Shaghayegh (Shae) Esmaeili

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Research Interests

- Human Computer Interaction, Information Visualization, 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 – Aug. 2022 (expected)
  - ***Related Courses***: Human Computer Interaction, Information Visualization, User Experience Design, HCC Research Methods, VR for Social Good, 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, Computer Networks, Analysis of Algorithms.
- **B.S. in Computer Engineering**, Department of Computer Engineering,
  Sharif University of Technology, Tehran, Iran — Sept. 2011 – June 2016
  - ***Thesis Title***: Design, Evaluation and Analysis of Mobile Healthcare Applications in Rural Areas, under supervision of Dr. A. A. Nazari Shirehjini
  - ***Related Courses***: Human Computer Interaction, System Analysis and Design, Software Engineering, Advanced Programming in Java, Numerical Methods, Analysis of Algorithms, Data Structures.

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.
  doi: 10.1145/3382507.3418881

- 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.
  doi: 10.1109/VR46266.2020.1581285352835

◇ 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, 1–12.
doi: 10.1145/3313831.3376468

◇ 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.
doi: 10.1145/3321335.3324941

◇ Investigating Separation of Territories and Activity Roles in Children's 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.
doi: 10.1145/3274454

Refereed Conference Posters

◇ Toward Exploratory Design with Stakeholders for Understanding Exergame Design
Aishat Aloba, Gianne Flores, Jaida Langham, Zari McFadden, John Bell, Nikita Dagar, **Shaghayegh Esmaeili**, and Lisa Anthony.
In Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20). Association for Computing Machinery, New York, NY, USA, 1–8.
doi: 10.1145/3334480.3382784

◇ Studying the Effects of Web Based Portals on Perceived Quality of Undergraduate Teaching
A.A. Nazari, **Shaghayegh Esmaeili**, Sara Farazi, Benyamin Noori
Accepted as poster in HCI International 2016 Conference

Conferences Attended

◇ IEEE Conference on Visualization (IEEE VIS), Online — Oct. 2020
◇ IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR), Online — Mar. 2020
◇ Grace Hopper Celebration of Women in Computing (GHC), Orlando, FL — Oct. 2019
◇ ACM Richard Tapia Celebration of Diversity in Computing, San Diego, CA — Sept. 2019

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 **CASE** Project (Computing and Society Engagement)
Advisor: Dr. W. Eugene — Jan. 2019 - Aug. 2019

- **EDIT** (Entrepreneurial Diversity and Information Technology): An evaluation of the CASE program which promotes technology-based innovation and entrepreneurship amongst underrepresented communities, by qualitatively coding and analyzing the data from the EDIT focus groups.

◇ 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.

◇ Research Assistant in **Ambient Intelligence Lab**
Supervisor: Dr. A. A. Nazari Shirehjini — Jan. 2015 - June 2016

- **Undergrad Thesis Project**: Design, Evaluation and Analysis of Mobile Healthcare Applications in Rural Areas, based on identified requirements in rural areas of Iran by using HCI related methods, significantly user-centred design principals and empirical methods.
- **Smart Classroom Portal Evaluation**: Evaluation of the effects of a web-based portal system with the goal of solving potential problems of academic environments, especially university classrooms. This system is designed through user research and principles of user-centred design.

Teaching Experience

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

- TA for Human-Computer Interaction course, Dr. E. Ragan — Fall 2020
- Head TA for Programming Fundamentals 1 course, Dr. J. J. Blanchard — Fall 2018
- TA for Programming Fundamentals 1 course, Dr. J. J. Blanchard — Summer 2018
- TA for Programming Fundamentals 1 course, Dr. J. J. Blanchard — Spring 2018
- TA for Introduction to Software Engineering course, Dr. C. Gardner-McCune — Fall 2017

◇ Department of Computer Engineering, Sharif University of Technology

- TA for Human Computer Interaction, Dr. A. A. Nazari Shirehjini — Fall 2015
- Head TA for Fundamentals of Information Technology, S. E. Abtahi — Fall 2015
- Head TA for Numerical Methods, Dr. M. Gharib — Fall 2015
- TA for Computer Simulation, Dr. R. Entezari — Spring 2015
- TA for IT Project Management, S. E. Abtahi — Fall 2014
- Head TA for Fundamentals of Electrical and Electronic Circuits, Dr. H. Talebi — Spring 2014
- TA for Fundamentals of Programming (Python), M. Talebi — Fall 2013

Honors and Awards

◇ **Top %0.1**, in the Iranian National Universities Entrance Exam for Bachelor of Science. Ranked **270th** among more than 284,000 participants. — August 2011

◇ **Ranked 3rd**, in ACM for Freshmen. This ACM contest was held in Computer Department of Sharif University for new undergraduate students. The ranking is common place with other groups. — December 2011

notable Projects

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

- **Write2Code:** A joint project for Natural User Interfaces course, developing a gesture-based web application to convert handwritten JAVA code to editor-based style with interactive feedback on automatic simple correction of code syntax. [Application, GitHub]
- **FluTeam:** A joint project for VR for Social Good course, developing a Unity application using C# language, 3D modeling, and storytelling in order to promote users/students to get Flu vaccine by experiencing being sick with Flu and getting information about it from a doctor in a virtual environment.
- **3Keys:** A joint project for HCI course, developing a Google Chrome extension for generating passwords in order to reach a more stable and efficient system for groups to generate memorable and strong passwords.
- **ExxonHub:** A joint project for User Experience Design course; We developed a prototype that helps UX researchers and designers at ExxonMobil to better manage their files, collaborate on projects, search for artifacts, and communicate with other team members.
- **P2P BitTorrent:** A joint project for Computer Networks course; We developed a JAVA application similar to BitTorrent for file distribution between peers.

◇ Department of Computer Engineering, Sharif University of Technology

- **Smart Portal:** A joint project for HCI course, design of a smart web portal in order to solve university classrooms problems and increase coordination between students and professors based on UCD process, empirical research, observation and other HCI related methods, including documentation, user studies and a website.
- **Trust in EC:** A joint project for E-Commerce course, an empirical study to find and analyse factors affecting trust in e-commerce and, its results in technology acceptance in Iran.
- **Film Club:** A joint project for Web Programming course, a social media based on movies using Django web framework.
- **WhatsChat:** A joint project for Web Programming course, a realtime chat program using Web Socket on Node.js platform.
- **CE Kombat:** Project for Advanced Programming course, a real-time strategic tower defense game, that could be played with multiple players connected over a network implemented in Java.
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- **CE Kombat:** Project for Advanced Programming course, a real-time strategic tower defense game, that could be played with multiple players connected over a network implemented in Java.

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

Volunteer Work

- **Student Volunteer** at **IEEE VR 2020** Mar. 2020
  Accepted as a Student Volunteer among over 180 applicants. Helped with moderating paper sessions, questions, etc.
- **Volunteer Staff** of **I AM STEM Summer Camp 2019** June 2019 - Aug. 2019
  Gainesville, Florida
  I AM STEM Camps focus on leveraging the development of community-based partnerships to increase access, equity, and diversity of high-quality informal STEM programs. These comprehensive enrichment summer camps last about 8 weeks, and target populations who are underrepresented in STEM fields, with goals of improving their interests, identity, and engagement in STEM.
- **Mentor** of **NSF IMHCI-REU Program** at University of Florida May 2019 - July 2019
  Gainesville, Florida
- **Vice President** of **Iranian Students Association at University of Florida** May 2017 - May 2018
  Gainesville, Florida
- **Executive Staff** of 4^{th} **Sharif University FPGA Challenge Contest** Jan. 2015
  Tehran, Iran
- **Technical Staff** of 16^{th} **Asia Regional ACM-ICPC Contest** Dec. 2014
  Tehran, Iran
- **Technical Staff** of **Java Challenge**, Tehran, Iran Feb. 2014
  A nationwide AI programming contest held by computer engineering department of Sharif University.

Service Activities

- Reviewing paper for *17th ACM Interaction Design and Children (IDC) Conference* (IDC - 2018)

Student Memberships

- **ACM**: Association for Computing Machinery Aug. 2019 - present
- **IEEE**: Institute of Electrical and Electronics Engineers Aug. 2019 - present
- IEEE Women in Engineering Membership Aug. 2019 - present

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.

Languages

- Persian (native)
- English (fluent)