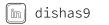
# Disha Sardana

# Individual Interdisciplinary Ph.D.



disha-sardana.com



dishas9@vt.edu



+1(540)449-5353

#### **EXPERIENCE**

#### **IMMERSIVE ANALYTICS**

Demo I | Demo II | 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

# 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 (including t-test and ANOVA) on user data, leading to four publications in prestigious audio-related conferences
- → Designed a new motion-tracking glove to enable user interaction with immersive sound environments utilizing motion capture systems
- → 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

#### AN INTERACTIVE AUGMENTED REALITY BOARD GAME

BEST POSTER AWARD | GAME DESIGN

2019 | Center for Human-Computer Interaction (CHCI) at VT

- → Designed and prototyped an "Interactive Augmented Reality (AR) Board Game for Recruiting Prospective Students", as an innovative recruitment strategy to promote playful information delivery and collective decision-making
- → Led the development of the AR component of the game using Vuforia and Unity3D
- → Communicated findings to the stakeholders at the university

# **SELECTED PUBLICATIONS [FULL LIST]**

- → Ngo A., Sardana, D., & Bukvic, I. I., "Sonifying 2D Cellular Behavior using Cellular Stethoscope," in ICAD 2022.
- → Sardana, D., Kahu, S. Y., Gračanin, D., & Matković, K., "Multi-modal Data Exploration in a Mixed Reality Environment Using Coordinated Multiple Views," in HCII 2021.
- → Sardana, D., Joo, W., Bukvic, I. I., & Earle, G., "Perception of spatial data properties in an immersive multi-layered auditory environment," in ICAD 2020.
- → Sardana, D., Joo, W., Bukvic, I. I., & Earle, G., "Introducing Locus: A NIME for immersive exocentric aural environments," in NIME 2019.
- → Sardana, D., "Quantification of Effect of Solar Storms on TEC over US sector Using Machine Learning," Thesis (2018), Virginia Tech.

## **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**

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

#### 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