

# JUNG WHO NAM

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## ABOUT ME

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I recently graduated from a PhD program at the University of Minnesota, Twin Cities. My advisor was Daniel Keefe who leads the Interactive Visualization Lab.

My research interests include scientific visualization, immersive analytics, and data storytelling. I am particularly interested in novel visualization and interaction methods that support exploration and collaboration around spatial 3D data visualization.

## EDUCATION

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| 2014 – July 2022 | <b>Ph.D., Computer Science</b>  | <b>University of Minnesota – Minneapolis, MN</b> |
|                  | <ul style="list-style-type: none"><li>● Advisor: Daniel F. Keefe</li><li>● Specializations: Scientific Visualization, Virtual Reality, Data Storytelling</li><li>● Thesis: Everyday Scientific Visualization: Making 3D Visualization Techniques Accessible for Day-To-Day Team-Science for Collaboration and Analysis</li><li>● Took a three-year of leave of absence for the mandatory military service (2019-2022)</li></ul> |  |
| 2012 – 2014      | <b>M.S., Computer Science</b>   | <b>University of Minnesota – Minneapolis, MN</b> |
|                  | <ul style="list-style-type: none"><li>● Specializations: Computer Graphics, Virtual Reality</li></ul>   |  |
| 2008 – 2012      | <b>B.S., Computer Science</b>   | <b>University of Minnesota – Minneapolis, MN</b> |
|                  | <ul style="list-style-type: none"><li>● Specializations: Computer Graphics, User Interfaces</li></ul>   |  |

## SKILLS

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**Programming Languages:** C#, Java, C++, HLSL/Cg, JavaScript, TypeScript, CSS, HTML, PHP, R

**Development Tools:** Unity3D, OpenGL, Processing, Three.js, D3.js, Google MediaPipe, OpenCV

**Interaction Platforms:** HTC Vive, Oculus Rift, Google Cardboard, Kinect, OptiTrack

**Software:** Photoshop, Illustrator, Shotcut, Blender, SolidWork

## EXPERIENCE

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|---|---|--|
| 2019 – Nov 2021<br>(in replacement<br>of mandatory<br>military service) | <b>Researcher</b>   | <b>Gwangju Institute of Science and Technology – Gwangju, S. Korea</b><br><i>Korea Culture and Technology Institute (KCTI)</i> |
|   | <ul style="list-style-type: none"><li>● Developed an authoring tool for capturing a live dance performance.</li><li>● Designed and developed a gesture-based interactive installation for museums to present their archived heritage data, which was showcased at the Asia Culture Center and another public venue.</li></ul> |  |
| 2014 – 2019   | <b>Research Assistant</b>   | <b>University of Minnesota – Minneapolis, MN</b><br><i>Interactive Visualization Lab (IVLab)</i>                               |
|   | <ul style="list-style-type: none"><li>● Focuses on building novel interactive systems for experts in scientific, medical, and cultural heritage fields to analyze and present their data.</li></ul>   |  |

- Collaboration with **the Center for Spirituality and Healing**: Developed a mobile virtual reality application to practice mindfulness techniques to mitigate lower-back pains.
- Collaboration with **the US National Forest Services**: Developed mobile & desktop virtual reality applications to tour and analyze data-driven forests in the U.S.
- Collaboration with **the Medical Device Center**: Developed prototypes for using 3D printed props for interacting with medical data.
- Developed Unity3D plugins for using 3DUI techniques in different display devices, e.g., a 4-wall CAVE, TUIO multi-touch table, 3D TVs.

Summer 2018      **Research Intern**      **INRIA – Saclay, France**  
*Analysis and Visualization Lab (AVIZ)*

- Investigated ways to leverage storytelling and lightweight communication for science collaboration.
- Developed interactive techniques for creating lightweight data-driven presentations from exploratory data visualization applications.
- Developed platform-specific applications to collaborate around exchanged stories in browsers, mobile phones, and PC settings.

2011 – 2014      **Programmer**      **University of Minnesota – Minneapolis, MN**  
*Center for Magnetic Resonance Research (CMRR)*

- Developed a Photoshop-like JAVA application to assist pathologists with assembling scanned tissue images into a complete organ and annotating cancer boundaries.
- Integrated Java3D to view drawn cancer boundaries in 3D and implemented corresponding interaction functionalities.

## TEACHING EXPERIENCE

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Spring 2018      **Teaching Assistant**      **University of Minnesota – Minneapolis, MN**  
*Course: CSCI 4611 Programming Interactive Computer Graphics and Games*

- Provided feedback and guidance to students on their in-class projects.

Spring 2015      **Teaching Assistant**      **University of Minnesota – Minneapolis, MN**  
*Course: CSCI 5609 Visualization*

- Developed new student projects for junior-level visualization class.
- Provided feedback and guidance to students on their in-class projects.

## JOURNALS, CONFERENCES, BOOK CHAPTERS

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**2022**

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Daniel F. Keefe, Bridger Herman, **Jung Who Nam**, Daniel Orban, and Seth Johnson, "Hybrid data constructs: Interacting with biomedical data in augmented spaces", in *Making Data: Materializing Digital Information*, edited by Ian Gwilt, chapter 11, pages 169-182. Bloomsbury Visual Arts, June 2022. (DOI: 10.5040/9781350133266.ch-011)

**2019**

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**Jung Who Nam**, Krista McCullough, Joshua Tveite, Maria M. Espinosa, Charles H. Perry, Barry T. Wilson, and Daniel F. Keefe, "Worlds-in-Wedges: Combining WIMs and Portals to Support Comparative Immersive Visualization of Forestry Data", in *IEEE VR 2019*, Osaka, Japan. (DOI: 10.1109/VR.2019.8797871)

Ethan Leng, Jonathan C. Henriksen, Anthony E. Rizzardi, Jin Jin, **Jung Who Nam**, Benjamin M. Brassuer, Andrew D. Johnson, Nicholas P. Reder, Joseph S. Koopmeiners, Stephen C. Schmechel, and Gregory J. Metzger, "Nature Scientific Reports Signature maps for automatic identification of prostate cancer from colorimetric analysis of H&E-and IHC-stained histopathological specimens", in *Nature Scientific Reports* 9, 6992, May 2019. (DOI: 10.1038/s41598-019-43486-y)

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## 2017

**Jung Who Nam** and Daniel F. Keefe, "Spatial Correlation: An Interactive Display of Virtual Gesture Sculpture", in *Leonardo* (2017) 50 (1): 94–95. (DOI: 10.1162/LEON\_a\_01226)

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## 2016

Hamza Farooq, Junqian Xu, **Jung Who Nam**, Daniel F. Keefe, Essa Yacoub, Tryphon Georgiou, and Christophe Lenglet, "Microstructure Imaging of Crossing (MIX) White Matter Fibers from diffusion MRI", in *Nature Scientific Reports* 6, 38927, Dec 2016. (DOI: 10.1038/srep38927)

Gregory J. Metzger , Chaitanya Kalavagunta, Benjamin Spilseth, Patrick J. Bolan, Xiufeng Li, Diane Hutter, **Jung Who Nam**, Andrew D. Johnson, Jonathan C. Henriksen, Laura Moench, Badrinath Konety, Christopher A. Warlick, Stephen C. Schmechel, and Joseph S. Koopmeiners, "Detection of Prostate Cancer: Quantitative Multiparametric MR Imaging Models Developed Using Registered Correlative Histopathology", in *Radiology*, 2016 Jun;279(3):805-16. (DOI:10.1148/radiol.2015151089)

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## POSTERS, WORKSHOPS, EXHIBITS

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## 2019

### (Best Poster Award)

**Jung Who Nam**, Charles H. Perry, Barry T. Wilson, and Daniel F. Keefe, "Linked View Visualization Using Clipboard-Style Mobile VR: Application to Communicating Forestry Data", in *IEEE VIS 2019 posters*, Vancouver, Canada.

Narae Park, Yohan Hong, Hyunjeong Pak, **Jung Who Nam**, Kyoungsu Kim, Junbom Pyo, Kyungwon Gil, and Kyoobin Lee, "Effects of Age and Motivation for Visiting on AR Museum Experiences", in *ACM VRST 2019 posters*, Sydney, Australia. (DOI: 10.1145/3359996.3364711)

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## 2014

**Jung Who Nam** and Daniel F. Keefe, "Spatial Correlation: An Interactive Display of Virtual Gesture Sculpture", in *IEEE VIS 2014 Arts Program exhibits*, Paris, France.