Seth Alan Johnson

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About Me

- Computer graphics researcher with 6 years of research experience in 3D User Interfaces
- Expertise in interdisciplinary collaboration, formulating requirements amidst ambiguity
- Passion for computational imagery and visualization for communication and discovery

Education

Doctor of Philosophy, Computer Science
University of Minnesota – Twin Cities, Minneapolis, MN   June 2020
- Research Focus: Virtual Reality, 3D User Interfaces, and Interactive Data Visualization
- Dissertation Title: *Palpable Visualizations: Techniques for Creatively Designing Discernible and Engaging Visualizations Grounded in the Physical World*
  http://sethalanjohnson.com/dissertation

Industry Experience

Google • Ads • Display Video 360, Kirkland, WA
Software Engineer   August 2020 to present
- Focus on optimizing server architecture & storage solutions for enterprise front-end product

Samsung Research America, San Jose, CA
Research Intern   May 2017 – August 2017
- Researched new low-level GPU profiling techniques for third-party mobile graphics apps
- Assessed prior interns' inconclusive research before implementing 1st successful prototype
- Developed workflows for memory tracing mobile apps by modifying existing simulators

Amazon, Seattle, WA
Software Development Engineer Intern   May 2014 – August 2014
- Researched high-performance loading algorithms for digital comic book content
- Evaluated and presented alternate methods when recommended method proved insufficient

Skills

Programming Languages: C/C++, Java, C#, Python, GLSL, HLSL/Cg, Processing
Development Tools: Unity, OpenGL, Git, GitHub, Visual Studio, Xcode, Make, CMake, VTK
Software: Paraview, Photoshop, After Effects, Premiere Pro, DaVinci Resolve, Blender
OS, VR Platforms: Windows, Mac OSX, Linux, HTC Vive, Magic Leap, Oculus Rift/Quest

Research Experience

Interactive Visualization Lab • University of Minnesota – Twin Cities, Minneapolis, MN
Graduate Research Assistant   September 2014 – June 2020
- Researched AR/VR rendering and UI for 3D data visualization & remote rendering
- Assessed needs and prioritized requirements through leading interdisciplinary meetings
- Developed software tools to aid 3D visualization research tasks in many scientific fields
- Produced and direct videos spotlighting immersive VR research projects for publications
- Facilitated regular virtual reality lab tours for visiting faculty and school groups
- Train and mentor undergraduate and graduate students in a research lab environment

Publications

Journal Publications:
- **S. Johnson**, F. Samsel, G. Abram, D. Olson, A. J. Solis, B. Herman, P. J. Wolfram, C. Lenglet, D F. Keefe. *Artifact-Based Rendering: Harnessing Natural and Traditional Visual Media for More Expressive and Engaging 3D Visualizations*. Transactions on Visualization and Computer Graphics, 2019.
  https://youtu.be/5s95HwloWbg
- **S. Johnson**, D. Orban, H. B. Runesha, L. Meng, B. Juhnke, A. Erdman, F. Samsel and D. F. Keefe. *Bento Box: An Interactive and Zoomable Small Multiples Technique for Visualizing 4D Simulation Ensembles in Virtual Reality*. Frontiers in Robotics and AI, 2019; Vol. 6, Page 61: 2296-9144.
  https://youtu.be/gn8bo8TgCHI
- D. Keefe, **S. Johnson**, R. Altheimer, D. Hong, R. Hunter, A. J. Johnson, M. Rockcastle, M. Swackhammer, A. Wittkamper. *Weather Report: A Site-Specific Artwork Interweaving Human Experiences and Scientific Data Physicalization*. IEEE Computer Graphics and Applications, 2018; Volume: 38, Issue: 4, Pages 10 – 16: 0272-1716.
  https://youtu.be/J0uY-TnbwqU
- **S. Johnson**, B. Jackson, B. Tourek, M. Molina, A. G. Erdman, and D. F. Keefe. *Immersive Analytics for Medicine: Hybrid 2D/3D Sketch-Based Interfaces for Annotating Medical Data and Designing Medical Devices*. Proceedings of the 2016 ACM Companion on Interactive Surfaces and Spaces, 2016; Pages 107--113: 2296-9144.
  https://youtu.be/taTwUWYh4jw