

Isaac Cho, Ph.D.

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Educations

12/2013	Doctor of Philosophy in Computer Science <i>University of North Carolina at Charlotte, NC</i> Dissertation: "Bimanual Stereoscopic Interaction for 3D Visualization" Advisor: Dr. Zachary J. Wartell.
02/2007	Bachelor of Science in Computer Science (3.71/4.0) Highest Honors <i>Hallym University, Republic of Korea</i>

Research Interests

3D User Interface	Virtual Environment
Interactive 2D/3D Visualization	Spatial User Interface
Human-Computer Interaction	Interactive Visual Analytics

Professional Appointments

6/2015 – Current	Research Associate , <i>Charlotte Visualization Center, University of North Carolina at Charlotte</i>
6/2015 – Current	Instructor , <i>Data Science Initiative, University of North Carolina at Charlotte, Visual Analytics</i> System Specialist , <i>Data Science Initiative, University of North Carolina at Charlotte</i>
6/2016 – 8/2016	Postdoctoral Fellow , <i>Charlotte Visualization Center, University of North Carolina at Charlotte</i> Supervisor: Dr. William Ribarsky
8/2007 – 5/2015	Graduate Research Assistant, Graduate Teaching Assistant , <i>Department of Computer Science, University of North Carolina at Charlotte</i>
Spring 2007	Graduate Teaching Assistant , <i>Department of Computer Science, Hallym University</i>

Professional Activities

2013 – present	Mailing list moderator , <i>IEEE Virtual Reality (VR)</i>
2015	International Committee Member , <i>ACM Spatial User Interface (SUI) 2015</i> Poster and Demos Co-Chair , <i>ACM Spatial User Interface (SUI) 2015</i>
2016	Local Arrangement Co-Chair , <i>IEEE Virtual Reality (VR) 2016</i> International Committee Member , <i>ACM Spatial User Interface (SUI) 2016</i>
2017	International Committee Member , <i>IEEE 3D User Interface (3DUI) 2017</i> International Committee Member , <i>ACM Spatial User Interface (SUI) 2017</i>

Review *SPIE Visualization and Data Analysis (VDA), ACM Spatial User Interface (SUI), IEEE 3D User Interface (3DUI), IEEE Visual Analytics Science and Technology (VAST), IEEE Transaction of Haptics*

Teaching

08/2015 – Current **Co-instructor, Visual Analytics (DSBA-5122)** *University of North Carolina at Charlotte*

2007-2013 **Graduate Teaching Assistant, ITCS 6125/8125 Virtual Environment, ITCS 4121/5121 Information Visualization, ITCS 4120/6120/8120 Computer Graphics** *University of North Carolina at Charlotte*

2005-2006 **Graduate Teaching Assistant, Data Structure and Algorithm (Java), Game Development (DirectX with C++)**, *Hallym University, Chuncheon, South Korea*

2004-2005 **Undergraduate Mentor**, Computer Graphics (OpenGL), Computer Programming (C++, Java), Undergraduate Mentoring program, *Hallym University, Chuncheon, South Korea*

Graduate Advising

2011, 2012, 2013 **Graduate Mentor**, Research Experience for Undergraduates (REU), University of North Carolina at Charlotte

2015 Dissertation Committee Member, Jinbo Feng (Ph.D.), University of North Carolina at Charlotte

2016 Dissertation Committee Member, Jialei Li (Ph.D.), Ok-Kyun Kim (Ph.D.), Alireza Karduni (MS), University of North Carolina at Charlotte

Honors/Awards

2007-2012 **Graduate School Dean's Fellowship**, *University of North Carolina at Charlotte*

2007 **Highest Honors (GPA 4.17/4.5)**, *Department of Computer Science, Hallym University*

2006 Recipient of Korean Government Scholarship (BK 21, NURI)

- *University of North Carolina at Charlotte, NC, United States, "Video Game Design and Development" summer program*
- *Central Queensland University, Rockhampton, Australia, English training summer program*

2002,2005,2006 Recipient of Korean Government Scholarship for Academic Excellence (BK21, NURI), *Hallym University*

2006 Recipient of the Best Mentor, Undergraduate Mentoring Program, *Hallym University.*

2005 Recipient of the Best Mentor, Undergraduate Mentoring Program of the Computer Science Department, *Hallym University.*

Conference Presentations

2015 **"DemographicVis: Analyzing Demographic Information based on User Generated Content"**, *IEEE Visual Analytics Science and Technology (VAST),*

- Chicago, IL.
- 2014 **“Evaluating Dynamic-Adjustment of Stereo View Parameters in a Multi-Scale Virtual Environment”**, IEEE Symposium on 3D User Interface (3DUI’14), Minneapolis, MN
- “HyFinBall: a Bimanual Hybrid User Interface for Cross-Dimensional Visualization”**, SPIE Electronic Imaging, Visualization and Data Analysis (VDA’14), San Francisco, CA
- 2013 **“Volumetric Selection with the HyBall User Interface”**, 1st Workshop on Immersive Volumetric Interaction (WIVI’13-Workshop) at IEEE Conference on Virtual Reality, Orlando, FL
- 2012 **“Evaluating Depth Perception of Volumetric Data in Semi-Immersive VR”**, IEEE Conference on Virtual Reality (VR’12-Poster), Orange County, CA

Invited Talks

- 2017 **“A Visual Analytics Interface for Situationally Aware Distribution Systems.”**, Isaac Cho and Zachary Wartell, EPRI Grid Analytics and Power Quality conference and exhibits, Sacramento
- “A Visual Analytics Interface for Situationally Aware Distribution Systems.”**, Isaac Cho, EPRI's Distribution Modernization Demonstration (DMD) advisory meeting, Sacramento
- 2016 **“Information Bursts and a Twitter-Like Sensor Network “**, William Ribarsky and Isaac Cho, EPRI's Distribution Modernization Demonstration (DMD) advisory meeting, Chattanooga
- “How the Internet of Things will Transform the Electric Distribution System of the Future, and What We Are Doing about It.”**, William Ribarsky and Isaac Cho, Viscenter Seminar, UNCC
- “Tales of VR: Highlights from the IEEE Virtual Reality Conference,”** Zachary Wartell, Isaac Cho and Jialei Li, Viscenter Seminar, UNCC
- 2015 **“IEEE VIS 2015 PostView”**, Tom Polk, Chong Zhang, Omar ElTayeby, Yueqi Hu, Isaac Cho, KR Subramanian, Viscenter Seminar, UNCC
- “IEEE VIS 2015 Preview”**, Isaac Cho, Omar ElTayeby, William Ribarsky
- “Towards a System that Supports Citizen Science”**, Isaac Cho, Wenwen Dou, William Ribarsky, and Eric Sauda, Viscenter Seminar, UNCC
- 2010 **“Comparison of Device-Based, One and Two-Handed 7DOF Manipulation Techniques”**, Jinbo Feng, Isaac Cho, Zachary Wartell, Viscenter Seminar, UNCC
- “Human Perception of Volume Data under Virtual Environment and Volumetric Rendering Conditions”**, Isaac Cho and Zachary Wartell, Viscenter Seminar, UNCC
- 2008 **“Adventures in Virtual Reality”**, Zachary Wartell, Brady Fulmer, and Isaac Cho, Viscenter Seminar, UNCC

Publications

- Journal [1] Karduni, A., **Cho, I.**, Wessel, G. Ribarsky, W., Sauda, E. and Dou, W. “Urban Space Explorer: A Visual Analytics System for Understanding Urban Social

- Media Activities”, *IEEE Computer Graphics and Applications (CGA)*, 2017.
Accepted
- [2] **Cho, I.**, Li, J. and Wartell, Z. “Multi-Scale 7DOF View Adjustment”, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2017.
- [3] S. Ko, **I. Cho**, S. Afzal, C. Yau, J. Chae, A. Malik, K. Beck, Y. Jang, W. Ribarsky, and D. S. Ebert “A Survey on Visual Analysis Approaches for Financial Data”, *Computer Graphics Forum*, 2016.
- [4] **Cho, I.**, Dou, W., Wang, X., Sauda, E. and Ribarsky, W. “VAiRoma: A Visual Analytics System for Making Sense of Places, Times, and Events in Roman History”, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2015. (22% acceptance rate)
- [5] Jeong, D. H., Kim, Y. R., **Cho, I.**, Kim, E. J., Lee, K. M., Jin, K. W., and Song, C. G., “Real-time Image Scanning System for Detecting Tunnel Cracks Using Linescan Cameras.” *In journal of Korea Multimedia Society*, Vol. 10, No. 6, 2007
- Conference [6] **Cho, I.** Wesslen R., Volkova, S. Ribarsky W. and Dou W. “CrystalBall: A Visual Analytic System for Future Event Discovery and Analysis from Social Media Data” *IEEE Visual Analytics Science and Technology (VAST)*, 2017. To appear
- [7] **Cho, I.** Wesslen R., Karduni A. Santhanam S. Shaikh S. and Dou W. “The Anchoring Effect in Decision-Making with Visual Analytics”, *IEEE Visual Analytics Science and Technology (VAST)*, 2017. To appear
- [8] Eaglin, T. **Cho, I.** and Ribarsky, W. “Space-time kernel density estimation for real-time interactive visual analytics”. *In System Sciences (HICSS), 2017 50th Hawaii International Conference on*
- [9] Dou, W., **Cho, I.**, ElTayeby, O., Choo, J. Wang, X. and Ribarsky, W. “DemographicVis: Analyzing Demographic Information based on User Generated Content”, *IEEE Visual Analytics Science and Technology (VAST)*, 2015. (22% acceptance rate)
- [10] Feng, J., **Cho, I.**, and Wartell, Z. “Comparison of Device-Based, One and Two-Handed 7DOF Manipulation Techniques.”, *ACM Spatial User Interface (SUI)*, Los Angeles, CA, August, 2015. 35% acceptance rate)
- [11] **Cho, I.**, and Wartell, Z. “Evaluation of a Bimanual Simultaneous 7DOF Interaction Technique in Virtual Environments.”, *IEEE 3D User Interface (3DUI)*, Arles, France, March, 2015. (32% acceptance rate)
- [12] Li, J., **Cho, I.** and Wartell, Z. “Evaluation of 3D Virtual Cursor Off set Techniques for Navigation Tasks in a Multi-Display Virtual Environment.”, *IEEE 3D User Interface (3DUI)*, Arles, France, March, 2015. (32% acceptance rate)
- [13] **Cho, I.**, Li, J. and Wartell, Z. “Dynamic Adjustment of Stereoscopic View Parameter for a Multi-Scale Virtual Environment.”, *IEEE 3D User Interface (3DUI)*, Minneapolis, MN, March, 2014. (20% acceptance rate)
- [14] **Cho, I.**, Wang, X. and Wartell, Z. “HyFinBall: a Two-Handed, Hybrid 2D/3D Desktop VR Interface for Multi-Dimensional Visualization.”, *SPIE 9017, VDA (Visualization and Data Analysis)* Feb, 2014, San Francisco, CA., USA
- [15] **Cho, I.**, Wartell, Z., Dou, W., Wang, X. and Ribarsky, W. “Stereo and Motion Effect on Depth Judgment for Volumetric Dataset.”, *SPIE 9011, Stereoscopic*

Workshop, Poster
and Technical
Report

- Displays and Applications XXV (SD&A)* Feb, 2014, San Francisco, CA, USA
- [16] **Cho, I.**, Dou, W, Wartell, Z. Ribarsky, W. and Wang, X. "Evaluating Depth Perception of Volumetric Data in a Semi-Immersive VR." *In Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI '12)*, ACM, New York, NY, USA, 266-269. (28% acceptance rate)
- [17] **Cho, I.**, and Wartell, Z. "Volumetric Selection with the HyBall User Interface." *1st Workshop on Immersive Volumetric Interaction (WIVI 2013) at IEEE VR Workshop*, Orlando, FL. 2013
- [18] **Cho, I.**, Dou, W., Wartell, Z., Ribarsky, W. and Wang, X. "Evaluating Depth Perception of Volumetric Data in Semi-Immersive VR." Poster – IEEE VR (Virtual Reality) 2012.
- [19] Wang, X., Butkiewicz, T., **Cho, I.** and Wartell, Z. "Towards Utilizing Heterogeneous Analytics Interfaces in Coastal Infrastructure Management." Charlotte Visualization Center: Technical Report UNCC-CVC-12-15, University of North Carolina at Charlotte. March 2012.