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

jungwhonam.github.io
github.com/jungwhonam
@ jungwhonam@gmail.com

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

Skills

Programming Languages	**C#**, C++, Java, **Cg/HLSL**, Processing
Development Tools	**Unity**, OpenGL, **Git**, CMake, MPI, Visual Studio, **Visual Studio Code**, Docker
3D Tracking Systems	**OptiTrack**, **Microsoft Kinect**, Leap Motion, Vuforia, OpenCV
Display Technologies	**HMD VR**, CAVE VR, Mobile VR, Projection-based AR, **Large Tiled Displays**, 3D Printing
Software & Tools	**Photoshop**, Illustrator, **Shotcut**

Relevant Experience

2022-Present (10 mos) | **Postdoctoral Researcher** — University of Texas – Austin, TX

Upgrade an open-source raytracing application to support VR features, e.g., providing an immersive view of a 3D virtual world and enabling gestures to move around the world.

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

- **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)

2019-2021 (2 yrs 6 mos) | **Research Engineer** — Gwangju Institute of Science and Technology – Gwangju, S. Korea

Developed interactive installations for history museums by working with graphic designers and curators. Implemented interaction techniques that allow museum visitors to explore archived data using gestures.

Unity | C# | Microsoft Kinect | Large Format Displays

- "The Road of Hyecho." Interactive installation at Gwangju Cultural Foundation, S. Korea, Dec. 2021. News
- "The Road of Ramayana." Interactive installation at Asia Culture Center, S. Korea, December 2020. YouTube News News
- 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

2014-2019
(4 yrs 9 mos)

Research Assistant — UNIVERSITY OF MINNESOTA – Minneapolis, MN

Designed and developed 3D interactive tools to assist scientists with analyzing and presenting their data. Collaborated on three multi-disciplinary projects involving teams at the U.S. National Forest Services, the Center for Spirituality and Healing, and the Medical Device Center.

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

- **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
- **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
- **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
- 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
- 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

Summer 2018
(3 mos)

Research Intern — INRIA – Saclay, France

Developed frameworks for creating data stories and collaborating around exchanged stories in different device settings, e.g., browsers, phones, and desktop settings.

Unity | C# | PHP | MySQL

- **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

2011-2014
(3 yrs 3 mos)

Programmer — UNIVERSITY OF MINNESOTA – Minneapolis, MN

Developed a Photoshop-like JAVA application for pathologists to assemble scanned tissue images into a complete organ and annotate cancer boundaries for further data analysis.

Java | Java3D

- 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
- 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