Disha Sardana

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EDUCATION

VIRGINIA TECH
Ph.D. Candidate in HCI
Graduating Dec 2022 | Blacksburg, VA
Cum. GPA: 3.88

VIRGINIA TECH
MS in Electrical Engineering
Graduated May 2018 | Blacksburg, VA
Cum. GPA: 3.85

LINKS

Portfolio: **disha-sardana**
Google Scholar: **publications**
GitHub: **disha13sardana**

COURSEWORK

Human Computer Systems
Human Centered Design
Virtual Environments
Advanced Data Analytics
Statistical Inference
Statistics in Research
Advanced Electromagnetics
Computational Plasma Dynamics

SKILLS

Programming
• Python • R • MATLAB
• Unity3D • C# • Max/MSP
• HoloLens 2 • Magic Leap One
Research Methods
• User-studies • Interview
• Focus Group • Survey

HONORS

• Received a student presentation award at the AMS 98th Annual Meeting for exceptional research & presentation
• Inducted life member of Phi Kappa Phi
• Awarded NSF scholarship for the Student ThinkTank at the ICAD 2019

LEADERSHIP

• **President** | CHCI Student Council
• **Co-Founder & VP** | Kala - Indian Classical Music Society at Virginia Tech
• **President** | Indian Students Association
• **Event Coordinator** | Eta Kappa Nu (IEEE-HKN) Honor Society

RESEARCH

IMMERSIVE ANALYTICS

Demo | ICAT Creativity + Innovation Day 2021 | Student Spotlight
Jan 2019 – Present | 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
- Demonstrated the proof-of-concept at a science fair (ICAT Creativity + Innovation Day 2019) and collected preliminary feedback from over **20 users**
- Conducted a research study with **34 users** to analyze how efficient it is for users to explore data in an immersive MR environment compared to a non-immersive desktop environment
- Deployed the developed prototype in two MR environments using Microsoft HoloLens 1 and Microsoft HoloLens 2 devices to perform a cross-platform system performance comparison based on the prototype's scalability and functionality
- Also deployed the prototype in a browser setup using Web Graphics Library (WebGL) to compare between an immersive MR environment and a non-immersive 3D desktop environment

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 user-studies with over **150 users** to study 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, 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

RELEVANT PUBLICATIONS

2019 - Present

- **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.
- Debchoudhury, S., **Sardana, D.**, & Earle, G. D. (2021). The relative importance of geomagnetic storm signatures on the total electron content perturbations over the continental US. Journal of Geophysical Research: Space Physics, 126(5), e2020JA028125.
- **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.
- Bukvic, I. I., Earle, G., **Sardana, D.**, & Joo, W. (2019). Studies in spatial aural perception: Establishing foundations for immersive sonification. In Proceedings of the 25th International Conference on Auditory Display.
- **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.