Lee Lisle

COMPUTER SCIENCE RESEARCHER

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Research Interests

- Virtual & Augmented Reality
- Immersive Analytics
- Immersive Storytelling
- Human Computer Interaction
- 3d User Interaction Techniques
- Social Virtual Reality & Avatars

Education

Doctor of Philosophy in Computer Science   *Blacksburg, VA*

VIRGINIA TECH   *December 2022*

Advisor: Dr. Doug A. Bowman, Dissertation: *Immersive Space to Think: Immersive Analytics for Sensemaking with Non-Quantitative Datasets*

Master of Science in Computer Science   *Blacksburg, VA*

VIRGINIA TECH   *December 2021*

Advisor: Dr. Doug A. Bowman

Bachelor of Science in Computer Engineering   *Blacksburg, VA*

VIRGINIA TECH   *May 2015*

Advisor: Dr. Joseph L. Gabbard

Research Experience

Postdoctoral Research Associate - Virginia Tech National Security Institute   *October 2023 to Present*

VIRGINIA TECH   *Blacksburg, VA*

Focusing on designing, implementing, and testing immersive analytics visualizations for cybersecurity analysis in augmented reality

Graduate Research Assistant - 3DI Group   *January 2018 to December 2022*

VIRGINIA TECH   *Blacksburg, VA*

Focused on Sensemaking with immersive analytics in augmented and virtual reality

Graduate Research Assistant - Crowd Intelligence Lab   *January 2017 to December 2017*

VIRGINIA TECH   *Blacksburg, VA*

Focused on crowdsourcing and gamification for complex biological problems

Undergraduate Research Assistant - COGENT Lab   *January 2013 to May 2015*

VIRGINIA TECH   *Blacksburg, VA*

Focused on simulator interface integration and user experience design

Awards and Honors

Best Paper Honorable Mention - IEEE International Symposium on Mixed and Augmented Reality   *October 2022*

"EXPLORING THE IMPACT OF VISUAL INFORMATION ON INTERMITTENT TYPING IN VIRTUAL REALITY"

Best Contest Entry - IEEE Conference on Virtual Reality and 3D User Interfaces   *March 2022*

"CLEAN THE OCEAN: AN IMMERSIVE VR EXPERIENCE PROPOSING NEW MODIFICATIONS TO GO-GO AND WIM TECHNIQUES" (PRIMARY AUTHOR)

Pratt Fellowship Scholar   *Spring 2022*

FELLOWSHIP FOR HIGH-ACHIEVING PH.D CANDIDATES AT VIRGINIA TECH

Best Paper Nomination - IEEE Conference on Virtual Reality and 3D User Interfaces *March 2021*

"Sensemaking Strategies with Immersive Space to Think" (Primary Author)

Best Contest Entry - IEEE Conference on Virtual Reality and 3D User Interfaces *March 2021*

"Fantastic Voyage 2021: Using Interactive VR Storytelling to Explain Targeted COVID-19 Vaccine Delivery to Antigen-Presenting Cells"

I/ITSEC 2019 RADM Fred Lewis Postgraduate Scholarship *December 2019*

$10,000 Scholarship Award for graduate students in modeling, simulation, training, or education

Grants

Institute for Creativity, Arts, & Technology SEAD Grant *Fall 2021 - Spring 2022*

"Transforming Public Engagement with Underrepresented Stories through Humanities Sources and Immersive Experiences" *$23,000*

E. Gitre, D.Bowman, C. North, P. Newbill, and L. Lisle.

Publications

Peer Reviewed Journal Papers

[1] "Where did my apps go?" Supporting Scalable and Transition-Aware Access to Everyday Applications in Head-Worn Augmented Reality *Accepted: October 2024*

F. Lu, L. Pavanatto, S. Davari, L. Zhang, **L. Lisle**, D.A. Bowman

IEEE Transactions on Visualization and Computer Graphics, **Impact Factor: 5.56**

[2] Investigating Professional Analyst Strategies in Immersive Space to Think *August 2024*

K. Davidson, **L. Lisle**, I.A. Tahmid, K. Whitley, C. North, D.A. Bowman

IEEE Transactions on Visualization and Computer Graphics, **Impact Factor: 5.56**

[3] Different Realities: a Comparison of Augmented and Virtual Reality for the Sensemaking Process *August 2023*

L. Lisle, K. Davidson, E.J.K. Gitre, C. North, D.A. Bowman

Frontiers in Virtual Reality, **Impact Factor: 4.70**

[4] Exploring the Evolution of Sensemaking Strategies in Immersive Space to Think *September 2022*

K. Davidson, **L. Lisle**, K. Whitley, D.A. Bowman, C. North

IEEE Transactions on Visualization and Computer Graphics, p. 1-15, **Impact Factor: 5.56**

[5] Effects of Volumetric Augmented Reality Displays on Human Depth Judgments: Implications for Heads-Up Displays in Transportation *April 2019*

L. Lisle, C. Merenda, K. Tanous, H. Kim, J.L. Gabbard, D.A. Bowman

International Journal of Mobile Human Computer Interaction, p. 1-18

Peer Reviewed Conference Papers

[6] Spaces to Think: a Comparison of Small, Large, and Immersive Displays for the Sensemaking Process *October 2023*

L. Lisle, K. Davidson, L. Pavanatto, I.A. Tahmid, C. North, D.A. Bowman

International Symposium on Mixed and Augmented Reality

[7] Uncovering Best Practices in Immersive Space to Think *October 2023*

K. Davidson, **L. Lisle**, I.A. Tahmid, K. Whitley, C. North, D.A. Bowman

International Symposium on Mixed and Augmented Reality

[8] Evaluating the Feasibility of Predicting Information Relevance During Sensemaking with Eye Gaze Data *October 2023*

I.A. Tahmid, **L. Lisle**, K. Davidson, K. Whitley, C. North, D.A. Bowman

International Symposium on Mixed and Augmented Reality

[9] Exploring the Impact of Visual Information on Intermittent Typing in Virtual Reality

October 2022

A. Giovannelli, **L. Lisle**, D.A. Bowman

Best Paper Honorable Mention

International Symposium on Mixed and Augmented Reality, p. 8-17, **21.6% Acceptance Rate**

[10] Evaluating the Benefits of Explicit and Semi-Automated Clusters for Immersive Sensemaking

October 2022

I.A. Tahmid, **L. Lisle**, K. Davidson, C. North, D.A. Bowman

International Symposium on Mixed and Augmented Reality, p. 479-488, **21.6% Acceptance Rate**

[11] Sensemaking Strategies with the Immersive Space to Think

March 2021

L. Lisle, K. Davidson, E.J.K. Gitre, C. North, D.A. Bowman

Best Paper Nomination

IEEE Conference on Virtual Reality and 3D User Interfaces, p. 529-537, **19.7% Acceptance Rate**

[12] Glanceable AR: Evaluating Information Access Methods for Head-Worn Augmented Reality

March 2020

F. Lu, S. Davari, **L. Lisle**, Y. Li, D.A. Bowman

IEEE Conference on Virtual Reality and 3D User Interfaces, p. 930-939, **17.9% Acceptance Rate**

[13] Enhanced Geometric Techniques for Point Marking in Model-Free Augmented Reality

October 2019

W. Lages, Y. Li, **L. Lisle**, T. Höllerer, D.A. Bowman

International Symposium on Mixed and Augmented Reality, p. 301-309, **21.4% Acceptance Rate**

[14] Effect of Volumetric Displays on Depth Perception in Augmented Reality

September 2018

L. Lisle, K. Tanous, H. Kim, J.L. Gabbard, D.A. Bowman

International Conference on Automotive User Interfaces and Interactive Vehicular Applications, p. 155-163

[15] Crowdlayout: Crowdsourced design and evaluation of biological network visualizations

April 2018

D.P. Singh, **L. Lisle**, T.M. Murali, K. Luther

CHI Conference on Human Factors in Computing Systems, p. 1-14, **25.7% Acceptance Rate**

Other Publications

[16] Glanceable Augmented Reality for Cybersecurity Analysts

September 2024

L. Lisle, M. Thompson

International Test and Evaluation Association Cybersecurity Workshop

[17] CoLT: Enhancing Collaborative Literature Review Tasks with Synchronous and Asynchronous Awareness Across the Reality-Virtuality Continuum

October 2023

I.A. Tahmid, F. Rodrigues, A. Giovannelli, **L. Lisle**, J. Thomas, D.A. Bowman

IEEE International Symposium on Mixed and Augmented Reality (ISMAR)

[18] Clean the Ocean: An Immersive VR Experience Proposing New Modifications to Go-Go and WiM Techniques

March 2022

L. Lisle, F. Lu, S. Davari, I.A. Tahmid, A. Giovannelli, C. Ilo, L. Pavanatto, L. Zhang, L. Schlueter, D.A. Bowman

Best Contest Entry

IEEE Conference on Virtual Reality and 3D User Interfaces, p. 920-921

[19] Fantastic Voyage 2021: Using Interactive VR Storytelling to Explain Targeted COVID-19 Vaccine Delivery to Antigen-Presenting Cells

March 2021

L. Zhang, F. Lu, I.A. Tahmid, **L. Lisle**, S. Davari, N. Gutkowski, L. Schlueter, D.A. Bowman

Best Contest Entry

IEEE Conference on Virtual Reality and 3D User Interfaces, p. 695-696

[20] Integrating Everyday Proxy Objects in Multi-Sensory Virtual Reality Storytelling

May 2021

S. Davari, Y. Li, **L. Lisle**, F. Lu, L. Zhang, L. Blustein, D.A. Bowman

CHI Conference on Human Factors in Computing Systems Abstracts and Workshops

[21] Evaluating the Benefits of the Immersive Space to Think

March 2020

L. Lisle, X. Chen, E.J.K. Gitre, C. North, D.A. Bowman

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops, p. 331-337

[22] [DC] The Immersive Space to Think: Immersive Analytics for Multimedia Data *March 2020*

L. LISLE

IEEE Conference on Virtual Reality and 3D User Interfaces, p. 551-552

[23] Save the Space Elevator: An Escape Room Scenario Involving Passive Haptics in Mixed Reality *March 2019*

S. DAVARI, Y. LI, **L. LISLE**, F. LU, L. ZHANG, L. BLUSTEIN, F. XUETING, B. GABALDON, M. KWIATOWSKI, D.A. BOWMAN

IEEE Conference on Virtual Reality and 3D User Interfaces, p. 1405-1406

Teaching Experience

Grad Student Mentorship *Fall 2021 - Fall 2022*

VIRGINIA TECH *3DI Group junior graduate student*

I was able to help a new graduate student transition from industry to Academia. I provided him guidance to earn a position in the 3DI lab through providing him a letter of recommendation, and then guide him through the research process, including study design and implementation, data analysis, and the publishing process.

Undergraduate Student Mentorship *Summer 2021 - Fall 2021*

VIRGINIA TECH *IST History Exhibit Project*

I helped hire and mentor an undergraduate student on a project where IST was adapted to a history exhibit. They were an art student at the time and created several assets for the project. Several times we worked together closely to get prototype demos done for showing it to various stakeholders.

CS4784: HCI Capstone - Guest Lecturer (2 classes) *Spring 2021*

VIRGINIA TECH - SUBSTITUTING FOR DR. DOUGLAS BOWMAN

CS5714: Usability Engineering - Guest Lecturer (1 class) *Spring 2020*

VIRGINIA TECH - SUBSTITUTING FOR DR. JOSEPH GABBARD

Invited Presentations

Immersive Space to Think: Immersive Multimedia Sensemaking *November 2021*

GRADUATE STUDENT SEMINAR

Virginia Tech

Professional Service

Workshops Organized

Inclusion, Diversity, Equity, Accessibility, Transparency, and Ethics in XR (IDEATExR) *Primary Organizer, 2024*

INTERNATIONAL SYMPOSIUM ON MIXED AND AUGMENTED REALITY

Future Faculty Forum (F3) *2024*

INTERNATIONAL SYMPOSIUM ON MIXED AND AUGMENTED REALITY

Inclusion, Diversity, Equity, Accessibility, Transparency, and Ethics in XR (IDEATExR) *Primary Organizer, 2024*

IEEE CONFERENCE ON VIRTUAL REALITY AND 3D USER INTERFACES

Future Faculty Forum (F3) *2024*

IEEE CONFERENCE ON VIRTUAL REALITY AND 3D USER INTERFACES

Volunteer Experience

Poster Program Committee Member *2025*

IEEE CONFERENCE ON VIRTUAL REALITY AND 3D USER INTERFACES

NSF Review Panelist *2024*

NATIONAL SCIENCE FOUNDATION

Participant Pool Committee Member   *2024*

VIRTUAL EXPERIENCE RESEARCH ACCELERATOR

International Program Committee Member   *2024*

INTERNATIONAL SYMPOSIUM ON MIXED AND AUGMENTED REALITY

Doctoral Consortium Chair   *2024*

INTERNATIONAL SYMPOSIUM ON MIXED AND AUGMENTED REALITY

Web Chair   *2021*

INTERNATIONAL SYMPOSIUM ON MIXED AND AUGMENTED REALITY

Peer Review Experience

Kennesaw State University Grand Challenges Grant   *2024*

EXTERNAL REVIEWER

IEEE Transactions on Visualization and Computer Graphics   *2024*

JOURNAL

International Symposium on Mixed and Augmented Reality   *2023*

CONFERENCE & JOURNAL PROCEEDINGS

ACM Symposium on Virtual Reality Software and Technology   *2023*

CONFERENCE PROCEEDINGS

ACM CHI Conference on Human Factors in Computing Systems   *2022-2024*

CONFERENCE PROCEEDINGS - OUTSTANDING REVIEW AWARD

IEEE Conference on Virtual Reality and 3D User Interfaces   *2019-2024*

JOURNAL & CONFERENCE PROCEEDINGS

Taylor and Francis Ergonomics   *2018-2024*

JOURNAL