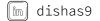
Disha Sardana

Recently graduated, interdisciplinary Ph.D. at Virginia Tech



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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

STUDY OF GEOMAGNETIC SOLAR STORMS USING MACHINE LEARNING

BEST PRESENTATION AWARD

Aug 2015 - May 2018 | Center for Space Science and Engineering Research at VT

- → Presented a study of large solar storms occurring from 2000-2018 to quantify their effects on the Total Electron Content (TEC) in the ionosphere over the U.S. sector
- → Studied the strength of influence of various storm parameters on the TEC using tree-based machine learning techniques, such as, random forest
- → Used AWS, Python, and Scikit Learn to build a pipeline to fetch and ingest massive amounts of ionospheric data (order of 10s of GBs) to train and test machine learning models
- → Work won **student presentation award** at the AMS 98th Annual Meeting (2018)

SELECTED PUBLICATIONS [FULL LIST ON GOOGLE SCHOLAR]

- → Debchoudhury, S., Sardana, D., & Earle, G. D., "The relative importance of geomagnetic storm signatures on the total electron content perturbations over the continental US," in the Journal of Geophysical Research: Space Physics, 2021.
- → 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., "Quantification of Effect of Solar Storms on TEC over US sector Using Machine Learning," Thesis (2018), Virginia Tech.

EDUCATION

VIRGINIA TECH

INTERDISCIPLINARY PH.D. May 2023 | Blacksburg, VA, USA Cum. GPA: 3.88 / 4.0

VIRGINIA TECH

M.S. IN ELECTRICAL ENGINEERING May 2018 | Blacksburg, VA, USA Cum. GPA: 3.85 / 4.0

SKILLS

PROGRAMMING

Proficient:

Python • R • MATLAB

Familiar:

C# • Javascript

TOOLS

Unity3D • Git • Visual Studio • Miro • Figma • Max/MSP

RESEARCH

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

LEADERSHIP

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

HONORS

- Received an 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