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APPOINTMENTS

Current

- *Associate Professor,* University of Florida *(2024* – present)
  Department of Computer & Information Science & Engineering

Prior Research Appointments

- *Assistant Professor,* University of Florida *(2018* – 2024)
  Department of Computer & Information Science & Engineering
- *Assistant Professor*, Texas A&M University (August 2015 – August 2018)
  Department of Visualization (primary), Department of Computer Science (by courtesy)
- *Research Scientist*, Oak Ridge National Laboratory (August 2013 – July 2015)
  Computational Sciences & Engineering Division

EDUCATION

Ph. D., Computer Science, 2013
Virginia Tech, Blacksburg, VA

- Dissertation Topic: Supporting Learning through Spatial Information Presentations in 3D Virtual Environments
- Chair: Dr. Doug A. Bowman
- Advisory Committee: Richard E. Mayer, Chris North, Francis Quek, and Tonya Smith-Jackson

Graduate Certificate in Human-Computer Interaction, 2011
Virginia Tech, Blacksburg, VA

M.S., Computer Science and Applications, 2010
Virginia Tech, Blacksburg, VA

B.S., Mathematics, Computer Science, (Dual Major) 2007
Gannon University, Erie, PA

- Graduated summa cum laude

RESEARCH INTERESTS

- Human-computer interaction (HCI); human-centered computing (HCC)
- Virtual reality (VR); 3D interaction
- Information visualization; visual analytics
- Human-centered artificial intelligence (AI)
- Transparency and explanation in intelligent data systems

HONORS AND AWARDS

- IEEE Virtual Reality and 3D User Interfaces (IEEE VR) 2024 Best Poster Award. For Brain Dynamics of Balance Loss in Virtual Reality and Real-world Beam Walking. With Amanda Studnicki, Ahmed Rageeb Ahsan, and Daniel Ferris.
- ACM Intelligent User Interfaces (ACM IUI) 2021 Honorable Mention Best Paper Award. For Anchoring Bias Affects Mental Models and User Reliance in Explainable AI Systems. With Mahsan Nourani, Chiradeep Roy, Jeremy Block, Donald Honeycutt, Tahrima Rahman, and Vibhav Gogate.
- International Conference on Advanced Visual Interfaces (AVI) 2020 Honorable Mention Best Paper Award (top 6% of papers). For Preserving Contextual Awareness during Selection of Moving Targets in Animated Stream Visualizations. With Andrew Pachuilo, John Goodall, and Felipe Bacim.
- ACM CHI 2018 Honorable Mention Award (top 5% of papers). For Balancing Privacy and Information Disclosure in Interactive Record Linkage with Visual Masking. *ACM CHI Conference on Human Factors in Computing Systems*. With Hye-Chung Kum, Gurudev Ilangovan, and Han Wang.
- AACSRE Emerging Fellow, Academic Advisory Council for Signage Research and Education, 2017-2019
- Society for Information Technology and Teacher Education/National Technology Leadership Initiative Award. College and University Faculty Assembly of the National Council for the Social Studies (NCSS), 2017, with David Hicks, Aaron Johnson, Todd Ogle, Stephanie van Hover, Doug Bowman, and Thomas Tucker.
- Engineering Genesis Award for Multidisciplinary Research, Texas A&M University, 2017, with Xia Ben Hu.
- IBM Faculty Award, IBM Research, 2016.
- Raising the Bar Research Award, College of Architecture, Texas A&M University, 2016, 2017.
- First Place Award, 2012 3DUI Contest held at the IEEE Symposium on 3D User Interfaces (with Felipe Bacim, Doug Bowman, Siroberto Scerbo, and Cheryl Stinson).
- Popular Choice Award, 2012 3DUI Contest held at the IEEE Symposium on 3D User Interfaces (with Felipe Bacim, Doug Bowman, Siroberto Scerbo, and Cheryl Stinson).
- Davenport Fellowship recipient, Virginia Tech, 2012.
- Best Poster Award, ASNE Human Systems Integration Symposium, 2011, for the poster "The Effects of Visual Realism on Training Transfer in Immersive Virtual Environments" (with Cheryl Stinson, Regis Kopper, Siroberto Scerbo, and Doug Bowman).
- Honorable Mention Best Paper Award, Joint Virtual Reality Conference, 2009, for the paper "Higher Levels of Immersion Improve Procedure Memorization Performance" (with Ajith Sowndararajan, Regis Kopper, and Doug Bowman).
- Academic Award for Excellence in Computer and Information Science, Gannon University, 2007.
- John Mark Gannon Award for General Scholastic Excellence. Gannon University, 2007.
- Honors Program Honors Scholar, Gannon University, 2007.

FUNDING AND SUPPORT

Grants and Awards (External)

- **NIH** (Co-PI). Trauma Institutional Priorities and Teams for Outcome Efficacy (TIPTOE). Funded by National Institutes of Health. Mathias Brochhausen, Kevin Sexton, Scott Brackenridge, Jonathan Bona, William Hogan, Songthip Ounpraseuth, Eric Ragan. 08/2022 – 07/2026.

- **Laboratory for Analytic Sciences,** Department of Defense, North Carolina State University. Identifying and Contrasting Patterns of Analysis Behavior from Interaction Logs. Eric Ragan (Sole PI). 01/2023 – 012/2023.
- **DARPA** (*Co-PI*). Neuro-Symbolic Dynamic Probabilistic Models: A Unifying Representation and Reasoning Tool for PTG. Funded by DARPA Perceptual Task Guidance Program (Defense Advanced Research Projects Agency). Vibhav Gogate, Nicholas Ruozzi, Yu Xiang, Charless Fowlkes, Guy Van den Broeck, Eric Ragan. 11/2021- 10/2025.
- **Laboratory for Analytic Sciences**, Department of Defense, North Carolina State University). Automating Visual Summarization of Analytic Workflows for Reporting and Communication. Eric Ragan (Sole PI). 01/2022 – 012/2022.
- **ONR**. Peer-to-Peer Knowledge Sharing: Curation Automation Engine. Navy STTR, Office of Naval Research. With Modus Operandi, Inc. 07/2021 – 12/2021.
- **DOE.** Research and development of visual analytics techniques for data integration from disparate data sources. Department of Energy. With Oak Ridge National Laboratory. Eric Ragan. 8/2020 - 10/2023.
- **NSF** (*Co-PI*). III: Medium: Collaborative Research: Towards Effective Interpretation of Deep Learning: Prediction, Representation, Modeling and Utilization. National Science Foundation, Information Integration and Informatics (III). Xia "Ben" Hu, Eric Ragan, Jianhua Huang, Na Zou. 8/15/2019 - 7/31/2023.
- **AACSRE**. Investigating Embellishment in Infographic Signage. Eric Ragan (Sole PI). Academic Advisory Council for Signage Research and Education Emerging Fellows Program. 3/2017-3/2019.
- **DARPA** (*Co-PI*). Tractable Probabilistic Logic Models: A New Deep Explainable Representation. Funded by DARPA XAI Program (Defense Advanced Research Projects Agency). Vibhav Gogate, Nicholas Ruozzi, Adnan Darwiche, Guy Van den Broeck, Eric Ragan, Parag Singla. 05/2017-1/2022.
- **DARPA** (*Co-PI*). Transforming Deep Learning to Harness the Interpretability of Shallow Models: An Interactive End-to-End System. Xia "Ben" Hu, Eric Ragan, Shuiwang Ji. Funded by DARPA XAI Program (Defense Advanced Research Projects Agency). 05/2017-04/2021.
- **PCORI** (*Co-PI)*. Privacy Preserving Interactive Record Linkage (PPIRL) via Information Suppression. Funded by Patient-Centered Outcomes Research Institute. Hye-Chung Kum, Alva Ferdinand, Eric Ragan, Daniel Basile. 03/2017-02/2020.
- **NSF**. CRII: III: Evaluating Provenance Visualizations for the Presentation and Communication of Investigative Data Analysis Processes. Eric Ragan (Sole PI). Funded by National Science Foundation (NSF) Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII) program, Information Integration and Informatics (III). 08/2016 – 07/2018.
- **IBM**. Studying multi-format visual data exploration and presentation methods. IBM Faculty Award. Funded by IBM Research. 2016. Eric Ragan (Sole PI).

Gifts

- From Oculus VR, LLC. and Samsung to Texas A&M University (Eric Ragan). Oculus Pioneers Program. 2016. Equipment donations and program support.
- From AMD (Advanced Micro Devices) to Texas A&M University (Eric Ragan). AMD's Creators' Circle University Program. 2016. Equipment donations.

PUBLICATIONS

Refereed Journal Articles

J1. Shahriari, R., Yang, Y., Tamboli, D., Perez, M., Zha, Y., Hou, J., Deng, M., **Ragan, E.**, Ruiz, J., Wang, D., Hu, Z., Xing, E. (2025). MuCHEx: A Multimodal Conversational Debugging

Tool for Interactive Visual Exploration of Hierarchical Object Classification. *IEEE Computer Graphics and Applications*. p. 1-13. doi: 10.1109/MCG.2025.3598204

J2. Kum, H. **Ragan, E.,** Ramezani, M., Giannouchos, T., Ilangovan, G., Li, Q., DSouza, A., Bernstam, E., Curtis, J., Ferdinand, A., and Schmit, C. (2025). Privacy-by-Design: Case Studies in Interactive Record Linkage Using a Hybrid Human-Computer System. *International Journal of Medical Informatics*. doi: 10.1016/j.ijmedinf.2025.106045

J3. Benda, B., Rheault, B., Lin, Y., and **Ragan, E.** (2024). Examining Effects of Technique Awareness on the Detection of Remapped Hands in Virtual Reality. *IEEE Transactions on Visualization and Computer Graphics* (TVCG). p. 1-11. DOI: 10.1109/TVCG.2024.3372054

J4. Fu, M., Liu, R., **Ragan, E.** (2024). An immersive virtual reality experimental study of building occupants' behavioral compliance during indoor evacuations. *International Journal of Disaster Risk Reduction*. DOI: 10.1016/j.ijdrr.2024.104420

J5. Roy, C., Nourani, M., Arya, S., Shanbhag, M., Rahman, T., **Ragan, E.**, Ruozzi, N., Gogate, V. (2023). Explainable Activity Recognition in Videos using Deep Learning and Tractable Probabilistic Models. *ACM Transactions on Interactive Intelligent Systems* (TiiS), pp. 1-32. DOI: 10.1145/3626961

J6. Block, J., Bookner, I., Chu, S., Crouser, R., Honeycutt, D., Jonas, R., Kulkarni, A., Paredes, Y., **Ragan, E.** (2023). Preliminary Perspectives on Information Passing in the Intelligence Community. Analytics 2023, 2, 509-529. DOI: 10.3390/analytics2020028

J7. Benda, W., Sargunam, S., Nourani, M., and **Ragan, E.** (2023). An Evaluation of View Rotation Techniques for Seated Navigation in Virtual Reality. *IEEE Transactions on Visualization and Computer Graphics* (TVCG). DOI: 10.1109/TVCG.2023.3258693

J8. Nourani, M., Roy, C., Honeycutt, D., **Ragan, E.**, and Gogate, V. (2022). DETOXER: Visual Debugging Tool with Multi-Scope Explanations for Temporal Multi-Label Classification. *IEEE Computer Graphics and Applications*. p. 1-11. DOI: 10.1109/MCG.2022.3201465

J9. Esmaeili, S., Kabir, S., Colas, A., Linder, R., and **Ragan, E.** (2022). Evaluating Graphical Perception of Visual Motion for Quantitative Data Encoding. *IEEE Transactions on Visualization and Computer Graphics* (TVCG).

J10. Block, J., Esmaeili, S., **Ragan, E.**, Goodall, J., and Richardson, G. (2022). The Influence of Visual Provenance Representations on Strategies in a Collaborative Hand-off Data Analysis Scenario. *IEEE Transactions on Visualization and Computer Graphics* (TVCG).

J11. Nourani, M., Roy, C., Block, J., Honeycutt, D., Rahman, T., **Ragan, E.**, and Gogate, V. (2022). On the Importance of User Backgrounds and Impressions: Lessons Learned from Interactive AI Applications. *ACM Transactions on Interactive Intelligent Systems* (TiiS). doi: 10.1145/3531066

J12. Roy, C., Nourani, M., Honeycutt, D., Block, J., Rahman, T., **Ragan, E.,** Ruozzi, N., and Gogate, V. (2021). Explainable Activity Recognition in Videos: Lessons Learned. *Applied AI Letters*. p. 1-19. doi: 10.1002/ail2.59

J13. Linder, R., Mohseni, S., Yang, F., Pentyala, S., **Ragan, E.**, and Hu, X. (2021). How Level of Explanation Detail Affects Human Performance in Interpretable Intelligent Systems: A Study on Explainable Fact Checking. *Applied AI Letters*. p. 1-19. doi: 10.1002/ail2.49

J14. Park, D., Suhail, M., Zheng, M., Dunne, C., **Ragan, E.**, and Elmqvist, N. (2021). StoryFacets: A Design Study on Storytelling with Visualizations for Collaborative Data Analysis. *Information Visualization*. p. 1-12. August 2021. doi: 10.1177/14738716211032653

J15. Feijóo-García, P., Kapoor, A., Gardner-McCune, C., and **Ragan, E.** (2021). Effects of a Block-based Scaffolded Tool on Students' Introduction to Hierarchical Data Structures. *IEEE Transactions on Education*. p. 1-10. doi: 10.1109/TE.2021.3109604

J16. Giannouchos, T., Ferdinand, A., Schmit, C., Ilangovan, G., **Ragan, E.,** Nowell, W., and Kum, H. (2021). Identifying and Prioritizing Benefits and Risks of using Privacy-Enhancing Software: A Nominal Group Technique Study with Patients Living with Chronic Conditions. *Journal of the American Medical Informatics Association* (JAMIA). p 1-10. doi: 10.1093/jamia/ocab073

J17. Mohseni, S., Zarei, N., and **Ragan, E.** (2021). A Multidisciplinary Survey and Framework for Design and Evaluation of Explainable AI Systems. *ACM Transactions on Interactive Intelligent Systems (TiiS)*. pp. 1-46. doi: 10.1145/3387166

J18. Chung, H., Esakia, A., and **Ragan, E.** (2020). The Impact of Utilizing a Large High-Resolution Display on the Analytical Process for Visual Histories. *International Journal of Data Analytics (IJDA)*. 1(2), pp. 67-88. doi: 10.4018/IJDA.2020070106

J19. Shi, Y., Du, J., and **Ragan, E.** (2020). Review visual attention and spatial memory in building inspection: Toward a cognition-driven information system. *Advanced Engineering Informatics*. pp. 1-15. doi: 10.1016/j.aei.2020.101061

J20. Bolte, F., Nourani, M., **Ragan, E.**, and Bruckner, S. (2020). SplitStreams: A Visual Metaphor for Evolving Hierarchies, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. pp 1-13. doi: 10.1109/TVCG.2020.2973564

J21. Peña, A., **Ragan, E.**, and Harrison, L. (2020). Memorability of Enhanced Informational Graphics: The Effects of Design Relevance and Chart type on Recall. *AACSRE Interdisciplinary Journal of Signage and Wayfinding*, Vol 4, No 1. pp 1-15. doi: 10.15763/issn.2470-9670.2020.v4.i1.a54

J22. Madanagopal, K., **Ragan, E.**, and Benjamin, P. (2019). Analytic Provenance in Practice: The Role of Provenance in Real-World Visualization and Data Analysis Environments. *IEEE Computer Graphics and Applications (CG&A)*. 39(6), 30-45. doi: 10.1109/MCG.2019.2933419

J23. Mohanty, R., Castillo, R., **Ragan, E.**, and Krishnamurthy, V. (2019). Investigating Force Feedback in Mid-air Sketching of Multi-planar 3D Curve-Soups. *ASME Journal of Computing and Information Science in Engineering*. pp 1-14. doi: 10.1115/1.4045142

J24. Shi, Y., Du, J., Ahn, C. R., and **Ragan, E.** (2019). Impact assessment of reinforced learning methods on construction workers' fall risk behavior using virtual reality. *Automation in Construction*, 104, 197-214.

J25. Rahimi, K., Banigan, C., and **Ragan, E.** (2018). Scene Transitions and Teleportation in Virtual Reality and the Implications for Spatial Awareness and Sickness, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. 26(6), 2273-2287. doi: 10.1109/TVCG.2018.2884468.

J26. Goodall, J., **Ragan, E.**, Steed, C., Reed, J., Richardson, G., Huffer, K., Bridges, R., and Laska, J. (2018). Situ: Identifying and Explaining Suspicious Behavior in Networks, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. 25(1), 204-214. doi: 10.1109/TVCG.2018.2865029

J27. Han, D., Suhail, M., and **Ragan, E.** (2018). Evaluating Remapped Physical Reach for Hand Interactions with Passive Haptics in Virtual Reality, *IEEE Transaction on Visualization and Computer Graphics (TVCG)*, April 2018, 24(4), pp. 1-10. doi: 10.1109/TVCG.2018.2794659.

J28. Saket, B., Srinivasan, A., **Ragan, E.**, Endert, A. (2017). Evaluating Interactive Graphical Encodings for Data Visualization. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 24(3), 1316-1330. doi: 10.1109/TVCG.2017.2680452

J29. Johnson, A., Hicks, D., Ogle, T., Bowman, D., Cline, D., **Ragan, E.** (2017). If This Place Could Talk: Using Augmented Reality to Make the Past Visible. *Social Education*, 81(2), March/April 2017, pp. 112-116(5).

J30. **Ragan, E.**, Scerbo, S., Bacim, F., and Bowman, D. (2016). Amplified Head Rotation in Virtual Reality and the Effects on 3D Search, Training Transfer, and Spatial Orientation. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. vol. 23, no. 8, pp. 1880-1895, Aug. 1 2017. doi: 10.1109/TVCG.2016.2601607

J31. **Ragan, E.**, Endert, A., Sanyal, J., and Chen, J. (2016). Characterizing Provenance in Visualization and Data Analysis: An Organizational Framework of Provenance Types and Purposes. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. 22(1), 31-40. doi: ra10.1109/TVCG.2015.2467551

J32. **Ragan, E.**, Bowman, D., Kopper, R., Stinson, C., Scerbo, S., McMahan, R. (2015). Effects of field of view and visual realism on virtual reality training effectiveness for a visual scanning task. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. 21(7), 794-807. doi: 10.1109/TVCG.2015.2403312

J33. **Ragan, E.**, Jennings, S., Massey, J., and Doolittle, P. (2014). Unregulated Use of Laptops over Time in Large Lecture Classes. *Computers and Education*, 78, 78–86. doi: 10.1016/j.compedu.2014.05.002

J34. **Ragan, E.**, Kopper, R., Schuchardt, P., and Bowman, D. (2013). Studying the Effects of Stereo, Head Tracking, and Field of Regard on a Small-Scale Spatial Judgment Task. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. 19(5), 886-896. doi: 10.1109/TVCG.2012.163

J35. Bowman, D., McMahan, R., and **Ragan, E.** (2012). Questioning Naturalism in 3D User Interfaces. *Communications of the ACM*, 55(9), 78–88. doi: 10.1145/2330667.2330687

J36. **Ragan, E.**, Huber, K., and Bowman, D. (2012). Supporting Cognitive Processing with Spatial Information Presentations in Virtual Environments. *Virtual Reality*. 16(4), 301-314. doi: 10.1007/s10055-012-0211-8

J37. McMahan, R., **Ragan, E.**, Leal, A., Beaton, R., and Bowman, D. (2011). Considerations for the Use of Commercial Video Games in Controlled Experiments. *Entertainment Computing*, 2(1), 3-9. doi: 10.1016/j.entcom.2011.03.002

J38. **Ragan, E.**, Sowndararajan, A., Kopper, R., and Bowman, D. (2010). The Effects of Higher Levels of Immersion on Procedure Memorization Performance and Implications for Educational Virtual Environments. *Presence: Teleoperators and Virtual Environments*, 19(6), 527-543. doi:10.1162/pres_a_00016

Refereed Conference Papers

C1. Ahsan, A., Tompkins, A., **Ragan, E.**, Ruiz, J., McMahan, R. (2025). Challenges of Precueing Instructions for Compound Task Procedures in Mixed Reality. *Graphics Interface* (GI). p 1-13.

C2. Peddi, R., Arya, S., Challa, B., Pallapothula, L., Vyas, A., Gouripeddi, B., Zhang, Q., Wang, J., Komaragiri, V., **Ragan, E.**, Ruozzi, N., Xiang, Y., and Gogate, V. (2024). CaptainCook4D: A Dataset for Understanding Errors in Procedural Activities. *Neural Information Processing Systems (NeurIPS)*, Datasets and Benchmarks Track, 2024. p 1-13.

C3. Nourani, M., Hashky, A., and **Ragan, E.** (2024). User Profiling in Human-AI Design: An Empirical Case Study of Anchoring Bias, Individual Differences, and AI Attitudes. *AAAI Conference on Human Computation and Crowdsourcing (AAAI HCOMP 2024)*, 12(1), 137-146. DOI: https://doi.org/10.1609/hcomp.v12i1.31608

C4. Mehta, D., Whorton, J., Shahriari, R., **Ragan, E.**, Bona, J., Hogan, W., Sexton, K., and Brochhausen, M. (2024). Expanding the Ontology of Organizational Structures of Trauma Centers and Trauma Systems. *Proceedings of the International Conference on Biomedical Ontologies* 2024, p. 1-7.

C5. You, C., Benda, W., Suma Rosenberg, E., **Ragan, E.**, Lok, B., and Thomas, J. (2022). Strafing Gain: Redirecting Users One Diagonal Step at a Time. *IEEE International Symposium on Mixed and Augmented Reality Conference* (IEEE ISMAR). pp. 603-611. doi: 10.1109/ISMAR55827.2022.00077

C6. Benda, B. and **Ragan, E.** (2021). The Effects of Virtual Avatar Visibility on Pointing Interpretation by Observers in 3D Environments. *IEEE International Symposium on Mixed and Augmented Reality* (ISMAR). pp 1-10. doi: 10.1109/ISMAR52148.2021.00019

C7. Nourani, M., Roy, C., Block, J., Honeycutt, D., Rahman, T., **Ragan, E.**, and Gogate, V. (2021). Anchoring Bias Affects Mental Models and User Reliance in Explainable AI Systems. In *ACM International Conference on Intelligent User Interfaces* (ACM IUI). pp 1-11. **Award winner:** best paper honorable mention. doi: 10.1145/3397481.3450639

C8. Mohseni, S., Block, J., and **Ragan, E.** (2021). Quantitative Evaluation of Machine Learning Explanations: A Human-Grounded Benchmark. In *ACM International Conference on Intelligent User Interfaces* (ACM IUI). pp 1-11. doi: 10.1145/3397481.3450689

C9. Mohseni, S., Yang, F., Pentyala, S., Du, M., Liu, Y., Lupfer, N., Hu, X., Ji, S., and **Ragan, E.** (2021). Machine Learning Explanations to Prevent Overtrust in Fake News Detection. In *International AAAI Conference on Web and Social Media* (ICWSM). pp 1-10.

C10. Nourani, M., King, J., and **Ragan, E.** (2020). The Role of Domain Expertise in User Trust and the Impact of First Impressions with Intelligent Systems. In *AAAI Conference on Human Computation and Crowdsourcing* (AAAI HCOMP). pp 1-10.

C11. Honeycutt, D., Nourani, M., and **Ragan, E.** (2020). Soliciting Human-in-the-Loop User Feedback for Interactive Machine Learning Reduces User Trust and Impressions of Model Accuracy. In *AAAI Conference on Human Computation and Crowdsourcing* (AAAI HCOMP). pp 1-10.

C12. Benda, B., Esmaeili, S., and **Ragan, E.** (2020). Determining Detection Thresholds for Fixed Positional Offsets for Virtual Hand Remapping in Virtual Reality. In *IEEE International Symposium on Mixed and Augmented Reality* (IEEE ISMAR). pp 1-10.

C13. **Ragan, E.**, Pachuilo, A., Goodall, J., and Bacim, F. (2020). Preserving Contextual Awareness during Selection of Moving Targets in Animated Stream Visualizations. *International Conference on Advanced Visual Interfaces* (AVI '20). pp. 1-9. ACM.
Award winner: Honorable Mention Award (top 6% of papers)

C14. **Ragan, E.**, Stamps, A., and Goodall, J. (2020). Empirical Study of Focus-Plus-Context and Aggregation Techniques for the Visualization of Streaming Data. *International Conference on Advanced Visual Interfaces* (AVI '20). pp. 1-5. ACM.

C15. Esmaeili, S., Benda, B., and **Ragan, E.** (2020). Detection of Scaled Hand Interactions in Virtual Reality: The Effects of Motion Direction and Task Complexity. *IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR)*. pp. 1-10. doi: 10.1109/VR46266.2020.1581285352835

C16. Nourani, M., Kabir, S., Mohseni, S., and **Ragan, E.** (2019). The Effects of Meaningful and Meaningless Explanations on Trust and Perceived System Accuracy in Intelligent Systems. *AAAI Conference on Human Computation and Crowdsourcing* (AAAI HCOMP). pp. 97-105.

C17. Kum, HC, **Ragan, E.**, Ilangovan, G., and Ramezani, Q., Li, Q., and Schmit, C. (2019). Enhancing Privacy through an Interactive On-demand Incremental Information Disclosure Interface: Applying Privacy-by-Design to Record Linkage. *USENIX Symposium on Usable Privacy and Security* (SOUPS 2019). pp. 1-15.

C18. Feijóo-García, P.G., Wang, S., Cai, J., Polavarapu, N., Gardner-McCune, C., and **Ragan, E.** (2019). Blocks4DS: A Scaffolded Block-Based Learning Environment for Hierarchical Data Structures. *VL/HCC 2019 IEEE Symposium on Visual Languages & Human-Centric Computing*. pp. 1-5. doi: 10.1109/VLHCC.2019.8818759

C19. Stebbins, T. and **Ragan, E.** (2019). Redirecting View Rotation in Immersive Movies with Washout Filters. In Proceedings of *IEEE Conference on Virtual Reality and 3D User Interfaces* (IEEE VR) 2019. pp. 1-9. doi: 10.1109/VR.2019.8797994

C20. Shi, Y., Du, J., Sargunam, S. P., and **Ragan, E**. (2019). First Responders' Spatial Working Memory of Large-scale Buildings: Implications of Information Format. In Proceedings of 2019 ASCE International Conference on Computing in Civil Engineering (i3CE2019). pp. 154-161

C21. Mohanty, R., Bohari, U., **Ragan, E.**, and Vinayak. (2018). Kinesthetically Augmented Mid-air Sketching of Multi-planar 3D Curve-Soups. In ASME 2018 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference. pp. 1-14.

C22. **Ragan, E.**, Kum, HC, Ilangovan, G., and Wang, H. (2018). Balancing Privacy and Information Disclosure in Interactive Record Linkage with Visual Masking. In *ACM CHI Conference on Human Factors in Computing Systems* (ACM CHI). p 1-12. doi: 10.1145/3173574.3173900
Award winner: Honorable Mention Award (top 5% of papers)

C23. Chen, H., Engle, S., Joshi, A., **Ragan, E.**, Yuksel, B., and Harrison, L. (2018). Using Animation to Alleviate Overdraw in Multiclass Scatterplot Matrices. In *ACM CHI Conference on Human Factors in Computing Systems* (ACM CHI). pp. 1-12. doi: 10.1145/3173574.3173991

C24. Shi, Y., Du, J., **Ragan, E.**, Choi, K., and Ma, S. (2018). Social Influence on Construction Safety Behaviors: A Multi-User Virtual Reality Experiment. In *Proceedings of Construction Research Congress 2018*. New Orleans, LA. pp. 1-10. doi: 10.1061/9780784481288.018

C25. Sargunam, S., Moghadam, K., Suhail, M., and **Ragan, E.** (2017). Guided Head Rotation and Amplified Head Rotation: Evaluating Semi-Natural Travel and Viewing Techniques in Virtual Reality. *Proceedings of IEEE Virtual Reality Conference (IEEE VR)*. pp. 1-10. doi: 10.1109/VR.2017.7892227

C26. Stewart, R., Wilkerson, C., **Ragan, E.**, Agreda, M., White, D., and Piburn, J. (2016). A 3D Virtual Environment for Spatio-Temporal Analysis: Theoretical Approach, Proof of Concept, and User Study. *Proceedings of International Conference on Geographic Information Science (GIScience) 2016*. pp. 1-4. doi: 10.21433/B3116mg271rn

C27. Singh, G., Bowman, D., Hicks, D., Cline, D., Ogle, J., Johnson, A., Zlokas, R., Tucker, T., and **Ragan, E.** (2015). CI-Spy: Designing A Mobile Augmented Reality System for Scaffolding Historical Inquiry Learning. In *Proceedings of International Symposium on Mixed and Augmented Reality (IEEE ISMAR 2015)*. MASH'D (Media, Arts, Social Sciences, Humanities & Design) paper. IEEE Computer Society. pp. 1-6. doi: 10.1109/ISMAR-MASHD.2015.19

C28. **Ragan, E.**, Goodall, J., and Tung, A. (2015). Evaluating the Effectiveness of Visual History and the Impact of Visual Cues on Process Memory. In *Proceedings of CHI Conference on Human Factors in Computing Systems* (CHI 2015). 1 – 10. ACM. doi: 10.1145/2702123.2702376

C29. Bowman, D., **Ragan, E.**, Scerbo, S., and Bacim, F. (2013). Evaluating the Impact of Head Rotation Amplification on Virtual Reality Training Effectiveness. In Proceedings of Interservice/Industry Training, Simulation and Education Conference (I/ITSEC 2013). 1 – 11, Orlando, FL. NTSA.

C30. Bacim, F., **Ragan, E.**, Scerbo, S., Setareh, M., Jones, B., and Polys, N. (2013). The Effects of Display Fidelity, Visual Complexity, and Task Scope on Spatial Understanding of 3D Graphs.. In Proceedings of Graphics Interface 2013. pp. 25–32. doi: 10.5555/2532129.2532135

C31. Bowman, D., Stinson, C., **Ragan, E.**, Scerbo, S., Hollerer, T., Lee, C., McMahan, R., and Kopper, R. (2012). Evaluating effectiveness in virtual environments with MR simulation. In Proceedings of Interservice/Industry Training, Simulation and Education Conference (*I/ITSEC 2012*). 1 – 11. Orlando, FL. NTSA.

C32. **Ragan, E.**, Wood, A., McMahan, R., and Bowman, D. (2012). Trade-Offs Related to Travel Techniques and Level of Display Fidelity in Virtual Data-Analysis Environments. In Proceedings of *Joint Virtual Reality Conference of EGVE - ICAT - EuroVR*, 2012. 81 – 84. Eurographics.

C33. **Ragan, E.**, Endert, A., Bowman, D., and Quek, F. (2012). How Spatial Layout, Interactivity, and Persistent Visibility Affect Learning with Large Displays. In Proceedings of the *International Working Conference on Advanced Visual Interfaces, AVI 2012*. 91 – 98. ACM.

C34. **Ragan, E.**, Huber, K., Laha, B., and Bowman, D. (2012). The Effects of Navigational Control and Environmental Detail on Learning in 3D Virtual Environments. In Proceedings of the 2012 *IEEE Virtual Reality Conference*. Orange County, CA. 11 – 14. IEEE Computer Society.

C35. Bowman, D., Sowndararajan, A., **Ragan, E.**, and Kopper, R. (2009). Higher Levels of Immersion Improve Procedure Memorization Performance. In Proceedings of *Joint Virtual Reality Conference of EGVE - ICAT - EuroVR*, 2009. 121 – 128. Lyon, France. Eurographics. **Award winner:** best paper, honorable mention.

C36. **Ragan, E.**, Frezza, S., and Cannell, J. (2009). Product-Based Learning in Software Engineering Education. In Proceedings of *Frontiers in Education* 2009 Conference. 524 – 529. San Antonio, Texas.

C37. Barksdale, J., **Ragan,** E., and McCrickard, S. (2009). Easing Team Politics in Agile Usability: A Concept Mapping Approach. In Proceedings of the 2009 *Conference on Agile Software Development*. 19 – 25. Chicago, Illinois.

Conference Workshop Papers, Posters, and Presentations

P1. Perez, M., Yang, Y., Zha, Y., Ma, E., Tamboli, D., Ma, H., Shahriari, R., Pathak, V., Kasinets, D., Venkatakrishnan, R., Wang, D. Z., Ruiz, J., **Ragan, E.**, Hu, Z., Xing, E., Zhu, J. (2025). CReLeRI: Explainable, Concept-centric, Representation, Learning, Reasoning, and Interaction Video Analysis System. *ACM Multimedia*, Demo/Video Track.

P2. Rampangu M., Mesber S., Nerella S., **Ragan E.**, Janelle G., Samouce C., Rackauskas M., Gravenstein N., Lampotang S. (2025). Computer vision interpretation of fluid-filled dependent loops in urine and chest drainage systems. Extended Abstract. *American Society of Anesthesiologists 2025 Annual Meeting*.

P3. Hashky, A., Rheault, B., Ahsan, A., Benda, B., Audino, T., Lonneman, S., and **Ragan, E.** (2024). Multi-Modal User Modeling for Task Guidance: A Dataset for Real-Time Assistance with Stress and Interruption Dynamics. Workshop paper. *Datasets for Developing Intelligent XR Applications (Data4XR) Workshop* at *IEEE Virtual Reality and 3D User Interfaces* (IEEE VR 2024). pp. 1-7.

P4. Studnicki, A., Ahsan, A., **Ragan, E.**, and Ferris, D. (2024). Brain Dynamics of Balance Loss in Virtual Reality and Real-world Beam Walking. Extended abstract. *IEEE Virtual Reality and 3D User Interfaces* (IEEE VR 2024). pp. 1-2. **Award winner**: Best Poster.

P5. Hashky, A., Rheault, B., Ahsan, A., Newman, L., and **Ragan, E.** (2024). Multitasking with Graphical Encoding Visualization of Numerical Values in Virtual Reality. Extended abstract. *IEEE Virtual Reality and 3D User Interfaces* (IEEE VR 2024). pp. 1-2.

P6. Rheault, B., Arya, S., Vyas, A., Wang, J., Peddi, R., Benda, B., Gogate, V., Ruozzi, N., Xiang, Y., and **Ragan, E.** (2024). Predictive Task Guidance with Artificial Intelligence in Augmented Reality. Extended abstract. *IEEE Virtual Reality and 3D User Interfaces* (IEEE VR 2024). pp. 1-2.

P7. Ahsan, A., Tompkins, A., **Ragan, E**., Ruiz, J., and McMahan, R. (2024). Precueing Compound Tasks in Virtual and Augmented Reality. Extended abstract. *IEEE Virtual Reality and 3D User Interfaces* (IEEE VR 2024). pp. 1-2.

P8. Block, J. and **Ragan, E.** (2020). Micro-entries: Encouraging Deeper Evaluation of Mental Models Over Time for Interactive Data Systems. *IEEE Evaluation and Beyond - Methodological Approaches for Visualization* (BELIV 2020). Workshop at IEEE VIS 2020.

P9. Mohseni, S. and **Ragan, E.** (2020). Quantitative Evaluation of Machine Learning Explanations: A Human-Grounded Approach. In Workshop on Artificial Intelligence for HCI: A Modern Approach. Workshop at ACM CHI 2020.

P10. Mohseni, S., Yang, F., Pentyala, S., Du, M., Liu, Y., Lupfer, N., Hu, X., Ji, S., and **Ragan, E.** (2020). Trust Evolution Over Time in Explainable AI for Fake News Detection. In *Workshop on Human-Centered Approaches to Fair and Responsible AI*. Workshop at ACM CHI 2020.

P11. Paul, D. and **Ragan, E.** (2020). Subtle Gaze Direction with Asymmetric Field-of-View Modulation in Headworn Virtual Reality. Extended abstract. *IEEE Virtual Reality and 3D User Interfaces* (IEEE VR 2020)

P12. Nourani, M., Honeycutt, D., Block, J., Roy, C., Rahman, T., **Ragan, E.**, and Gogate, V. (2020). Investigating the Importance of First Impressions and Explainable AI with Interactive Video Analysis. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems* (ACM CHI 2020). pp. 1-8.

P13. Kum, HC and **Ragan, E.** (2019). Exploring the Use of Interactive Interfaces and Feedback Mechanisms to Enhance Privacy in Data Workers through Information Accountability. *Workshop on Security Information Workers* (WSIW 2019). 1-2.

P14. Roy, C., Nourani, M., Shanbhag, M., Kabir, S., Rahman, T., **Ragan, E.,** Ruozzi, N. and Gogate, V. (2019). Explainable Activity Recognition in Videos using Dynamic Cutset Networks. *3rd Workshop of Tractable Probabilistic Modeling* (TPM 2019). 1-6.

P15. Xu, Q. and **Ragan, E.** (2019). Effects of Character Guide in Immersive Virtual Reality Stories. Virtual, Augmented and Mixed Reality. Multimodal Interaction. HCII 2019. Lecture Notes in Computer Science, vol 11574, pp. 375-391. Springer. doi: 10.1007/978-3-030-21607-8_29

P16. Peña, A., **Ragan, E.,** and Kang, J. (2019). Designing Educational Virtual Environments for Construction Safety: A Case Study in Contextualizing Incident Reports and Engaging Learners. Virtual, Augmented and Mixed Reality. Applications and Case Studies. HCII 2019. *Lecture Notes in Computer Science*, vol 11575, pp. 338-354. Springer. doi: 10.1007/978-3-030-21565-1_23

P17. Roy, C., Shanbhag, M., Rahman, T., Gogate, V., Ruozzi, N., Nourani, M., **Ragan, E.**, and Kabir, S. (2019). Explainable Activity Recognition in Videos. *Workshop on Explainable Smart Systems* (ExSS), ACM Intelligent User Interfaces (IUI) Workshops 2019. 1-6.

P18. Peña, A., Nirjhar, E. H., Pachuilo, A., Chaspari, T., and **Ragan, E**. (2019). Detecting Changes in User Behavior to Understand Interaction Provenance during Visual Data Analysis. *User Interactions for Building Knowledge (UIBK) Workshop*, ACM Intelligent User Interfaces (IUI) Workshops 2019. 1-6.

P19. Yang, F., Pentyala, S. K., Mohseni, S., Du, M., Yuan, H., Linder, R., **Ragan, E**., Ji, S., and Hu, X. (2019). XFake: Explainable Fake News Detector with Visualizations. *2019 Web Conference (WWW)*. ACM. pp. 1-5. doi: 10.1145/3308558.3314119

P20. Giannouchos, T., Kum, H.-C., Ferdinand, A., Schmit, C., Ilangovan, G., and **Ragan, E**. (2018). Patients' and Stakeholders' Perceptions of Risk and Benefits of the Privacy Preserving Interactive Record Linkage (PPIRL) Framework. Advanced Ethical Research (AER) Conference, 2018, San Diego, CA.

P21. Schmit, C., Kum, H.-C., **Ragan, E.**, Ferdinand, A., and Giannouchos, T. (2018). Trusted Third Party Software Approach to Facilitate Data Disclosures Governed by "Minimum Necessary" Legal Standards in Record Linkage Studies. American Public Health Association (APHA). San Diego, CA.

P22. Giannouchos T., Kum, H.-C, Ferdinand, A., Schmit, C., Ilangovan, G., **Ragan, E.** (2018). Patients' and Stakeholders' Perceptions of Risk and Benefits of the Privacy Preserving Interactive Record Linkage (PPIRL) Framework. AcademyHealth Annual Research Meeting (ARM). Seattle, WA.

P23. Kum, HC, Ilangovan, G., Li, Q., Li, Y., and **Ragan, E**. (2018). An effective privacy enhanced interface to support record linkage decisions. Extended abstract. International Journal of Population Data Science. doi: 10.23889/ijpds.v3i4.889

P24. Stebbins, T. and **Ragan, E.** (2018). Redirected Scene Rotation for Immersive Movie Experiences. Extended abstract. In Proceedings of IEEE Virtual Reality 2018. 1-2.

P25. Linder, R., Stacy, A., Lupfer, N., Kerne, A., and **Ragan, E.** (2018). Pop the Feed Filter Bubble: Making Reddit Social Media a VR Cityscape. Extended abstract. In Proceedings of IEEE Virtual Reality 2018. 1-2.

P26. Suhail, M., Sargunam, S., Han, D., and **Ragan, E.** (2018). Physical Hand Interaction for Controlling Multiple Virtual Objects in Virtual Reality. Workshop paper. In Proceedings of IWISC 2018: 3rd International Workshop on Interactive and Spatial Computing. **Award winner**.

P27. Sargunam, S. and **Ragan, E.** (2018). Evaluating Joystick Control for View Rotation in Virtual Reality with Continuous Turning, Discrete Turning, and Field-of-view Reduction. Workshop paper. In Proceedings of IWISC 2018: 3rd International Workshop on Interactive and Spatial Computing. pp. 64-74.

P28. Hicks, D., Johnson, A., Ogle, T., van Hover, S., **Ragan, E.**, Bowman, D., and Tucker, T. (2017). Making the Invisible Visible: Evaluating the Use of Mixed Reality to Teach a Forgotten Local History - School Segregation - with 5th Graders. Paper presented at the annual meeting of the College and University Faculty Assembly of the NCSS. San Francisco. **Award winner:** Society for Information Technology and Teacher Education/National Technology Leadership Initiative Award.

P29. Mohseni, S., Peña, A., and **Ragan, E.** (2017). ProvThreads: Analytic Provenance Visualization and Segmentation. Extended poster abstract. In *Proceedings of IEEE VIS 2017*. 1-2.

P30. Tang, F., McMahan, R., **Ragan, E.** and Allen, T. (2017). Subjective Evaluation of Tactile Fidelity for Single-Finger and Whole-Handed Touch Gestures. Conference paper. *Proceedings of HCI International 2017*. pp. 185-200. Springer.

P31. Moghadam, K. and **Ragan, E.** (2017). Towards Understanding Scene Transition Techniques in Immersive 360 Movies and Cinematic Experiences. Extended poster abstract. In *Proceedings of IEEE Virtual Reality 2017*. 1-2.

P32. Suhail, M., Sargunam, S., Han, D., and **Ragan, E.** (2017). Redirected Reach in Virtual Reality: Enabling Natural Hand Interaction at Multiple Virtual Locations with Passive

Haptics. Extended poster abstract. In *Proceedings of IEEE Symposium on 3D User Interfaces 2017*. 1-2.

P33. Han, D., Sargunam, S., and **Ragan, E.** (2017). Simulating Anthropomorphic Upper Body Actions in Virtual Reality using Head and Hand Motion Data. Extended poster abstract. In *Proceedings of IEEE Virtual Reality 2017*. 1-2.

P34. Peña, A. and **Ragan, E.** (2017). Contextualizing Construction Accident Reports in Virtual Environments for Safety Education. Extended poster abstract. In *Proceedings of IEEE Virtual Reality 2017*. 1-2.

P35. Brown, C., Bhutra, G., Suhail, M., Xu, Q., and **Ragan, E.** (2017). Coordinating Attention and Cooperation in Multi-user Virtual Reality Narratives. Extended poster abstract. *In Proceedings of IEEE Virtual Reality 2017*. 1-2.

P36. Linder, R., Peña, A., Jayarathna, S., and **Ragan, E.** (2016). Results and Challenges in Visualizing Analytic Provenance of Text Analysis Tasks Using Interaction Logs. *Logging Interactive Visualizations and Visualizing Interaction Logs (LIVVIL) Workshop* at IEEE VIS 2016. pp. 25-34.

P37. Pachuilo, A., **Ragan, E.**. and Goodall, R. (2016). Leveraging Interaction History for Intelligent Configuration of Multiple Coordinated Views in Visualization Tools. *Logging Interactive Visualizations and Visualizing Interaction Logs (LIVVIL) Workshop* at IEEE VIS 2016. pp. 13-15.

P38. Hicks, D., Ogle, T., Bowman, D., Cline, D., **Ragan, E.,** and Tucker, T. (2016) Supporting disciplined inquiry with mobile Augmented Reality. *2016 AECT International Convention*. Las Vegas, Nevada.

P39. Johnson, A., Hicks, D., Bowman, D., Cline, D., Ogle, T., Singh, G., Zlokas, R., and **Ragan, E.** (2015). Augmented reality, junior detectives, and the c3 inquiry arc. National Council of Social Studies Annual Conference.

P40. Hicks, D., Ogle, T., Bowman, D., Cline, D., **Ragan, E.,** Singh, G., Johnson, A., & Zlokas, R. (2015). Reflection on action: Mode 2 knowledge production and the development of mobile augmented reality for scaffolding historical inquiry. Invited demonstration at the Applied Research in Immersive Environments for Learning SIG at the annual conference of the American Educational Research Association.

P41. Zlokas, R., Johnson, A., Cline, D., Bowman, D., Singh, G., Ogle, T., Hicks, D., and **Ragan, E.** (2015). Using augmented reality to help teach elementary school history. National Council on Public History Annual Meeting.

P42. Johnson, A., McPherson, K., Ogle, T., Hicks, D., Cline, D., Bowman, D., Singh, G., Zlokas, R., and **Ragan, E.** (2015). New digital technologies and local history: Making the past visible. Virginia Council for Social Studies.

P43. Lukasczyk, J., Liang, X., Luo, W., Middel, A., **Ragan, E.**, Bliss, N., White, D., Hagen, H., and Maciejewski, R. (2015). A Collaborative Web-Based Environmental Data Visualization and Analysis Framework. Workshop paper. *Proceedings of the Workshop on Visualization in Environmental Science (EnvirVis Workshop)*. Workshop at EuroVis, 2015. Eurographics.

P44. Tang, F. McMahan, R., **Ragan, E.**, and Allen, T. (2015). Subjective Evaluation of Tactile Fidelity for Simple and Complex Touch Gestures. Poster presentation. In *IEEE Virtual Reality Conference* (IEEE VR 2015).

P45. **Ragan, E.** and Goodall, J. (2014). Evaluation methodology for comparing memory and communication of analytic processes in visual analytics. *Beyond Time and Errors: Novel Evaluation Methods for Visualization* (BELIV Workshop 2014). Workshop at IEEE VIS 2014. ACM.

P46. Singh, G., Bowman, D., Hicks, D., Cline, D., Ogle, J., Johnson, A., Zlokas, R., **Ragan, E.** (2014). CI-Spy: Using Mobile-AR for Scaffolding Historical Inquiry Learning", International Symposium on Mixed and Augmented Reality (ISMAR 2014). Poster presentation. IEEE Computer Society.

P47. Smith, D., Chung, H., **Ragan, E.**, Self, J., North, C., and Cate, A. (2013). Spatial and semantic memory for kinesthetic learning in large-scale visual displays. Poster presentation. Society for Neuroscience 2013. San Diego, California.

P48. Bowman, D., McMahan, R., Stinson, C., **Ragan, E.**, Scerbo, S., Hollerer, T., Lee, C., and Kopper, R. (2011). Evaluating Effectiveness in Virtual Environments with MR Simulation. *Marine Corps Warfighting Laboratory Workshop*.

P49. **Ragan, E.**, Wilkes, C., Cao, Y., and Bowman, D. (2012). The Effects of Virtual Character Animation on Spatial Judgments. Poster presentation. In Proceedings of the 2012 *IEEE Virtual Reality Conference*. Orange County, CA. IEEE Computer Society.

P50. Bacim, F., **Ragan, E.**, Stinson, C., Scerbo, S., and Bowman, D. (2012). Collaborative Navigation in Virtual Search and Rescue. Research competition entry (3DUI Contest 2012). In Proceedings of the 2012 *IEEE Symposium on 3D User Interfaces*. IEEE Computer Society. **Award winner:** First Place contest award. **Award winner:** Popular Choice Award.

P51. Stinson, C., Kopper, R., Scerbo, B., **Ragan, E.**, and Bowman, D. A. (2011). The Effects of Visual Realism on Training Transfer in Immersive Virtual Environments. Poster presentation. *Human Systems Integration Symposium* 2011. Vienna, VA. **Award winner:** best poster.

P52. **Ragan, E.**, Endert, A., Bowman, D., and Quek, F. (2011). The Effects of Spatial Layout and View Control on Cognitive Processing. In Proceedings of the 2011 ACM CHI Conference on Human Factors in Computing Systems, *CHI Works in Progress*. 2005 – 2010. Vancouver, BC. ACM.

P53. **Ragan, E.**, Logan, K., Bowman, D., Antol, J., and Brewster, P. (2010). Immersive Virtual Environments for Human Exploration. Poster presentation. In Proceedings of *National Space & Missile Materials Symposium* 2010. Scottsdale, AZ.

P54. **Ragan, E.**, Brewster, P., and Antol, J. (2010). Immersive Virtual Environments for Human Exploration and Collaboration. Conference exhibition. *Modeling and Simulation World Conference and Expo* 2010. Hampton, VA.

P55. **Ragan, E.**, Wilkes, C., Bowman, D. A., and Hollerer, T. (2009). Simulation of Augmented Reality Systems in Purely Virtual Environments. Poster presentation. In Proceedings of the 2009 *IEEE Virtual Reality Conference* (pp. 287-288). Lafayette, LA. IEEE Computer Society.

Other Publications

1. McMahan, R., **Ragan, E.**, Bowman, D., Tang, F., and Lai, C. FIFA: The Framework for Interaction Fidelity Analysis. (2015). University of Texas at Dallas Technical Report. UTDCS-06-15.
2. Bebis, G., Boyle, R., Parvin, B., Koracin, D., Pavlidis, I., Feris, R., McGraw, T., Elendt, M., Kopper, R., **Ragan, E.**, Ye, Z., Weber, G. (Eds.) (2015). Advances in Visual Computing 11th International Symposium, ISVC 2015, Las Vegas, NV, USA, December 14-16, 2015, Proceedings.
3. **Ragan, E.** (2013). Supporting Learning through Spatial Information Presentations in Virtual Environments. Virginia Tech. Doctoral Dissertation.
4. **Ragan, E.**, Huber, K., Bowman, D. (2011). Supporting Memorization and Problem Solving with Spatial Information Presentations in Virtual Environments. Virginia Tech Computer Science Technical Report TR-11-18.
5. **Ragan, E.** (2011). Supporting Problem Solving with Spatial Information Displays. In T. Smith-Jackson and T. Coalson (Eds.). ISE 5604: Human Information Processing Scholar Series 2009-4. TR# VT-ISE-ACE2009-4, pp. 1 - 7.

SELECTED INVITED TALKS

- Help! There's a human in my loop! (2022). Invited talk at Explainable Agency in Artificial Intelligence Workshop at AAAI 2022.
- Challenges of Human Misconceptions with Interactive Intelligent Systems and Explainable AI. (2021) Invited talk for Human-Machine Teaming Seminar at Pacific Northwest National Laboratory (PNNL).
- Balancing Naturalness, Convenience, and Comfort for Interaction Technique in Virtual Reality (2018). Invited talk at National Renewable Energy Laboratory (NREL).

- Automating the Capture and Visualization of Analytic Provenance (2017). Invited talk at International Workshop on Interactive and Spatial Computing (IWISC 2017).
- Interactive Computing with Virtual Reality (2015). Invited talk at International Workshop on Interactive and Spatial Computing (IWISC 2015).
- Understanding the Role of Realism in Virtual Reality Training Systems (2014). University of Tennessee. Invited talk at Center for Intelligent Systems and Machine Learning (CISML) seminar.
- A Human-Centered Approach to Studying the Spatial Visualization of Non-Spatial Information (2013). Duke University. Invited talk at Visualization Forum.

TEACHING EXPERIENCE

University of Florida, (Gainesville, FL)
Assistant Professor

- Human-Computer Interaction (CAP 5100) – Spring 2019; Spring 2023
- Human-Computer Interaction (CEN 4721) – Fall 2020; Spring 2022
- Information Visualization (CIS 6930) – Fall 2019; Fall 2022

Texas A&M University, (College Station, TX)
Assistant Professor

- Data Visualization (VIST 489, VISA 689, CSCE 689) – Spring 2017; Spring 2018
- Virtual Reality (VIST 489, CSCE 489, VISA 689, CSCE 689) – Fall 2016; Fall 2017
- Visual Studies Studio (VIST 405) – Spring 2016
- Information Visualization (VIST 489, VISA 689) – Fall 2015

Virginia Tech, (Blacksburg, VA)
Teaching Faculty

- Introduction to Programming in Java (CS 1054); Introduction to Software Design (CS 1114) – Summer 2012

Graduate Teaching Assistant

- Introduction to Software Design (CS 1114). Responsible for leading lab sessions, assisting students during office hours, and giving occasional lectures – Spring 2012.
- Data Structures and Object-Oriented Development II (CS 2606). Responsible for assisting students during office hours and grading – Spring 2008.

STUDENT ADVISING

Current PhD Students

- Jeremy Block, Human-Centered Computing
- Shaghayegh Esmaeili, Human-Centered Computing
- Amal Hashky, Human-Centered Computing
- Donald Honeycutt, Computer Science
- Ahmed Rageed Ahsan, Human-Centered Computing
- Benjamin Rheault, Computer Science
- Reza Shahriari, Computer Science
- William Coggins, Human-Centered Computing
- Kyuseo Park, Computer Science
- Jennifer Cremer, Computer Science (Co-advised with chair Dr. Jorg Peters)

Graduated PhD Students

- Brett Benda, Human-Centered Computing, University of Florida (2025)
- Mahsan Nourani, PhD Computer Science, University of Florida (2023)
- Sina Mohseni, PhD Computer Science, Texas A&M University (2020)

Graduated MS Students
- Mario Vishal Rampangu, MS Computer Science, University of Florida (Masters thesis, 2025)
- Suhail Mohamed, MS Visualization, Texas A&M University (Masters thesis, 2018)
- Shyam Prathish Sargunam, MS Visualization, Texas A&M University (Masters thesis, 2018)
- Dustin Han, MS Visualization, Texas A&M University (Masters thesis, 2017)
- Alyssa Peña, MS Visualization, Texas A&M University (Masters thesis, 2017)
- Qinghong Xu, MS Visualization, Texas A&M University (Masters thesis, 2018)

Completed Undergraduate Theses
- Marcos Vazquez, BS Computer Science, University of Florida (Undergraduate thesis, 2025)
- Sam Lonneman, BS Computer Science, University of Florida (Undergraduate thesis, 2025)
- Kasra Rahimi, BS Computer Science, Texas A&M University (Undergraduate thesis, 2017)
- Travis Stebbins, BS Visualization, Texas A&M University (Undergraduate thesis, 2018)

Other Research Mentoring
- Avi Shah, BS Computer Science (University of Florida undergraduate research, 2024)
- Mukul Vinod, BS Computer Science (University of Florida undergraduate research, 2024)
- Sam Lonneman, BS Computer Science (University of Florida undergraduate research, 2023-2024)
- Tyler Audino, BS Computer Science (University of Florida undergraduate research, 2023-2024)
- Isabel Mitre, BS Computer Science (University of Florida undergraduate research, 2023)
- Zoe Brown, BS Computer Science (University of Florida undergraduate research, 2023)
- Yanna Lin, BS Computer Science (University of Florida undergraduate research, 2022-2023)
- Derek Mackey, BS Computer Engineering (University of Florida undergraduate research, 2020-2021)
- Liam Young, BS Computer Science (University of Florida undergraduate research, 2020)
- Ezekiel Ajayi, BS Computer Science (University of Florida undergraduate research, 2019)
- Talha Khan, BS Computer Science (University of Florida undergraduate research, 2019)
- Irelis Suarez, BS Computer Science (University of Florida, undergraduate research, 2019)
- Karthic Madanagopal, PhD Computer Science (Texas A&M University, 2018-2019)
- Ryan Canales, BS Visualization (Texas A&M University, undergraduate research, 2017)
- Kyle Rowland, BS Computer Science (Texas A&M University, undergraduate research, 2017)
- Han Wang, PhD Computer Science (Texas A&M University, research hours, 2016-2017)
- Shelby Lockhart (Oak Ridge National Laboratory undergraduate research internship, 2015)
- Kumar Sridharamurthy, MS Visualization (Texas A&M University, independent study, 2015)
- Andrew Pachuilo (Oak Ridge National Laboratory undergraduate research internship, 2015)
- Kyle Leinart (Oak Ridge National Laboratory undergraduate research internship, 2014-2015)
- Andrew Stamps (Oak Ridge National Laboratory graduate research internship, 2014)
- Albert Tung (Oak Ridge National Laboratory undergraduate research internship, 2014)
- Evan West (Oak Ridge National Laboratory undergraduate research internship, 2014)

RESEARCH APPOINTMENT HISTORY

University of Florida, Department of Computer & Information Science & Engineering
(Gainesville, FL)
August 2018 – Present
Assistant Professor

Texas A&M University, Department of Visualization (College Station, TX)
August 2015 – August 2018
Assistant Professor

Oak Ridge National Laboratory,
Computational Sciences & Engineering Division (Oak Ridge, TN)
August 2013 – July 2015
Research Scientist

Virginia Tech, Department of Computer Science (Blacksburg, VA)
May 2011 – August 2013
Graduate Research Assistant

NASA Langley Research Center, Space Mission Analysis Branch (Hampton, VA)
Virginia Tech, Department of Materials Science and Engineering (Blacksburg, VA)
August 2009 — May 2011
National Institute of Aerospace Graduate Research Assistant

Gannon University, Department of Environmental Science (Erie, PA)
December 2005 – May 2006
Student Research Assistant

INDUSTRY EXPERIENCE

Schell Games (Pittsburgh, PA)
May 2008 – August 2008; May 2009 – August 2009

Intern Game Engineer

- Designed and prototyped gameplay mechanics and interaction methods with teams of artists, producers, and programmers.
- Conducted usability and play-testing sessions for game prototypes.

Virginia Tech, College of Engineering (Blacksburg, VA)
August 2008 – May 2009

Software Support Manager

- Managed software support team serving student and faculty computing issues.
- Managed equipment inventory for the Virginia Tech College of Engineering.

Hamot Medical Center, Information Management and Data Analysis Systems (Erie, PA)
May 2006 – January 2008

Information Management and Data Analysis Systems Programmer

- Designed and developed multiple data-driven systems to manage patient and employee information.
- Develop system solutions, created databases, designed user interfaces, and engineered software applications to support hospital administration.
- Designed and developed the organization's first public online system for reporting internal data trends and metrics.

SERVICE ACTIVITIES

Conference Service

- Program committee: IEEE Visualization (IEEE VIS) (2021, 2023)
- Organizing committee: Workshop on Trust and Expertise in Visual Analytics (TREX) at IEEE Visualization conference (2020, 2021, 2022)
- Program committee: AAAI Conference on Human Computation and Crowdsourcing (AAAI HCOMP) (2021)
- Program committee: IEEE Virtual Reality conference (IEEE VR) (2015, 2016, 2017, 2020)
- Program committee: ACM Spatial User Interaction (SUI) (2019)
- Program committee: IEEE Visual Analytics Science and Technology (VAST) (2017, 2018)
- Program committee: Workshop on Immersive Analytics at IEEE VIS (2017)

- Organizing committee: IEEE Virtual Reality (IEEE VR) (2014, 2016, 2017)
  (2014 student volunteer chair, 2016 demo chair, 2017 demo chair)
- Workshop chair: Mixed Reality Art Workshop (MRA) at IEEE Virtual Reality (2016)
- Program committee: IEEE Symposium on Visualization for Cyber Security (VizSec) (2015, 2016)
- Program committee: ACM Symposium on Virtual Reality Software and Technology 2015 (VRST 2015)
- Virtual Reality Area Chair: International Symposium on Visual Computing (ISVC 2015)
- Program committee: International Symposium on Visual Computing (ISVC) (2014, 2015)

Reviewer and Editor Service

- Associate Editor: IEEE Transactions on Visualization and Computer Graphics (IEEE TVCG) (2021-present)
- Associate Editor: International Journal of Human-Computer Studies (IJHCS) (2015-2021)
- Guest Editor: Frontiers in Robotics and AI: Virtual Environments. Special issue in Virtual and Augmented Reality for Education and Training (2016)
- Reviewer for NSF (multiple)
- Regular reviewer for journals (ongoing): IEEE Transactions on Visualization and Computer Graphics (TVCG); International Journal of Human-Computer Studies (IJHCS)
- Regular reviewer for conferences (ongoing): IEEE Virtual Reality (VR); IEEE Conference on Visual Analytics Science and Technology (IEEE VAST); IEEE Symposium on 3D User Interfaces (IEEE 3DUI); IEEE Information Visualization Conference (IEEE InfoVis); ACM Symposium on Spatial User Interaction (ACM SUI); ACM Conference on Human Factors in Computer Systems (ACM CHI); IEEE International Symposium on Mixed and Augmented Reality (ISMAR)
- Reviewer for journals (previous): ACM Transactions on Applied Perception; Computers & Education; Frontiers Virtual Environments; IEEE Journal of Selected Topics in Signal Processing; Perceptual and Motor Skills; The Visual Computer
- Reviewer for conferences (previous): Cyber and Information Security Research Conference (CISR); Eurographics Joint Virtual Reality Conference (JVRC)