

Helen W. Kang

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EDUCATIONS

Post-Doctoral Researcher, Department of Computer Graphics Technology, Purdue University, Lafayette, IN. Specialized in development and assessment of applied graphics in instructional technology and training adult learners and learners with disability using learning theory and Human Computer Interaction (HCI) theory. Responsible for writing public and private grant proposals to secure external funding. Wrote conference proposals, proceeding papers, and journal articles. Acting supervisor and mentor for graduate and undergraduate students. May 2011.

Ph.D in Technology, Department of Computer Graphics Technology, Purdue University, West Lafayette, IN. Major field: Applied Graphics and Technology. Minor field: Instructional Technology & Special Education. Research interests: Human Computer Interaction (HCI), user interface analysis, teaching and learning for children with disabilities, visual perception, cognitive psychology, assistive technology development, spatial ability. Dissertation: *Effectiveness of Spatial Visualization Training Technology for Children with Attention Deficit Hyperactive Disorder (ADHD)*. Chair: Dr. James Mohler & Dr. Patrick Connolly. May, 2010.

Master of Science, Department of Computer Graphics Technology, Purdue University, West Lafayette, IN. Specialization: Instructional Design, Special Education, Assistive Technology, Computer Graphics. Master's Thesis: *Effectiveness of Images in Mathematics for 2nd to 4th Grade Students With and Without Attentional Problems*. May, 2007.

Bachelor of Science, Department of Computer Graphics Technology, Purdue University, West Lafayette, Specialization: Computer Animation. May, 2004.

PUBLICATIONS

Journals

Garofalo, F.J., Mohler, J.L. **Kang, H. W.** (In review). User interfaces for simultaneous group collaboration through multi-touch devices. *IEEE Transactions on Visualization and Computer Graphics*.

Kang, H. W., & Mohler, J. L. (In review). The effectiveness of spatial visualization training for students with and without Attention Deficit Hyperactivity Disorder (ADHD). *Journal of Special Education Technology*.

Kang, H. W., Choi, S., Mohler, J. L., Chen, Y., & Zheng, C. (2011). A qualitative study examining the spatial ability phenomenon from the Chinese student's perspective. *Engineering Graphics & Design*, 75(2),

Kang, H. W., & Mohler, J. L., Chen, Y., & Zheng, C. (In review). Validating the Purdue Spatial Visualization of Rotations Test in China. *Engineering Graphics & Design*.

Kang, H. W., Wright, A., Mohler, M., Watts, T., Barry, G. & Mohler, J. L. (In review). The effect of mental visualization on performance: A correlation study with collegiate swimmers. *Athletic Insight: The Online Journal of Sport Psychology*.

Kang, H. W. & Zentall, S.S. (2011). Computer-generated geometry instruction for students with and without Hyperactive and Inattention: A Preliminary Study. *Educational Technology Research and Development*. DOI: 10.1007/s11423-011-9186-5

Kellogg, L. D., Glotzbach, R. D., **Kang, H.W.,** Mohler, J. L. (In review). A Quantitative Investigation of Traditional and Virtual Project Teams: Traits of Trustworthy Members. *MIS Quarterly*.

Proceedings (with presentation)

Kang, H. W. & Mohler, J. L. (April, 2009). Developing a computer-based spatial assessment and intervention software for learners with attentional problems. *2009 Annual Teaching and Learning Technologies Conference*, Purdue University, West Lafayette, IN.

Kang, H. W. (April, 2009). Integration of spatial ability training in 7th grade math curriculum. *National Science Foundation GK-12 Regional Meeting*, Purdue University, West Lafayette, IN.

Kang, H. W., Mohler J. L., & Zentall, S. (March, 2009). The effectiveness of a spatial assistive technology training tool for children with ADHD. *Proceedings of the Society for Information Technology & Teacher Education International Conference*, Charleston, SC.

Kang, H. W. (March, 2007). Effectiveness of images in interactive technology for children with attentional difficulties., *Graduate Student Scholarly Conference*, Purdue University, Hammond, IN.

Kang, H. W., Zentall, S., & Burton, T. (June 2007). Use of images in interactive technology for children with attentional difficulties., *Interaction Design and Children Conference 2007*, Aalborg, Denmark.

Kang, H.W. & Daszynski, A. (September 2013). Optimizing clinical and administrative EPIC Beacon functionality to meet the need of cancer patients in UCMC way. EPIC User Group Meeting EPIC, Verona, WI

Li, J., Doyle, J., **Kang, H. W., & Studach, L.** (March 2010). Boiler Up: International collaboration research and inquiry learning in China. *National Science Foundation Conference 2010*, Arlington, VA.

Poster-Sessions (with presentation)

Kang, H. W. (2009, February). *How do you texture an animated character: Inquiry Based Geometry Lesson*. Poster session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc. Indianapolis, IN.

Kang, H. W. (2009, March). *Effective use of graphics in spatial visualization training for students with and without ADHD*. Poster session presented at the Annual National Science Foundation, Arlington, VA.

- Kang, H. W. & Brodman, J.** (2009, April). *Sweetness in the air: Integration of spatial ability training in math curriculum*. Poster session presented at the National Science Foundation GK-12 Regional Meeting, West Lafayette, IN.
- Kang, H. W. & Brodman, J.** (2009, March). *Understanding spatial relationship to calculate surface area and volume of 3D solid figures*. Poster and Lesson Sharing session presented at the Annual National Science Foundation, Arlington, VA.

Works in Progress

- Kang, H.W. & Burton, T.** Use of Animation as an Edutainment in Assisting Children with Stuttering.
- Kang, H.W. & Daszynski, A.** Meaningful Use of EMR system in Hematology and Oncology: Qualitative study of physicians' view of EPIC and its value.
- Kang, H. W., & Mohler, J. L., Chen, Y., & Zheng, C.** Validating the Purdue Spatial Visualization of Rotations Test in China. *Engineering Graphics & Design*.

RESEARCH EXPERIENCE

Application Specialist – Cedar Sinai Health System, Beverly Hills, CA (2015 – Present)

Performs advanced level design, build and implementation of the projects based on expert knowledge of UX research and operational requirements. Participates in re-engineering of operational workflow processes with end-users/business owners. Manage and coordinate the QA configuration and user acceptance testing by collaboration with teams. Provides high-level expertise in user design integration and touch points with other application modules. Responsible for managing 2015 upgrade for Ambulatory and Oncology applications with user and system analysis. Work with end users to collect feedback throughout the entire project lifecycle from conception and continuing beyond implementation. Identify gaps between the current and the ideal user experience to drive innovation focus and purpose. Provides mentorship to companies who are participating Cedar Sinai TechStar program with knowledge in healthcare and product development for various practices

Senior Business Analyst – University of Chicago Medical Center, Chicago, IL (2012 – 2015)

Formulate systems scope and objective relative to the organization business plan and industry requirements. Serve as a project team lead to provide technical guidance concerning the business implication of various systems. Utilizing concept of usability research and analysis to optimize the EPIC system and process lifecycle for the end users. Work with multiple software applications and platform to conduct systems analysis and design. Devise and/or modifies procedures to solve complex technical problems related to user experience limitations, operation time and desired results. Collaborate with other analyst and physicians to understand the end users need as well as assess the work to meet aggressive deadline. Provide detail specifications of what information needs to be modified as well as programs that need to be written.

Usability Research Analyst – United Airlines, Chicago IL (2012 – Present)

Collaborate with UX designers to create and validate user experience on UA web, mobile and kiosk interfaces. (check- <http://helenwkang.blogspot.com/> for more information). Develop methodologies and strategies for mental models, contextual inquiries, ethnography, usability and eye-tracking, card sorting, heuristic analysis, customer satisfaction monitoring, focus groups, and competitive analysis. Work with end users to collect feedback throughout the entire product lifecycle from conception and continuing beyond implementation. Serve as a subject matter expert on user research methods, usability best

practices, user-centered design. Identify gaps between the current and the ideal user experience to drive innovation focus and purpose. Present research back to product and design teams and help drive product and design decisions based on research and usability studies. Provide specific guidelines for any modifications that need to be met for quality assurance and end user satisfaction.

Post-Doctoral Researcher – Purdue University, West Lafayette, IN (2010-2011)

Designing and executing research studies in the area of Applied Graphics Technology & STEM education. Analyzing and interpreting data for various projects. Assisting and initiating the writing of research grant proposals to secure external funding Writing conference proposals, proceeding papers, and journal articles. Supervising and mentoring graduate and undergraduate students

Visiting Researcher – Harbin Institute of Technology, China & Purdue University (2009)

Evaluated and compare students in China's spatial ability from the students in United States.

Demonstrated the emerging development and assessment procedure to measure the effectiveness of imaging within the computer system

NSF GK12 Fellowship Program – Visiting Scientist (2008- 2010).

Investigated the implementation and effectiveness of Inquiry Based Learning. Appointed as a Visiting Scientist at Tecumseh Middle School. Designed, administered and assessed the new mathematic curriculums. Engaged in outreach research projects and school programs to engage and inspire children in pursuing education in the STEM related fields

Research Co-Investigator/Coordinator (2009)

Investigated Athletes visualization ability to their performance.

Behavior Observation Team Director (2006)

Coordinator and Director of Behavior Observation Team for the Research Project, *Effective Use of Images in Mathematics Instruction for Students and Without Attentional Problems*.

Responsible for Recruitment and Training Observers.

Behavior Observation Data Analyses Expert.

GRANT PROPOSALS

NSF MPRF: *Expansions of Image Registration Techniques in Biomedical Science to Instructional Technology: Can a picture really speak a thousand words?* \$120,000 (declined); Purdue University & Stanford University: PI: H.W. Kang (80%) & L. Xing (20%)

NSF Perception, Cognition and Visualization: *A Cross Cultural Investigation of Perception, Cognition, Visualization in Spatial Training* \$400,000 (submitted); Purdue University: PI: H.W. Kang (90%) & J.L. Mohler (10%)

NSF Science Society and Technology: *Standard Research Grant: The Significance of Transferring Image Registration Techniques in Biomedical Science to Instructional Technology for Students With & Without Disabilities* \$400,000 (withdrawn); Purdue University & Stanford University: PI H.W. Kang (80%) & J.L. Mohler (10%), Collaborator: L. Xing (10%)

NSF STEP TYPE II: *Is there a Revolving Door in STEM Education? An Investigation of Undergraduate STEM Retention Issues*. \$1,015,749.18 (declined); Purdue University: PI: J.L. Mohler (50%); Co-PI: H.W. Kang (50%)

NSF TUES TYPE I: Integration of Inquiry Learning in Technology Specific Discipline. \$250,000 (submitted); Purdue University: PI: P.C. Connolly (30%), M. Sadowski (10%) & J.L. Mohler (10%); Co-PI: H.W. Kang (50%)

Purdue Research Funding: Implementation and Assessment of WebGL Technology for Physics Education (declined); Purdue University: PI: J.L. Mohler; Co-PI: H.W. Kang & Z. Zhou

HONORS AND AWARDS

Bilsland Dissertation Fellowship – Awarded \$18,000/year (2009-2010)
NSF GK12 Fellowship – Awarded \$30,000/year (2008-2009).
Digital Learning Content (DLC) - Awarded \$15,000 (2008-2009).
2007 NAIT Foundation Clois Kicklighter Doctoral Scholarship – Awarded \$2500 (2007).
Srивer Graduate Student Scholarship – Awarded \$500 (2007).
Service Learning Grant – Awarded \$1500 (2007).

Outstanding Graduate Student (2009) – Awarded \$100
Graduate School Excellence in Teaching Award Nominee (2009)
Teaching Academy Fellow (2009)
Outstanding Graduate Teaching Assistant (2007).
SIGGRAPH Annual Outstanding Graduate Teaching Assistant (2007).

PROFESSIONAL ACTIVITIES

2012 - Present	EPIC AMBULATORY and BEACON Senior Business Analyst at University of Chicago Medical Center
2011 – 2012	EPIC CADENCE/PRELUDE and EPIC AMBULATORY Lead Business Analyst at Methodist Hospital
2009-2010	Member of Hoosier Association of Science Teachers, Inc.
2009-	Member of Purdue University Teaching Academy
2004-2007	Member, Association of Computing Machinery Special Interest Group on Graphics and Interactive Techniques

COLLEGE TEACHING EXPERIENCE

Lab Instructor (approximately 80 and more students each semester)
Spring 2005 to Spring 2007 Sketching for Visualization and Communication
Fall 2007 Raster Imaging for Computer Graphics
Spring 2008 Contemporary Problems in Applied Computer
Spring 2008 The Applied Computer Graphics Professional Life Cycle
Summer 2008 Internet Foundation Technology & Development
Fall 2008 to Spring 2009 Vector Imaging for Computer Graphics

Lecturer
Fall 2009 Vector Imaging for Computer Graphics
Fall 2010 to 2011 Interim Lecturer in Spatial Analysis and Assessment & Senior Design

INVENTION/CREATIVE WORKS

Digital Spatial Visualization Training Instrument

Developed for *Effectiveness of Spatial Visualization Training for Children with and without ADHD*.

Software used – Adobe Flash, Adobe Photoshop CS3 & Illustrator CS3

Computer Assisted Instruction Software Design for

Research of Effectiveness of Images for Children and Children with Attentional Difficulties

Software used – Macromedia Flash, Adobe Photoshop CS2 & Illustrator CS2, Alias Maya 7

Permission obtained from Saxon Publishers Inc. to use their text materials.

Hake, S. & Saxon J., (2004). *Saxon Math 5/4, Third Edition Teachers Manual*. Austin, TX: Saxon Publisher Inc.

Computer Aid instruction for CGT 112 students *Flash Tutorial*

Software used – Macromedia Flash, Macromedia Freehand, and Camtasia Studio

Stuttering Foundation of America DVD, Stuttering for Kids by Kids

Distributed public libraries over United States

Streaming on-line (<http://www.stutteringhelp.org/>)

Software used – Alias Maya 7.0, Adobe Photoshop CS2 and Adobe AfterEffects

SERVICE & OUTREACH ACTIVITIES

Nov 2010 – Nov 2011	Service – Pro Bono UX Research and Development Consulting with United Airlines
Aug 2009 – Aug 2010	Sponsor: CGT Senior Project. Assisted undergraduate students developing experimental research project. Specialized in ethics, procedure and evaluation of research study.
October 2009 – Aug 2010	GK-12 Inquiry Learning Expert. NSF selected 4 Ph.D students from Purdue University and invited them to Nanjing, China to implement Inquiry learning method
Summer 2006-2008	CGT Summer Camp. Assisted with the annual summer camp for the Department of Computer Graphics Technology CGT 2006-08. Instructed on the use of Adobe Photoshop for camp members.
Summer 2008	Cheerleading Camp. Photoshop Demonstration.
Summer 2007	Instructor for TAGS (Technology Advancing Girls Scouts) Camp Instructed on the use of Adobe Photoshop for camp members.
Fall 2006	Sponsor: CGT Senior Project. Assisted and directed the development of a Purdue University CGT senior project intended to redesign the website for the School of Special Education at Purdue University.

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