

Research Interests | Scientific Visualization, Immersive Analytics, Augmented/Virtual Reality, Applied Machine Learning

Education

- 2015 – 2023 **Ph.D. in Computer Science**, Stony Brook University
Dissertation: Immersive and Augmented 3D Scientific Visualization Systems
Advisor: Arie E. Kaufman
- 2010 – 2014 **B.S. in Computer Science**, School of Science and Engineering, LUMS, Pakistan

Academic Appointments

- 2023 – Now **Principal Research Scientist**, *Center for Visual Computing*, Stony Brook University.
- 2016– 2023 **Graduate Research Assistant**, *Center for Visual Computing*, Stony Brook University.
Advisor: Arie E. Kaufman
- 2014 – 2015 **Research Associate**, *Technology for People Initiative*, LUMS, Pakistan.
Project: Digital Preservation of Heritage Sites
- 2012 – 2014 **Student Research Assistant**, *Computer Vision Lab*, LUMS, Pakistan.
Advisors: Sohaib A. Khan and Murtaza Taj

Teaching Experience

- Spring 2024 **Lecturer**, *CSE 366, Introduction to Virtual Reality*.
Undergraduate course of 50 students, Stony Brook University
- Spring 2024 **Lecturer**, *EMP 532, Big Data Systems for Technology Management*.
Graduate course of 20 MS and professional students, Stony Brook University
- Spring 2019 – **Teaching Fellow**, *CSE 566, Virtual Reality*.
2023 Graduate course of 25 students, Stony Brook University
- Fall 2015 **Teaching Assistant**, *CSE 114, Object Oriented Programming*.
Undergraduate course of 100 students, Stony Brook University
- Spring 2014 **Teaching Assistant**, *CS 200, Data Structures*.
Undergraduate course of 100 students, LUMS

Academic Service

- Journal Reviews IEEE Transactions for Visualization and Computer Graphics
IEEE Transactions on Emerging Topics in Computing
Scientific Reports, Nature Publishing
- Conference Reviews IEEE VIS
IEEE Virtual Reality
SIGGRAPH Posters Program
IEEE Pacific Visualization Symposium (PacificVis)
IEEE International Symposium on Mixed and Augmented Reality (ISMAR)
IEEE Eurographics / VGTC Symposium on Visualization (EuroVis)
China Visualization and Visual Analytics Conference (ChinaVis)
- Other IEEE VIS Student Volunteer – 2018, 2022, 2023

Publications

Peer-reviewed Journal Papers

- 2023 [J9] **Saeed BoorBoor**, Mathew Castellana, Yoonsang Kim, Zhutian Chen, Johanna Beyer, Hanspeter Pfister, and Arie E. Kaufman. VoxAR: Adaptive Visualization of Volume Rendered Objects in Optical See-Through Augmented Reality. *IEEE Transactions on Visualization and Computer Graphics*. 2023.
- 2023 [J8] **Saeed BoorBoor**, Yoonsang Kim, Ping Hu, Josef Moses, Brian Colle, and Arie E. Kaufman. Submerse: Visualizing Storm Surge Flooding Simulations in Immersive Display Ecologies. *IEEE Transactions on Visualization and Computer Graphics*. 2023.
- 2023 [J7] Ping Hu, **Saeed Boorboor**, Joseph Marino, and Arie E Kaufman. Geometry-Aware Planar Embedding of Treelike Structures. *IEEE Transactions on Visualization and Computer Graphics*, 29(7):3182–3194, 2023
- 2023 [J6] **Saeed Boorboor**, Shawn Mathew, Mala Ananth, David Talmage, Lorna W. Role, and Arie E. Kaufman. NeuRegenerate: A Framework for Visualizing Neurodegeneration. *IEEE Transactions on Visualization and Computer Graphics*, 29(3):1625–1637, 2023
- 2023 [J5] Brian A Colle, Julia R Hathaway, Elizabeth J Bojsza, Josef M Moses, Shadya J Sanders, Katherine E Rowan, Abigail L Hils, Elizabeth C Duesterhoeft, **Saeed, Boorboor**, Arie E Kaufman, and Susan E Brennan. Risk perception and preparation for storm surge flooding: A virtual workshop with visualization and stakeholder interaction. *Bulletin of the American Meteorological Society*, 2023
- 2022 [J4] Johanna Beyer, Jakob Troidl, **Saeed Boorboor**, Markus Hadwiger, Arie Kaufman, and Hanspeter Pfister. A Survey of Visualization and Analysis in High-Resolution Connectomics. *Computer Graphics Forum*, 41(3):573–607, 2022
- 2021 [J3] Parmida Ghahremani, **Saeed Boorboor**, Pooya Mirhosseini, Chetan Gudisagar, Mala Ananth, David Talmage, Lorna W Role, and Arie E Kaufman. Neuroconstruct: 3D reconstruction and visualization of neurites in optical microscopy brain images. *IEEE Transactions on Visualization and Computer Graphics*, 28(12):4951–4965, 2021
- 2019 [J2] Ji Hwan Park, Saad Nadeem, **Saeed Boorboor**, Joseph Marino, and Arie Kaufman. CMed: Crowd analytics for medical imaging data. *IEEE Transactions on Visualization and Computer Graphics*, 27(6):2869–2880, 2019
- 2018 [J1] **Saeed Boorboor**, Shreeraj Jadhav, Mala Ananth, David Talmage, Lorna Role, and Arie Kaufman. Visualization of neuronal structures in wide-field microscopy brain images. *IEEE Transactions on Visualization and Computer Graphics*, 25(1):1018–1028, 2018

Peer-reviewed Conference Papers

- 2023 [C6] Josef Moses, Brian Anthony Colle, Julia Roberts Hathaway, Elizabeth Bojsza, Shadya Sanders, Katherine E Rowan, Abigail Hills, Elizabeth C Duesterhoeft, **Boorboor, Saeed**, Arie E Kaufman, et al. A virtual workshop involving college students to explore the relative role of visualization and stakeholder interaction on risk perception. In *Conference on Weather Analysis and Forecasting, Numerical Weather Prediction, and Mesoscale Processes*. AMS, 2023
- 2022 [C5] Ping Hu, **Saeed Boorboor**, Shreeraj Jadhav, Joseph Marino, Seyedkoosha Mirhosseini, and Arie E Kaufman. Spatial Perception in Immersive Visualization: A Study and Findings. In *International Symposium on Mixed and Augmented Reality Adjunct* , pages 369–372. IEEE, 2022
- 2021 [C4] Yoonsang Kim, **Saeed Boorboor**, Amir Rahmati, and A Kaufman. Design of privacy preservation system in augmented reality. In *IEEE Symposium on Visualization for Cyber Security*, 2021
- 2018 [C3] Mala Ananth, **Saeed Boorboor**, Shreeraj Jadhav, Arie Kaufman, Mark Slifstein, Nikhil Palekar, Christine DeLorenzo, Ramin Parsey, David Talmage, and Lorna Role. Visualizing the cholinergic system in health & disease. In *Neuropsychopharmacology*, volume 43, pages S263–S264. Nature Publishing Group, 2018

- 2018 [C2] **Saeed Boorboor**, Saad Nadeem, Ji Hwan Park, Kevin Baker, and Arie Kaufman. Crowdsourcing lung nodules detection and annotation. In *Medical Imaging 2018: Imaging Informatics for Healthcare, Research, and Applications*, volume 10579, pages 342–348. SPIE, 2018
- 2015 [C1] Ahsan Abdullah, Reema Bajwa, Syed Rizwan Gilani, Zuha Agha, **Saeed Boorboor**, Murtaza Taj, and Sohaib Ahmed Khan. 3D Architectural Modeling: Efficient RANSAC for n-gonal Primitive Fitting. In *Eurographics*, pages 5–8, 2015

Patents

- P1 System, method, and computer-accessible medium for processing brain images and extracting neuronal structures. A Kaufman and **S Boorboor**. US Patent App. 16/994,885.

Grant Writing Experience

- 2023 **NSF 2107328-IIS, Situated Visual Information Spaces** Co-PIs Hanspeter Pfister, Arie E. Kaufman, and James Tompkin. I led the writing for the visualization subsection of this grant proposal.
- 2020 **NSF 1940302-ICER, A Coastal Alliance Network for Visualization, Assessment, Science, and Stakeholders for Convergent Environmental Problem-Solving.** Co-PIs Brian A. Colle, Terri M. Adams-Fuller, Arie E. Kaufman, and Laura Lindenfeld. I led the writing of the immersive visualization section of this grant proposal.

Mentoring Experience

Doctoral Students

- 2022 – Now **Doris Gutierrez**, *Stony Brook University*.
- 2021 – Now **Yoonsang Kim**, *Stony Brook University*, [J8, J9, C1].
- 2021 – Now **Mathew Castellana**, *Stony Brook University*, [J8, J9].
- 2020 – 2023 **Shawn Matthew**, *Stony Brook University*, [J6].

Other

- 2019 – Now Supervision of Master's theses, directed research, and research interns. *Stony Brook University*
Mentored 7 Master's students.
- 2020 - Now Supervision of undergraduate senior-year project. *LUMS*.
Mentored 10 undergraduate students.
- 2020 Supervised 2 high school summer research interns.

Selected Talks and Presentations

- 2023 Presented published works [J6, J4] at IEEE VIS conference.
- 2022 Visualization in Immersive Display Ecologies, *Center for Visual and Decision Informatics*.
- 2018 Presented published works [J1] at IEEE VIS conference.
- 2018 Visualization of Neuronal Structures in Optical Microscopy. *Harvard University*.
- 2018 Visualization for Neuroscience and Connectomics. *LUMS, Pakistan*.
- 2017 - Now Seminar talks at the Center for Visual Computing, Stony Brook University. Topics include Visualization, Virtual/Augmented Reality, and Computer Graphics.

Awards and Honors

- 2019, 2021 IACS Junior Researcher Award. Awarded for strong contributions in computational research. (\$37,000 + \$5000 travel grant.)
- 2016 Stony Brook University CS Department Chair Fellowship: Awarded the special chair fellowship for the top 10 Ph.D. applications. (\$10,000)