Disha Sardana

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EDUCATION

VIRGINIA TECH
PH.D. IN HCI
Graduating May 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 • Magic Leap • Vuforia
Research Methods
• User-studies • Interview • Focus Group
• Survey • Storyboarding • Ethnography

HONORS

• Received a student presentation award at the AMS 98th Annual Meeting for exceptional research & presentation
• Inducted life member of Phi Kappa Phi
• Invited reviewer for the late-breaking works at CHI 2020, Hawai'i, USA

LEADERSHIP

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

RESEARCH

IMMERSIVE ANALYTICS

INDIVIDUALIZED INTERDISCIPLINARY PH.D. RESEARCH
Jan 2019 – present | Center for Human-Computer Interaction, VT

- Proposed 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 and Innovation Day) and collected preliminary feedback from over 20 users
- 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 system using Web Graphics Library (WebGL) to compare between an immersive MR environment and a non-immersive 3D desktop environment
- 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

SPATIAL AUDIO DATA IMMERSIVE EXPERIENCE (SADIE)

NSF FUNDED PROJECT | WVTF-ARTICLE | VT-NEWS
Aug 2017 – July 2020 | Institute for Creativity, Arts, and Technology, VT

- To enable user interaction with immersive sound environments, designed a new motion tracking glove that allows physical control of a high-density, 3-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
- Conducted user-studies with over **150 users** (till date) 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

PUBLICATIONS

2018 - present

- Debchoudhury, Shantanab, **Disha Sardana** , and Gregory D. Earle. "The relative importance of geomagnetic storm signatures on the total electron content perturbations over the continental US." *Journal of Geophysical Research: Space Physics: e2020JA028125*.
- **Sardana, Disha** , et al. "Perception of spatial data properties in an immersive multi-layered auditory environment." *Proceedings of the 15th International Conference on Audio Mostly. 2020*.
- Bukvic, Ivica Ico, **Disha Sardana** , and Woohun Joo. "New Interfaces for Spatial Musical Expression." *New Interfaces for Musical Expression. 2019*.
- Bukvic, Ivica Ico, Gregory Earle, **Disha Sardana** , and Woohun Joo. "Studies in spatial aural perception: establishing foundations for immersive sonification." *The 25th International Conference on Audiory Display, 2019*.
- **Sardana, Disha** , et al. "Introducing locus: a nime for immersive exocentric aural environments." *New Interfaces for Musical Expression. 2019*.
- **Sardana, Disha** . "Quantification of Effect of Solar Storms on TEC over US sector Using Machine Learning." *Diss. Virginia Tech, 2018*.