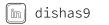
Disha Sardana

Individual Interdisciplinary Ph.D.



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EXPERIENCE

IMMERSIVE ANALYTICS

Demo | Creativity + Innovation Day-Article | Student Spotlight Jan 2019 - May 2023 | Center for Human-Computer Interaction (CHCI) at VT

- → Developed an approach for embodied data exploration of multi-dimensional datasets in an immersive mixed reality (MR) environment using HoloLens 2
- → Conducted a research study with 34 participants to evaluate the strengths and limitations of analyzing data in a 3D immersive environment compared to a non-immersive desktop environment based on specific visual analytics tasks
- → Studied the effect of **frame of reference** on user understanding and interaction with data in an immersive analytics environment by conducting user studies with 20 participants
- → Measured the impact of **sonification** on augmenting visual data analysis in an immersive environment by conducting a user study with 55 participants
- → Provided **design guidelines** based on the frame of reference and sonification for immersive analytics in MR environments

SPATIAL AUDIO DATA IMMERSIVE EXPERIENCE (SADIE)

NSF Funded Project | wvtf-article | vt-news Aug 2017 – Jul 2020 | Institute for Creativity, Arts, and Technology (ICAT) at VT

- → Conducted in-person user studies with over **150 users** to study the human perception of sound in an immersive multi-layered auditory environment
- → Performed hypothesis testing and **statistical analysis** on user data, leading to four publications in prestigious audio-related conferences
- → To enable user interaction with immersive sound environments utilizing motion capture systems, designed a new motion-tracking glove that allows physical control of a high-density, three-dimensional array of speakers
- → Programmed the logic to recognize 3-dimensional gestures (such as pinch, zoom, etc.) from real-time coordinates of various glove elements
- → Packaged code into a reusable toolkit that can be deployed in other settings

SELECTED PUBLICATIONS [FULL LIST]

- → Splechtna, R., Hulka, T., Sardana, D., Chandrashekar, N. D., Gracanin, D., & Matkovic, K. (2023). "Interactive Exploration of Complex Heterogeneous Data." In Proceedings of the 18th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP 2023).
- → Ngo A., Sardana, D., & Bukvic, I. I. (2022). "Sonifying 2D Cellular Behavior using Cellular Stethoscope." In Proceedings of the 27th International Conference on Auditory Display (ICAD 2022).
- → Sardana, D., Kahu, S. Y., Gračanin, D., & Matković, K. (2021). "Multi-modal Data Exploration in a Mixed Reality Environment Using Coordinated Multiple Views." In: Yamamoto S., Mori H. (eds) Human Interface and the Management of Information. Information Presentation and Visualization (HCII 2021).
- → Sardana, D., Joo, W., Bukvic, I. I., & Earle, G. (2020). "Perception of spatial data properties in an immersive multi-layered auditory environment." In Proceedings of the 15th International Conference on Audio Mostly (ICAD 2020).
- → Sardana, D., Joo, W., Bukvic, I. I., & Earle, G. (2019). "Introducing Locus: A NIME for immersive exocentric aural environments." In Proceedings of the International Conference on New Interfaces for Musical Expression (NIME 2019).

EDUCATION

VIRGINIA TECH

Ph.D. IN HUMAN-CENTERED DESIGN May 2023 | Blacksburg, VA, USA Cum. GPA: 3.88 / 4.0

VIRGINIA TECH

MASTER'S IN ELECTRICAL ENGG. May 2018 | Blacksburg, VA, USA Cum. GPA: 3.85 / 4.0

SKILLS

PROGRAMMING

Proficient: Python • R • MATLAB

Familiar: C# • Javascript

TOOLS

Unity3D • Git • Miro • Figma

RESEARCH

Interviews • Usability Testing • Mixed-Methods Research • Surveys • Thematic Analysis • User Studies • Experimental Design • Hypothesis Testing

LEADERSHIP

- President | CHCI Student Council
- Co-Founder & VP | Kala Indian Classical Music Society
- President | Indian Students Association at Virginia Tech

Honors

- Received honorable mention for the IEEE VAST Challenge 2022
- Awarded NSF scholarship for the Student ThinkTank at the ICAD '19
- Received a student presentation award at the AMS 98th Annual Meeting for exceptional research & presentation
- Inducted life member of Phi Kappa Phi