Shaghayegh (Shae) Esmaeili

Department of Computer and Information
Science and Engineering
University of Florida, Gainesville, Florida

esmaeili@ufl.edu
shaghayegh–esmaeili
ShaghayeghEs
ShaeEsmaeili

Research Interests

- Data Analytics, Information Visualization, Human Computer Interaction, UI/UX Design, Virtual Reality and 3D Interaction

Education

- **Ph.D. in Human Centered Computing**,
  Department of Computer and Information Science and Engineering,
  University of Florida, Gainesville, FL — Jan. 2017 – May 2022 (expected)
  - ***Related Courses***: Human Computer Interaction, User Experience Design, Research Methods, VR for Social Good, Information Visualization, CS Education Research, Natural User Interfaces, Foundations of Machine Learning.
- **Master's in Computer Science**,
  Department of Computer and Information Science and Engineering,
  University of Florida, Gainesville, FL — Jan. 2018 – Aug. 2021 (expected)
  - ***Related Courses***: Advanced Data Structures, Analysis of Algorithms, Computer Networks.
- **B.S. in Computer Engineering**, Department of Computer Engineering,
  Sharif University of Technology, Tehran, Iran — Sept. 2011 – June 2016
  - ***Related Courses***: Human Computer Interaction, System Analysis and Design, Software Engineering, Advanced Programming in Java, Numerical Methods, Analysis of Algorithms, Data Structures.

Skills

- Programming Languages: Java, C#, R, Python, JavaScript, HTML, CSS, MySQL, MATLAB, C.
- Visualization and UI: D3.js, Three.js, Bootstrap.
- HCI and UI/UX: User-Centered Design, Qualitative Data Analysis, Quantitative Data Analysis, Usability Test, Controlled Experiment Design, Empirical Methods, Statistical Analysis, Interaction Logs Analysis, Interviews, Focus Groups, Affinity Diagramming, Wireframing, Balsamiq, InVision.
- Machine Learning: Scikit-learn, PyTorch, OpenCV.
- Tools: Unity, Django, MongoDB, Microsoft Project, Android Studio, Git, Targetprocess, LaTeX.

Research Experience

- Research Assistant in **Indie Lab**
  Advisor: Dr. E. Ragan — Sept. 2018 - Current
  - **Perception of Motion in Graph**: An evaluation of users' graphical perception of visual motion and animation for quantitative data encoding. Submitted to IEEE InfoVis 2019 Conference.
  - **VR Detection Threshold**: An investigation of users perception of scaled hand movements (translation and rotation) in Virtual Environments to figure out the range of scaling in which people do not understand the difference between virtual and real world.
  - **Analytical Provenance Visualization and Segmentation**: Conducted controlled behavioural user studies to understand how humans summarize analytical provenance data using qualitative data analysis methods.
- Research Assistant in **INIT Lab**
  Advisor: Dr. L. Anthony — Jan. 2017 - Aug. 2018
  - **Sphere Elicitation Project**: Investigating elicited gestures related to specific commands or functions for interactive spherical displays from children (ages 7-11) and adults in order to design intuitive and easy to use gestures for spherical displays.

- **Speech Project**: Investigating children's speech interaction with voice-based technologies (esp. Alexa and Google Home): how children's natural ways of speaking such as disfluencies or incorrect usage may create challenges for speech agents.
- **I-Spy Tabletop Collaboration Project**: Investigating children's collaborative behaviors on a tabletop I-Spy game when children are assigned to two different roles.
- **Mobile Touch and Gesture Interaction for Older Adults**: Investigating older adult's (+65) mobile touch and gesture interactions, and differences in the ways older adults use touch and gesture interactions compared to adults and children, especially on mobile touch-screen devices.
- **Biometrics Project**: Collecting samples of gestures and voice from adults in order to develop an authentication system that can recognize users through their gesture and voice inputs.

Refereed Conference Papers

◇ MMGatorAuth: A Novel Multimodal Dataset for Authentication Interactions in Gesture and Voice.
Sarah Morrison-Smith, Aishat Aloba, Hangwei Lu, Brett Benda, **Shaghayegh Esmaeili**, Gianne Flores, Jesse Smith, Nikita Soni, Isaac Wang, Rejin Joy, Damon L. Woodard, Jaime Ruiz, Lisa Anthony.
Proceedings of the 2020 International Conference on Multimodal Interaction (ICMI'20), October 2020, pp. 370-377.

◇ Determining Detection Thresholds for Fixed Positional Offsets for Virtual Hand Remapping in Virtual Reality.
Brett Benda, **Shaghayegh Esmaeili**, Eric D. Ragan.
ISMAR'20: Proceedings of the 19th IEEE/ACM International Symposium on Mixed and Augmented Reality.

◇ Detection of Scaled Hand Interactions in Virtual Reality: The Effects of Motion Direction and Task Complexity.
Shaghayegh Esmaeili, Brett Benda, Eric D. Ragan.
Proceedings of the 2020 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Atlanta, Georgia, USA, 2020, pp. 453-462.

◇ Adults' and Children's Mental Models for Gestural Interactions with Interactive Spherical Displays
Nikita Soni, Schuyler Gleaves, Hannah Neff, Sarah Morrison-Smith, **Shaghayegh Esmaeili**, Ian Mayne, Sayli Bapat, Carrie Schuman, Kathryn A. Stofer, Lisa Anthony.
In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI 20). Association for Computing Machinery, New York, NY, USA, 112.

◇ Do User-Defined Gestures for Flatscreens Generalize to Interactive Spherical Displays for Adults and Children?
Nikita Soni, Schuyler Gleaves, Hannah Neff, Sarah Morrison-Smith, **Shaghayegh Esmaeili**, Ian Mayne, Sayli Bapat, Carrie Schuman, Kathryn A. Stofer, Lisa Anthony.
PerDis '19 Proceedings of the 8th ACM International Symposium on Pervasive Displays.

◇ Investigating Separation of Territories and Activity Roles in Childrens Collaboration around Tabletops
Julia Woodward, **Shaghayegh Esmaeili**, Ayushi Jain, John Bell, Jaime Ruiz, and Lisa Anthony.
Proceedings of the ACM on Human-Computer Interaction. Volume 2, CSCW, Article 185 (November 2018), 21 pages.

Work Experience

◇ Software Engineer Intern at 6thSolution — June 2015 - Dec. 2015

- Android Developer: Collaborating with different teams and coding for different parts of the following Android-based applications: Weather 360, NLP Unique, Happy Calendar
- SEO and ASO Executive: Using analytical skills and knowledge of tools such as *Google Analytics*, *Google Webmaster Tools* and *Moz* to increase applications' and site's usability