Jung Who **Nam** — Ph.D. in Computer Science

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Data visualization and virtual reality researcher with 8 years of experience with

- Creating 3D interactive applications for data analysis and presentation — for geospatial, medical, and cultural heritage data
- Making 3D prototypes for different display systems — HMD VR, CAVE VR, mobile VR, projection-based AR, large tiled displays
- Formulating requirements on multi-disciplinary collaboration projects — working with scientists, artists, and industry partners

Education

2014-2022 | **Ph.D., Computer Science** — University of Minnesota – Minneapolis, MN
- Advisor: Daniel F. Keefe
- Dissertation title: *Everyday Scientific Visualization: Making 3D Visualization Techniques Accessible for Day-To-Day Team-Science for Collaboration and Analysis*
- Specializations: Data visualization, virtual reality, data storytelling

2012-2014 | **M.S., Computer Science** — University of Minnesota – Minneapolis, MN
- Specializations: Computer graphics, virtual reality

2008-2012 | **B.S., Computer Science** — University of Minnesota – Minneapolis, MN
- Specializations: Computer graphics, user interfaces

Relevant Experience

2022-Present (10 mos) | **Postdoctoral Researcher** — University of Texas – Austin, TX
- Upgrade Intel's raytracing application to facilitate immersive virtual reality experiences
- Extend its core rendering engine to display a single coherent virtual environment on tiled display walls
- Develop interaction techniques for gesture-based scene navigation and object manipulation
- Lead a monthly meeting with software engineers at Intel to communicate prototyping decisions and discuss strategies for integrating new changes into their codebase
- Collaborate with research scientists in high-performance computing to make the application run on tiled display walls driven by a cluster of nineteen Linux PCs

C++ | CMake | MPI | TCP/IP | Docker | Intel OSPRay Studio | Microsoft Kinect | Large Tiled Displays

2019-2021 (2 yrs 6 mos) | **Research Engineer** — Gwangju Institute of Science and Technology – Gwangju, S. Korea
- Participated in cross-institutional collaboration projects that require public exhibitions every year
- Collaborate with external teams to design interactive installations for history museums
- Led internal meetings with designers, developers, and curators to formulate realistic plans and tasks
- Developed visualization and interaction techniques for use by museum visitors to explore museums' archived data using gesture-based interaction
- Facilitated regular lab tours for visiting outside collaborators and stakeholders

Unity | C# | Microsoft Kinect | Large Format Displays

2014-2019 (4 yrs 9 mos) | **Research Assistant** — University of Minnesota – Minneapolis, MN
- Created 3D interactive systems to assist scientists with analyzing and presenting their data
- Collaborated on 3 multi-disciplinary projects involving teams at the U.S. National Forest Services, the Center for Spirituality and Healing, and the Medical Device Center
- Developed interactive AR/VR prototypes for both expert-driven and public-facing use cases
- Facilitated regular virtual reality lab tours for visiting faculty and school groups

Unity | C# | Processing | R | OptiTrack | MS Kinect | HMD VR | CAVE VR | Mobile VR | Projection-based AR | 3D Printing

Summer 2018 (3 mos) | **Research Intern** — INRIA – Saclay, France
- Investigated ways of leveraging storytelling and lightweight communication for science collaboration
- Developed frameworks for creating data stories and collaborating around exchanged stories in different device settings, e.g., in browsers, phones, and desktop settings

Unity | C# | PHP | MySQL | JavaScript | CSS | HTML

2011-2014 (3 yrs 3 mos)

Programmer — University of Minnesota – Minneapolis, MN

- Worked with pathologists to develop a Photoshop-like JAVA application for assembling scanned tissue images into a complete organ and annotating cancer boundaries for further data analysis
- Integrated Java3D to view and interact with drawn cancer boundaries in 3D and implemented corresponding interaction functionalities

Java | Java3D

Teaching Experience

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
- Graded written and programming assignments

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
- Graded written and programming assignments

Publications

2023 **J. W. Nam**, G. D. Abram, F. Samsel, and P. A. Navrátil, "Immersive ospray: Enabling vr experiences with ospray," in *2023 ACM conference on practice and experience in advanced research computing (PEARC)*, 2023, (to appear)

2022 **J. W. Nam**, T. Isenberg, and D. F. Keefe, "V-mail: 3d-enabled correspondence about spatial data on (almost) all your devices," *IEEE Transactions on Visualization and Computer Graphics*, 2022, (in publication). doi: 10.1109/TVCG.2022.3229017

YouTube

D. F. Keefe, B. Herman, **J. W. Nam**, D. T. Orban, and S. Johnson, "Hybrid data constructs: Interacting with biomedical data in augmented spaces," in *Making Data: The Creative Practice of Materialising Digital Information*. London: Bloomsbury, 2022, ch. 11, pp. 169–182. doi: 10.5040/9781350133266.ch-011

2019 **J. W. Nam**, K. McCullough, J. Tveite, M. M. Espinosa, C. H. Perry, B. T. Wilson, and D. F. Keefe, "Worlds-in-wedges: Combining worlds-in-miniature and portals to support comparative immersive visualization of forestry data," in *2019 IEEE conference on virtual reality and 3D user interfaces (VR)*, 2019, pp. 747–755. doi: 10.1109/VR.2019.8797871

YouTube | Presentation IEEE VR

E. Leng, J. C. Henriksen, A. E. Rizzardi, J. Jin, **J. W. Nam**, B. M. Brassuer, A. D. Johnson, N. P. Reder, J. S. Koopmeiners, S. C. Schmechel *et al.*, "Signature maps for automatic identification of prostate cancer from colorimetric analysis of h&e-and ihc-stained histopathological specimens," *Nature Scientific Reports*, vol. 9, no. 6992, 2019. doi: 10.1038/s41598-019-43486-y

Poster - **J. W. Nam**, C. H. Perry, B. T. Wilson, and D. F. Keefe, "Linked view visualization using clipboard-style mobile vr: Application to communicating forestry data," IEEE VIS Posters, 2019

YouTube | SciVis Best Poster Award

Poster - N. Park, Y. Hong, H. Park, **J. W. Nam**, K. Kim, J. Pyo, K. Gil, and K. Lee, "Effects of age and motivation for visiting on ar museum experiences," ACM VRST Posters, 2019. doi: 10.1145/3359996.3364711

2017 **J. W. Nam** and D. F. Keefe, "Spatial correlation: An interactive display of virtual gesture sculpture," *Leonardo*, vol. 50, no. 1, pp. 94–95, 2017. doi: 10.1162/LEON_a_01226

YouTube

2016 H. Farooq, J. Xu, **J. W. Nam**, D. F. Keefe, E. Yacoub, T. Georgiou, and C. Lenglet, "Microstructure imaging of crossing (mix) white matter fibers from diffusion mri," *Nature Scientific Reports*, vol. 6, no. 38927, 2016. doi: 10.1038/srep38927

G. J. Metzger, C. Kalavagunta, B. Spilseth, P. J. Bolan, X. Li, D. Hutter, **J. W. Nam**, A. D. Johnson, J. C. Henriksen, L. Moench *et al.*, "Detection of prostate cancer: quantitative multiparametric mr imaging models developed using registered correlative histopathology," *Radiology*, vol. 279, no. 3, pp. 805–816, 2016. doi: 10.1148/radiol.2015151089

Public Exhibitions

December 2021 Developer, "The Road of Hyecho." Interactive installation at Gwangju Cultural Foundation. S. Korea.
News
Unity | C# | Microsoft Kinect | Projection Wall

December 2020 Developer, "The Road of Ramayana." Interactive installation at Asia Culture Center. Gwangju, S. Korea.
YouTube News News
Unity | C# | Microsoft Kinect | Large Format Display

November 2014 Developer, "Spatial Correlation: An Interactive Display of Virtual Gesture Sculpture." Interactive installation at IEEE VIS 2014 Arts Program. Paris, France.
YouTube Publication
Processing | Java | GLSL | Microsoft Kinect V1

Conference Presentations

July 2023 Presenting author, "Immersive OSPRay: Enabling VR experiences with OSPRay." Paper talk at ACM PEARC. Portland, Oregon, USA.

March 2019 Presenting author, "Worlds-in-Wedges: Combining Worlds-in-Miniature and Portals to Support Comparative Immersive Visualization of Forestry Data." Paper talk at IEEE VR. Osaka, Japan.

Academic Services

Reviewer TVCG (2023), VR (2022), DESRIST (2018), Leonardo (2016)

Awards

October 2019 SciVis Best Poster Award, "Linked View Visualization Using Clipboard-Style Mobile VR: Application to Communicating Forestry Data.", Poster track at IEEE VIS 2019. Vancouver, British Columbia, Canada.