Elham "Ellie" Ebrahimi, Ph.D.

Contact Information	601 South College Road Computer Science Department UNC Wilmington Wilmington, NC 28403-5935 USA	Phone: (910) 962-3 E-mail: ebrahimie	3820 @uncw.edu
Research Interests	Virtual Reality (VR), Simulation Training, Artificial Intelligence, User Experience Design (UX), STEM+C in K-12 Education, Depth Perception, VR Rehabilitation		
Professional Occupation	University of North Carolina Wilmington Assistant Professor, Department of Computer S	1 Science	Wilmington, NC, USA Spring 2018 - Present
Education	Clemson UniversityClemson, SC, USAPh.D., Human-Centered ComputingSpring 2013 - Fall 2014• Research Focus: "Enhancing Perception-Action Coordination via Visuo-Motor Recali bration in Immersive Virtual Environment"Visuo-Motor Recali bration in Immersive Virtual Environment• Advisor: Dr. Sabarish BabuVisuo-Motor Recali bration in Immersive Virtual Environment		Clemson, SC, USA Spring 2013 - Fall 2017 via Visuo-Motor Recali-
	 K. N. Toosi University of Technology M.Sc., Mechatronics Engineering Thesis Topic: "Design of Upper Limb Rehate Advisors: Dr. Farid Najafi and Dr. Ali Nahr 	pilitation Robot" vi	Tehran, Tehran, Iran Fall 2007 - Spring 2010
	 Shahrood University of Technology B.Sc., Robotics Engineering Thesis Topic: "Design and Fabrication of 4." Advisors: Dr. Mohammad M. Fateh 	Degree of Freedom	Shahrood, Semnan, Iran Fall 2003 - Fall 2007 SCARA Robot"
Peer Reviewed Journals	 Day, B., Ebrahimi, E., Hartman, L. S., Pagano, C. C., Robb, A. C., and Babu, S. V. "Examining the effects of altered avatars on perception-action in virtual reality", Journal of Experimental Psychology: Applied, 2019. Day, B., Ebrahimi, E., Pagano, C. C., Hartman, L., Babu, S. V. "Calibration to Tool Use During Visually-Guided Reaching", Acta Psychologica, International Journal of Psychonomics, 181, 27-39, November 2017. 		
	 Ebrahimi, E., Babu, S. V., Pagano, C. C., Jörg, S. (2016). "An Empirical Evaluation of Visuo-haptic Feedback on Physical Reaching Behaviors during 3D Interaction in Real and Immersive Virtual Environments", in the ACM Transactions on Applied Perception (TAP), Anaheim, USA, 13(4), Article No. 19, July 2016. (*Best Paper) 		
	 Volante, M., Babu, S. V., Chaturvedi, H., Newsome, N., Ebrahimi, E., Roy, T., and Fasolino, T. (2016). "Effects of Virtual Human Appearance Fidelity on Emo- tion Contagion in Affective Inter-Personal Simulations", in the <i>IEEE Transactions on</i> <i>Visualization and Computer Graphics</i>, Greenville, USA, 22(4), p. 1326-1335, April 2016. 		

PEER REVIEWED CONFERENCE PAPERS

- 5. Ebrahimi, E., Vaughn, D., Hitson, G., Mittal, S., "Virtual Home Inspection with AI Assistant", *ACM Symposium on Applied Perception*, Washington DC, September 2020 (work under progress)
- 6. Vaughn, D., Ebrahimi, E., "Robust Interfaces for Virtual Reality Simulations", *ACM SIGGRAPH*, Washington DC, July 2020 (Under review)
- Ebrahimi, E., Robb, A., Hartman, L., Pagano, C., and Babu, S. V., "Effects of Anthropomorphic Fidelity of Self-Avatars on Reach Boundary Estimation in Immersive Virtual Environments", ACM Symposium on Applied Perception, Vancouver, Canada, August 2018.
- 8. Ebrahimi, E., Hartman, L., Robb, A., Pagano, C., and Babu, S. V., "Investigating the Effects of Anthropomorphic Fidelity of Self-Avatars on Near Field Depth Perception in Immersive Virtual Environments", *IEEE Virtual Reality Conference Papers*, Reutlingen, Germany, March 2018. (*Best Paper)
- Ebrahimi, E., Babu, S. V., Pagano, C. C., and Jörg, S. (2016, March). "Towards a comparative evaluation of visually guided physical reach motions during 3D interactions in real and virtual environments", in the Proceedings of the *IEEE Symposium on 3D User Interfaces* (IEEE 3DUI), Greenville, SC, p. 237-238, March 2016. (*Best Two Page Paper)
- Ebrahimi, E., Altenhoff, B., Pagano, C. C., and Babu, S. V., "Carryover Effects of Calibration to Visual and Proprioceptive Information on Near Field Distance Judgments in 3D User Interaction", in the Proceedings of the *IEEE Symposium on 3D User Interfaces* 2015 (IEEE 3DUI), Arles, France, p. 97-104, March 2015.
- Ebrahimi, E., Altenhoff, B., Pagano, C.C., Babu, S.V., J. Adam Jones, "Investigating the Impact of Perturbed Visual and Proprioceptive information in Near-Field Immersive Virtual Environment", in the Proceedings of the *IEEE International Conference on Virtual Reality* 2015 (IEEE VR), Arles, France, p. 171-172, March 2015.
- 12. Chaturvedi, H., Newsome, N., Babu, S., Luo, J., Roy, T., Daily, S., Bertrand, J., Fasolino, T., Ebrahimi, E., "Comparative Evaluation of Stylized versus Realistic Representation of Virtual Humans on Empathetic Responses in Simulated Interpersonal Experiences", in the Proceedings of the *IEEE International Conference on Virtual Reality* 2015 (IEEE VR), Arles, France, March 2015.
- 13. Ebrahimi, E., Altenhoff, B., Hartman, L., Jones, A.J., Babu, S.V., Pagano, C.C., and Davis, T.A., "Effects of Visual and Proprioceptive Information in Visuo-Motor Calibration during a Closed-loop Physical Reach Task in Immersive Virtual Environments", in the Proceedings of the ACM International Symposium on Applied Perception 2014 (ACM SAP), Vancouver, Canada, p. 103-110, August 2014.
- 14. Bertrand, J. W., Dukes, L. C., Dukes, P. S., Ebrahimi, E., Hayes, A. L., Mack, N., and Wachter, A. "Serious games for training, rehabilitation and workforce development" in the Proceedings of the *IEEE International Conference on Virtual Reality* 2013 (IEEE VR), Orlando, USA, p. 195-196, March 2013.
- 15. Bertrand, J., Ebrahimi, E., Wachter, A., Luo, J., Babu, S.V., Duchowski, A.T., Meehan, N., and Gramopadhye, A.K., "Visual Attention to Wayfinding Aids in Virtual Environments", in the Proceedings of the 5th Joint Virtual Reality Conference, Eurographics Association, Paris, France, p. 9-16, December 2013.

Grants	National Defense Education Program Gamified eXtended Reality for Cyber Defense & AI Education. \$2,997,522.00 (Under review)	External (DoD) Feb 2020 Role: Co-Investigator
	Administration for Community Living (ACL) Impact of Virtual Reality on Community Reintegration for Indi- viduals with Cognitive Deficits Transitioning from Inpatient Re- habilitation to Home.	External (NIDILRR) July 2019
	4,610,035.47 (Not Funded)	Role: Principle-Investigator
	 National Science Foundation Innovative Technology Experiences for Students and Teachers (ITEST) Exploratory: Virtual Access to STEM Careers (VASC). \$397,511.14 (Funded) 	External (NSF) - Pence (PI) May 2019 - April 2021 Role: Co-Investigator
	Applied Learning Pedagogy Inititive Awards Simple Triage and Rapid Treatment Simulation. \$3,500.00 (Funded)	UNC Wilmington - Internal May 2019 - August 2019 Role: Principle-Investigator
	Applied Learning Strategic Inititive Award Exertional Heat Illness Simulation. \$30,000.00 (Not Funded)	UNC Wilmington - Internal March 2019 Role: Principle-Investigator
	Support for Undergraduate Research and Creativity (SURCA) Senior-Home Inspection Simulation. \$5,000.00 (Funded)	UNC Wilmington - Internal May 2019 - August 2019 Role: Principle-Investigator
	National Science Foundation - MRI Development of Enodia2 \$99,986.00 (Not Funded)	External (NSF) January 2019 Role: Principle-Investigator
	Pilot Grant Awards Exertional Heat Illness Simulation. \$3,500.00 (Funded)	UNC Wilmington - Internal January 2019 - May 2019 Role: Principle-Investigator
	Applied Learning Recovery Grants Syllabus modifications support. \$500.00 (Funded)	UNC Wilmington - Internal October 2018 - December 2019 Role: Principle-Investigator
	William T. Grant Foundation Virtual Educational Environments for Training and Rehabilita- tion of Juveniles inside the Criminal Justice System.	External April 2019
	\$597,980.00 (Not Funded)	Role: Principle-Investigator
	National Science Foundation - MRI Development of Enodia \$99,946.00 (Not Funded)	External (NSF) January 2018 Role: Co-Investigator
Honors and Awards	IEEE Virtual Reality Conference Best Paper Award Recipient	Reutlingen, Germany March 18-22, 2018
	School of Computing - Clemson University Outstanding Graduate Teaching Assistant	Clemson, SC, USA Academic Year 2015-2016

	ACM Symposium on Applied Perception Conference Best Paper Award Recipient	Anaheim, CA, USA July 22-23, 2016
	Clemson University Human Factor Research Institute Travel Grant Recipient	Clemson, SC, USA Summer 2016
	IEEE Symposium on 3D User Interfaces Conference Best Poster Award Recipient	Greenville, SC, USA March 19-20, 2016
	School of Computing - Clemson University Outstanding PhD Student in Human-Centered Computing	Clemson, SC, USA Academic Year 2014-2015
	Clemson University Professional Enrichment Grant Recipient	Clemson, SC, USA Spring and Summer 2014
	Clemson University Human Factor Research Institute Travel Grant Recipient	Clemson, SC, USA Spring and Summer 2014
	K.N. Toosi University of Tech. 3rd Student Award Recipient	Tehran, Tehran, Iran Fall 2008
Conference Presentations and Demos	Virtual Reality Conference Title: Investigating the Effects of Anthropomorphic Fidelity of Self-Avatars on Near Field Depth Perception in Immersive Virtual Environments	Reutlingen, Germany March 20, 2018
	Symposium on Applied Perception Conference Title: An empirical evaluation of visuo-haptic feedback on physi- cal reaching behaviors during 3D interaction in real and immersive virtual environments	Anaheim, CA, USA July 23, 2016
	International Conference on Virtual Reality Demo: Near Field Distance Estimation in Immersive Virtual En- vironment	Greenville, SC, USA March 19-23, 2016
	Symposium on 3D User Interfaces Conference Title: Carryover Effects of Calibration to Visual and Propriocep- tive Information on Near Field Distance Judgments in 3D User Interaction	Arles, France March 24, 2015
	Symposium on Applied Perception Conference Title: Effects of Visual and Proprioceptive Information in Visuo- Motor Calibration during a Closed-loop Physical Reach Task in Immersive Virtual Environments	Vancouver, Canada August 9, 2014
	International Conference on Virtual Reality Demo: Serious games for training, rehabilitation and workforce development Virtual Environments	Orlando, FL, USA March 18-20, 2013
Advising and Mentoring	Capstone Project , UNC Wilmington Digital Arts Major	Wilmington, NC, USA
EXPERIENCE	• Kira Eagon	Fall 2020 - Present

	Honor Directed Independent Study, UNC Wilmington Virtual Reality Lab	Wilmington, NC, USA
	• Victoria White	Fall 2019 - Present
	• Brittany Price	Spring 2019 - Fall 2019
	Directed Independent Study , UNC Wilmington Virtual Reality Lab	Wilmington, NC, USA
	• Grant Hitson	Spring 2020
	• Veronica Meyers	Fall 2019
	• Jordan Argueta	Spring 2019
	• Eryn Vance	Spring 2019
	• Victoria White	Spring 2019
	Undergraduate Research Advising , UNC Wilmington Virtual Environment Lab	Wilmington, NC, USA
	• Kole Bostic	Spring 2020 - Present
	• Brandon Martin	Spring 2020 - Present
	• Matthew Jarrett	Spring 2019 - Present
	• Kenneth McMillan	Spring 2019 - Present
	• Daniel Vaughn	Spring 2019 - Present
	Graduate Student Mentoring , Clemson University Virtual Environment Lab • Lijie Guo	Clemson, SC, USA Fall 2016 - Spring 2017
	Undergraduate Student Mentoring , Clemson University Calhoun Honors Program	Clemson, SC, USA Fall 2015 - Spring 2016
	 Matthew Pfister ACM-Women Chelsea Black 	Fall 2016
Professional Experience	Department of Computer Science, UNC Wimlington Teaching Experience	Wilmington, NC, USA

- Human-Computer Interaction (CIT 425): Introduced the students to Human-Computer Interaction concepts. In this course, students learn how to identify product's stakeholders, interview customers, extract need statements, set product specification, generate and select concepts and create a working prototype and test it.
 - 3 credit course: 24 Students Section 001 (Spring 2020)

- 3 credit course: 24 Students Section 001 (Spring 2019)
- Computer Gaming (CSC 421): Introduced the students to game design concepts in virtual reality. In this course, students learn how to design, implement and test a virtual reality game using Unity3d game engine.
 - 3 credit course: 10 Students Section 001 (Fall 2019)

- 3 credit course: 10 Students Section 001 (Fall 2018)
- Introduction to Computer Science (CSC 131): Taught problem solving methods and algorithms in a modern high-level programming language. Introduced the students to Python environment with the emphasis on a programming style and the design, coding and testing of the complete programs.
 - 4 credit course: 24 Students Section 001 (Spring 2020)
 - 4 credit course: 23 Students Section 002 (Spring 2020)
 - 4 credit course: 24 Students Section 001 (Fall 2019)
 - 4 credit course: 24 Students Section 002 (Fall 2019)
 - 4 credit course: 25 Students Section 001 (Spring 2019)
 - 4 credit course: 26 Students Section 002 (Spring 2019)
 - 4 credit course: 27 Students Section 001 (Fall 2018)
 - 4 credit course: 27 Students Section 002 (Fall 2018)
 - 4 credit course: 24 Students Section 004 (Spring 2018)
 - 4 credit course: 22 Students Section 005 (Spring 2018)
- Game Design Workshop: Introduced the students to game design concepts and storytelling. Students teamed up to brainstorm and generate game ideas through paper (low fidelity) prototyping. They learned how to narrow down their ideas to one or two and test them by some potential stakeholders. At the end, students tested and iterated their games to finalize their design.
 - Half-day course: 25 Campers (Summer 2019)
 - Half-day course: 25 Campers (Summer 2018)

School of Computing, Clemson University Teaching Assistant Clemson, SC, USA

- Virtual Reality Systems (CPSC 4110/6110): Guided and assisted 10 (2016) and 15 (2017) groups of three to four students on the project proposals, design and implementation of their virtual and augmented reality semester-long projects and evaluated their works after each of the four milestones. Also, I had a lecture teaching how to create variety of models using Blender and Unity3D engine.
 - 3 credit course: 41 Students (Fall 2016)
 - 3 credit course: 48 Students (Fall 2017)
- Usable Security and Privacy (CPSC 4820/6820): Evaluated the 10 group proposal and final project presentations and papers as well as the students' knowledge on the nine paper presentations during the semester. I also helped the students on the design of their long-semester projects during in-class group activities.
 - 3 credit course: 37 Students (Fall 2016)
- Human Computer Interaction (CPSC 4140/6140): Designed and evaluated five different exercises/assignments and two user interface design projects in the undergraduate and graduate levels. I also worked with the students to make sure they applied the Don Norman principles to their long-semester projects.

- 3 credit course: 53 Students (Spring 2016)
- 3 credit course: 32 Students (Summer 2016)
- Computer Science I Lab C Programming (CPSC 1011): Gave a 15-minute lecture at the beginning of each class along with the step by step programming activities. I also helped the students if they had any questions regarding the lab or class assignments.
 - 1 credit course: 3 sections * 20 Students per section (Fall 2014)
 - -1 credit course: 3 sections * 20 Students per section (Spring 2015)
 - 1 credit course: 3 sections * 20 Students per section (Fall 2015)
- Algorithm and Data Structures Lab C++ Programming (CPSC 2121): Gave a 15-minute lecture at the beginning of each class along with the step by step programming activities. I also helped the students if they had any questions regarding the lab or class assignments.
 - 1 credit course: 2 sections * 20 Students per section (Spring 2013)
 - 1 credit course: 2 sections * 20 Students per section (Fall 2013)

 School of Computing, Clemson University Depth Perception Test Administrator and Analyzer Conducted three studies investigating spatial perception in near field distance estimation. After each study, I preprocessed and cleaned the raw data using a Matlab scripts that I wrote. Then, I used SPSS to analyze and report the data. 	Clemson, SC, USA Spring 2012 - Summer 2016
 School of Computing, Clemson University Lab Demo Coordinator - Virtual Environment (VE) Lab Managing and maintaining more than 10 demos in the VE lab as well as scheduling and organizing all the tours and visitors. 	Clemson, SC, USA Fall 2014 - Present
 School of Nursing, Clemson University Lab Assistant - SimLab Lab Maintained and programmed five manikins (SimMan and SimBaby) using Laerdal SimMan and SimBaby softwares for different nursing scenarios. 	Clemson, SC, USA Fall 2013 - Spring 2015
 School of Computing, Clemson University Graduate Research Assistant - Virtual Environment Lab Designed and Implemented simulations to study distance or spatial perception in near field distance estimation using OpenGL, Unity3D. I also designed a Butterworth filter in Matlab for data pre-processing. 	Clemson, SC, USA Spring and Summer 2014

INDUSTRIAL AND RESEARCH ROLES	School of Computing, Clemson University Developing the Body Schema Experiment in Virtual Reality	Clemson, SC, USA Spring 2015 - Present
AND Responsibilities	• Design and implementation of self-avatars and the surround- ing virtual environment along with the implementation of Polhemus tracking system for reading and recording the dif- ferent body parts of the participants in Unity3D.	
	School of Computing, Clemson University Virtual Environment Interactions (VENVI) Experiment	Clemson, SC, USA Spring 2016 - Spring 2017
	• Taught computer programming concepts such as conditional and loops to the middle school students (six and seven graders) via visual programming.	
	School of Computing, Clemson University Analyzing the Near-Field Distance Estimation Data	Clemson, SC, USA Spring 2012 - Summer 2016
	• Wrote Several Matlab codes to visualize human reaching be- havior for near field targets in real and virtual world. Also, implemented dynamic time warping to compare different participants' data in different conditions regarding the type of reaching that they made. Then, I characterized human reaching behavior based on the different properties of the reach such as accuracy, time, and speed.	
	School of Computing, Clemson University Administering the Near-Field Distance Estimation Experiment	Clemson, SC, USA Spring 2012 - Summer 2016
	• Conducted several research studies and also trained different undergraduate and graduate students on how to design and conduct different experiments.	
	Risk Engineering and System Analytics Center, Clemson Univer- sity Data Analyst	Clemson, SC, USA Spring 2016
	• Cleaned and analyzed the real world data and reported and presented the results in a standard form as part of an intern- ship for the Risk Engineering and System Analytics Center in collaboration with American International Group (AIG).	~F9
	School of Computing, Clemson University School of Computing Graduate Student Association Webmaster	Clemson, SC, USA Fall 2014
	• Designed and Implemented the School of Computing Gradu- ate Student Association Website according to the Don Nor- man design principles which evolved several iterations and redesign of the website.	

	ACM Symposium on Applied Perception Conference Conference Chair	Washington DC, USA September 17-18, 2020
	IEEE International Conference on Virtual Reality (IEEE VR) Poster Chair	Virtual Conference March 22-26, 2020
	ACM Symposium on Applied Perception Conference PC Member	Vancouver, BC, Canada August 10-11, 2020
	IEEE International Conference on Virtual Reality (IEEE VR) Research Demo Chair	Los Angeles, CA, USA March 18-22, 2017
	ACM Symposium on Applied Perception Conference Student Volunteer	Anaheim, CA, USA July 22-23, 2016
	IEEE International Conference on Virtual Reality Local Organizer Chair	Greenville, SC, USA March 19-23, 2016
	IEEE International Conference on Virtual Reality Demos Contest Judge	Minneapolis, MN, USA March 29-April 2, 2014
	 Reviewer ACM Symposium on Applied Perception American Society of Mechanical Engineers (ASME) Press ASME Advances in Computers and Information in Engineering International Symposium on Mixed and Augmented Reality IEEE International Conference on Virtual Reality International Journal of Human-Computer Studies Computer Graphics Forum 	g Research
Community Services	Ladies Who Launch Invited guess at female student gathering at the Wilmington Academy of Arts and Sciences to inspired, encouraged, and ad- vised the next generation of female scientist.	Wilmington, NC, USA Fall 2019
	Ladies Who Launch Introduced middle school female students from Wilmington Academy of Arts and Sciences to virtual reality and game design by live demos on several ongoing projects	Wilmington, NC, USA Spring 2019
Internal Services	Creative Inquiry Poster Forum, Clemson University Poster Judge, 12th annual Focus on Creative Inquiry Poster Fo- rum	Clemson, SC, USA April 6th, Spring 2017
	School of Computing, Clemson University Webmaster, School of Computing Graduate Students Association	Clemson, SC, USA Fall 2015 - Spring 2016
	School of Computing, Clemson University Treasurer, School of Computing Graduate Students Association	Clemson, SC, USA Summer 2014 - Summer 2015

	Graduate Student Government, Clemson University Reviewer for the Professional Enrichment Grant	Clemson, SC, USA Spring and Fall 2014	
	Graduate Student Government, Clemson University Social Chair of the Iranian Student Association	Clemson, SC, USA Spring 2012 - Spring 2013	
LANGUAGES	Farsi (Native), English (Full professional proficiency)		
Membership	ACm Member	Spring 2020 - Present	
	IEEE Students Member	Spring 2013 - Present	
	IEEE Computer Society Member	Spring 2013 - Present	
	ACM Student Member	Summer 2014 - Fall 2017	
	School of Computing Graduate Student Association Member	Spring 2013 - Fall 2017	
	Clemson University Iranian Student Association Member	Fall 2011 - Fall 2017	
Technical Skills	Design and Analysis Softwares: Unity3D, Blender, SPSS, EQS, Matlab.		
	Operating Systems : Linux, Windows.		
	Software Applications: Excel, IAT_EX , MS Word, PowerPoint.		
	Programming Languages : Python, C/C++, Matlab, Laerdal SimMan.		