging using a Deep Regression Network", In *Ultrasonic Imaging and Tomography, SPIE Medical Imaging*, 2020.
5. **E.Kim**, E. Lawson, K. Sullivan, G. Kenyon, "Spatiotemporal Sequence Memory for Prediction using Deep Sparse Coding", In *Neuro Inspired Computational Elements*

Workshop, NICE, 2019.

6. **E.Kim**, J. Yarnall, P.Shah, G. Kenyon, “A Neuromorphic Sparse Coding Defense to Adversarial Images”, In *International Conference on Neuromorphic Systems*, ICONS, 2019.
7. **E.Kim**, K. McCoy, “Multimodal Deep Learning using Images and Text for Information Graphic Classification”, In *ACM SIGACCESS Conference on Computers and Accessibility*, ASSETS 2018 .
Acceptance rate 26% (28/108). Nominated best paper
8. **E.Kim**, D. Hannan, G. Kenyon, “Deep Sparse Autoencoders for Invariant Multimodal Halle Berry Neurons”, In *IEEE Computer Society Conf. Computer Vision and Pattern Recognition*, CVPR 2018 .
Acceptance rate 29% (979/3300).
9. **E.Kim**, S. Mente, A. Keenan, V. Gehlot, “Digital Pathology Data for Improved Deep Neural Network Classification”, In *Imaging Informatics for Healthcare, Research, and Applications*, SPIE Medical Imaging, 2017.
10. **E.Kim**, C.Moritz, “Enhancing the Communication Spectrum in Collaborative Virtual Environments”, In *12th International Symposium on Visual Computing*, ISVC, 2016.
Acceptance rate oral presentation 36% (80/220).
11. **E.Kim**, S. Vangala, “Deep Action Unit Classification using a Binned Intensity Loss and Semantic Context Model”, In *23rd International Conference on Pattern Recognition*, ICPR, 2016.
Acceptance rate 56% (673/1200).
12. **E.Kim**, S. Vangala, “Vinereactor: Crowdsourced Spontaneous Facial Expression Data”, In *International Conference on Multimedia Retrieval*, ICMR, 2016.
Acceptance rate 50% (36/72).
13. **E.Kim**, M. Corte-Real, Z.Baloch, “A Deep Semantic Mobile Application for Thyroid Cytopathology”, In *SPIE Medical Imaging 2016: Advanced-PACS-based Imaging Informatics and Therapeutic Applications*, 2016. (oral presentation)
14. 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 54% (390/714). Top 18%, oral presentation, nominated best student paper.
15. **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)

16. 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)
17. 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).
18. **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).
19. 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%.
20. **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.
21. **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)
22. **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.
23. 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).
24. **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)
25. **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)

**Journal
Publications**

1. T. Xu, H. Zhang, C. Xin, **E.Kim**, L.R. Long, Z. Xue, S. Antani, X. Huang, “Multi-feature Based Benchmark for Cervical Dysplasia Classification Evaluation”, *Pattern Recognition*, Sept. 2016.
Impact factor (3.399).
2. J. Park, **E.Kim**, R. Werner, “Inpatient Hospital Charge Variability of U.S. Hospitals”, *Journal of Internal Medicine*, May 2015.
Impact factor (3.423).
3. 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).
4. **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

**Other Publications,
Posters, &
Presentations**

1. **E.Kim**, E.Lawson, G.Kenyon, “Predictive Vision using Spatiotemporal Deep Sparse Coding”, in *IEEE International Conference on Rebooting Computing*, 2018. (poster presentation)
2. **E.Kim**, D.Hannan, G.Kenyon, “Deep Sparse Coding for Invariant Multimodal Halle Berry Neurons”, in *COSYNE*, 2018. (poster presentation)
3. **E.Kim**, D.Hannan, G.Kenyon, “Hierarchical Sparse Coding for Multimodal Deep Learning”, in *IEEE International Conference on Rebooting Computing*, 2017. (poster presentation)
4. **E.Kim**, D.Hannan, G.Kenyon, “Deep Sparse Autoencoders for Invariant Multimodal Halle Berry Neurons”, in *Information Science and Technology Institute, Los Alamos National Lab*, 2017. (talk)
5. **E.Kim**, “Deep Sparsity in Deep Learning”, in *Navy Center for Applied Research in Artificial Intelligence Naval Research Laboratory*, 2017. (talk)
6. **E.Kim**, V.Gehlot, “Tools of the Trade for Precision Medicine: Deep Data Analysis with Machine Learning and Process Modeling Techniques”, in *IEEE International Conference on Biomedical and Health Informatics*, 2017. (tutorial presentation)
7. **E.Kim**, V.Gehlot, “Crowdsourcing Cytopathology for Deep Learning Data Augmentation”, in *MidAtlantic Bioinformatics Conference*, 2016. (poster presentation)

8. **E.Kim**, “Deep Neural Networks for Cytopathology,” in *Computing Research Addressing National Priorities and Societal Needs*, Computing Community Consortium, 2016. (poster presentation)
9. **E.Kim**, V. Gehlot, “Utilizing Trained Deep Neural Networks for Classification in Cytopathology”, in *Workshop on Data Science, Learning and Applications to Biomedical and Health Sciences (DSL-BHS2016)*, 2016. (talk)
10. **E.Kim**, “The Interpretation and Generation of Digital Media”, at *Villanova University*, 2014. (talk)
11. **E.Kim** and J.Park, “wHealth - A Window to your Future Health.” Health 2.0 Conference in Santa Clara, CA. 2013 (talk)
12. **E.Kim**, “The Graphics Processing Unity (GPU), A gamer’s solution to Big Data”, at *The College of New Jersey*, 2012. (talk)
13. **E.Kim**, H.Li, and X.Huang, “A Hierarchical Image Clustering Cosegmentation Framework”, In *IEEE International Conference on Computational Photography, ICCP 2012*. (poster)
14. **E.Kim**, “Computer Vision Context from Humans in the Loop”, at *West Chester University*, 2012. (talk)
15. **E.Kim** and X.Huang, “Crowdsourcing Image Segmentation using SVG”, In *SVG Open*, 2011. (talk)

Grants and Monetary Awards

1. “The Bias in the Machine.” Drexel University Office of Research & Innovation. PI, \$5,000, 8/7/2020.
2. “COVID-19: Digital Platform for Patient Recruitment, Testing, Prediction.” Bill & Melinda Gates Foundation. Key Personnel, \$496,783, 6/26/2020.
3. “REU Supplement on NSF CAREER Award.” National Science Foundation. PI, \$7,900, 9/1/2020.
4. “Sparse Associative Deep Learning Co-op Funding.” Steinbright Career Development Center. Drexel University, PI, \$7,250, 4/30/2020.
5. “Development of an Automated and Scalable Virtual Assistant to Aid in PPE Adherence and Clinical Protocols for Healthcare Worker Safety.” MSH-UHN AMO Innovation Fund. Co-PI, \$46,962, 4/17/2020.
6. “CAREER: Sparse Associative Deep Learning using Neural Mimicry in Multi-modal Machine Learning.” National Science Foundation NSF CAREER Award. PI, \$494,464, 6/1/2019.

7. "Hierarchical Sparse Coding for Robustness against Adversarial Attack." Intel Corporation. PI, \$33,566, 9/1/2018.
8. "Virtual Reality Simulation for Teaching and Evaluation of Medication Safety Administration." Pennsylvania Higher Education Nursing Schools Association. Co-PI, \$2,500, 9/1/2018.
9. "Digital Pathology Annotation Data for Improved Deep Neural Network Classification." University Summer Grants Program. Villanova University. PI, \$12,488, 2/1/2016.
10. "Deep Learning for General Video Emotion Classification." Amazon Research Education Grant. Amazon. PI, \$6,000, 12/14/2015.
11. "Virtual simulation for assessment of anesthesia intraoperative crises." Royal College Assessment with the Context of Competency-based Education, Royal College of Physicians and Surgeons of Canada. Co-PI, \$22,936.85 11/1/2015.
12. "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.
13. "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.
14. "Advancement of Mobile Game Education and Development." Supported by world renowned artist Faith Ringgold. Co-PI, \$7,467.26, 9/1/2013.
15. "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.
16. "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. NSF CAREER award, Robust Intelligence, June 2019.
2. ONR Faculty Research Summer Award, June 2018.
3. Cosyne 2018 Travel award, January 2018.
4. DOE Visiting Faculty Program Award, June 2017.
5. Lilly Teaching Conference Travel Fellowship, Villanova, April 2015.
6. Upsilon Pi Epsilon Member Induction, TCNJ Chapter, May 2013.
7. Sigma Xi Full Member Induction, Lehigh Chapter, April 2013.

8. ICCSA Interdisciplinary Community Catalyzing Scholarly Achievement, TCNJ School of Science, 2013-2014
9. MUSE Mentored Undergraduate Summer Experience, TCNJ, Summer 2013.
10. SOSA Support of Scholarly Activities, TCNJ, 2013-2015.
11. ArtsComm Professional Development Award, TCNJ School of Arts and Communication, 2013.
12. ICCSA Interdisciplinary Community Catalyzing Scholarly Achievement, TCNJ School of Science, 2012-2013
13. CVPR 2012 Outstanding Reviewer Award, Rhode Island, June 2012.
14. P.C. Rossin Doctoral Fellow, Lehigh University, 2011
15. Dean's Doctoral Scholarship, Lehigh University, 2008
16. 1st Place Poster Award at the Computational Engineering and Science / HPC Workshop, 2009

**Teaching
Experience**

Drexel University, Philadelphia, PA

August 2019 - Current

Computer Science
Tenure-Track Associate Professor
Courses Taught

- Winter 2019- CS 613 - Machine Learning
- Spring 2020- CS 383 - Machine Learning
- Fall 2020 - CS 613 - Machine Learning

Villanova University, Villanova, PA

August 2014 - May 2019

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
- Fall 2015- CSC 4380 - Information Visualization
- Fall 2015 - CSC 4790 - Senior Projects
- Spring 2016 - CSC 1052 - Data Structures and Algorithms II
- Spring 2016 - CSC 5930/9010 Game Development
- Fall 2016- CSC 5930/9010 - Computer Vision
- Fall 2016 - CSC 4790 - Senior Projects
- Spring 2017- CSC 3150/9010 Game Development
- Spring 2017 - CSC 1930 Introduction to 3D Modeling and Animation
- Fall 2017- CSC 2053 - Platform Based Computing
- Fall 2017 - CSC 4790 - Senior Projects

- Fall 2018- CSC 2053 - Platform Based Computing
- Fall 2018 - CSC 4380 - Information Visualization
- Spring 2019 - CSC 1045 - Introduction to 3D Modeling and Animation
- Spring 2019 - CSC 3150 - Game Development

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

**PhD Student
 Research Advising**

1. Nicki Barari Concentration: Top Down Machine Learning, PhD candidate in Computer Science, Drexel, 2020-present.
2. Andrew O'Brien Concentration: Machine Learning, Causality, PhD candidate in Computer Science, Drexel, 2020-present.
3. Daniel Schwartz Concentration: Machine Learning, Graph Networks, PhD candidate in Computer Science, Drexel, 2020-present.

4. Jocelyn Rego, Concentration: Neuro-inspired Machine Learning, PhD candidate in Computer Science, Drexel, 2019-present.
5. Maryam Daniali, Concentration: Cognitive Machine Learning, PhD candidate in Computer Science, Drexel, Co-Advisor with Dario Salvucci, 2019-present.

**PhD Student
Candidacy and
Dissertation
Committees**

1. Joseph Masgai, PhD candidate in Mechanical Engineering, Drexel, 2020-present.
2. Xinwei Zhao, PhD candidate in Electrical and Computer Engineering, Drexel, 2020-present.
3. Reza Moradinezhad, PhD candidate in Information Sciences, Drexel, 2019-present.
4. Xiyao Long, PhD candidate in Information Sciences, Drexel, 2019-present.
5. Dubem Ezech, PhD candidate in Electrical and Computer Engineering, Drexel, 2019-present.
6. Anderson Lebbad, PhD candidate in Mechanical Engineering, Villanova, 2015.

**Masters Student
Research Advising**

1. *Applying Neural Nets to EEG Data for Hearing Loss Detection*, with Computer Science student Daniel Cordero, Co-advised by Dr. Joseph Toscano. Master of Science in Software Engineering. Villanova, Spring 2018.
2. *Unsupervised Learning of Hierarchical Features with Generative Models*, with Computer Science student Andrew Keenan, Master of Science in Computer Science. Villanova, Spring 2018.
3. *Game Engine Design in Vulkan and Modern C++*, with Computer Science student Jeremy Heaton, Co-advised by Dr. Mirela Damian, Master of Science in Computer Science. Villanova, Fall 2017.
4. *Database Migrator*, with Computer Science student SaiKoushik Haddunoori. Graduate Grand Challenges Project. Villanova, Fall 2016.
5. *Appraisal Tracking*, with Computer Science student Sravani Divi. Graduate Grand Challenges Project. Villanova, Fall 2016.
6. *Comparing Learning Modules of Javascript and AngularJS*, with Computer Science student Keerthi Priya Pulukuri. Graduate Grand Challenges Project. Villanova, Fall 2016.
7. *IDesign Architecture Design and Implementation*, with Computer Science student Roshani Chadalavada. Graduate Grand Challenges Project. Villanova, Fall 2016.
8. *Online Quiz*, with Computer Science student Manoj Kumar Rayudi. Graduate Grand Challenges Project. Villanova, Spring 2016.
9. *Raspberry Pi based NodeJS App Development*, with Computer Science student Yizhe Wang. Graduate Grand Challenges Project. Villanova, Spring 2016.
10. *Encryption & Decryption using substitution and transposition with 512-bit symmetric key wrapping*, with Computer Science student Phani Sri Ram Gutta. Graduate Grand Challenges Project. Villanova, Fall 2015.
11. *Possible ways of Distance Culling in 3D (three.js and WebGL-3d)*, with Computer Science student Neha Karing. Graduate Grand Challenges Project. Villanova, Fall 2015.
12. *Book Sharing Android Application*, with Computer Science student Siva Srikar Reddy Yanamaladoddi. Graduate Grand Challenges Project. Villanova, Fall 2015.
13. *Password Tracker*, with Computer Science student Santosh Kotha. Graduate Grand Challenges Project. Villanova, Spring 2015.

14. *OCR in Sheet Music Recognition*, with Computer Science student Yizhe Wang. Graduate Grand Challenges Project. Villanova, Spring 2015.
15. *A Study of Hadoop Ecosystem*, with Computer Science student Prateeksha Budhani. Graduate Grand Challenges Project. Villanova, Spring 2015.
16. *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.

**Undergraduate
Student Research
Advising**

1. *Advanced Machine Learning*, with Computer Science student Kent Wu. Independent Study. Villanova, Spring 2016.
2. *Advanced Networking for Game Development using Unreal*, with Computer Science student Christopher Moritz. Independent Study. Villanova, Spring 2016.
3. *Advancement of Mobile Game Education and Development*, with Interactive Multimedia student Kerrin McLaughlin. Grant funded. TCNJ, Fall 2013.
4. *NCAA Bracket Solver using Monte Carlo methods in Objective C*, with Computer Science student Rocco Petrongolo. Mentored research. TCNJ, Fall 2013.
5. *A Usability Study of Diverse Socio-Economic Users in Mobile and Web Layouts*, with Graphic Design student Alex Rowe. Independent study. TCNJ, Fall 2013.
6. *Automated Holograms with the Leap Motion*, with Interactive Multimedia student Jared Krinsky. Independent study. TCNJ, Fall 2013.
7. *Emotion Classification using Mahalanobis Distance*, with Computer Science student Paul Nathan. Mentored research. TCNJ Summer 2013.
8. *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

**Other Scholarly
Activities**

1. ISVC 2020 Co-Chair
2. AAAI Program Committee 2016, 2020
3. NSF 2017 - 2019 Review Panel
4. CVPR 2011-2019 Program Referee
5. ICCV 2011, 2015, 2017, 2019 Program Referee
6. BMVC 2015 - 2020 Program Referee
7. ICONS 2018 - 2020 Program Committee
8. MICCAI 2015 - 2018 Program Referee
9. SIGCSE 2016-2018 Program Referee
10. JBHI 2018 Journal Reviewer
11. CVIU 2018 Journal Reviewer
12. BMDID 2016 Program Committee
13. ACCV 2016 Program Referee

14. CVIU Journal Reviewer 2015
15. IEEE Transactions on Image Processing Reviewer 2015
16. SIGCHI WiP Program Referee 2015
17. CCSC-E Conference Volunteer Coordinator 2013
18. Computer Methods and Programs in Biomedicine 2013
19. Journal of the American Society for Information Science and Technology Reviewer 2013
20. Signal Image and Video Processing Reviewer 2013
21. Journal of Computers in Biology and Medicine Reviewer 2012
22. Journal of Machine Vision and Applications Reviewer 2012
23. CBMS 2012 Program Referee
24. IEEE Transactions on Multimedia Reviewer 2012
25. IEEE Transactions on Multimedia Reviewer 2011
26. CBMS 2010 Program Referee
27. IEEE Transactions on Multimedia Reviewer 2010

**Service and
Volunteer
Activities**

Drexel Provost Faculty Fellow, 2020-2022
 Faculty Search Committee, Drexel University, 2019-2020
 PhD Committee, Drexel University, 2019-2020
 Artificial Intelligence and Machine Learning Committee, Drexel University, 2019
 VIEW Villanova Initiative for Engaging Women Summer Coding Instructor , 2019
 Coding School at St. Francis Faculty Advisor, 2018- present
 Honors and Awards Committee Chair, Villanova University, 2016-present
 Computing Sciences Search Committee Member, Villanova University, 2016-present
 Game Development Advisor, Villanova University, 2016-present
 Colloquium Committee, Villanova University, 2014,2015, chair- 2016-present
 Programming Team Co-coach, Villanova University, 2014-present.
 Advising Committee, Class of 2017, Villanova University, 2014-present
 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, Python, Unity3D, C#, Processing, CUDA, PHP, MySQL, OpenCV, QT, HTML, NodeJS, React, React Native, Javascript, CSS, Autodesk Maya, Photoshop, After Effects, Android Application Development
Operating Systems: Linux, Windows, Mac OS.