

Rongkai Guo

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and Game Development
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WORKING EXPERIENCE

Kennesaw State University, Marietta, GA

Assistant Professor

January 2015—Present

The University of Texas at San Antonio, San Antonio, Texas

Research Assistant

August 2010—December 2014

Jiangxi Tomorrow High Technology Co., LTD in Nanchang, Jiangxi Province, P.R.China.

Software Engineer

June 2006—June 2007

EDUCATION

The University of Texas at San Antonio, San Antonio, Texas

Ph.D. of Computer Science

Advisor: Dr. John Quarles

September 2009—December 2015

GPA: 4.00

The University of Texas-Pan American, Edinburg, Texas

Master of Computer Science

Advisor: Dr. Ping-Sing Tsai

Graduation Date: December 2008

GPA: 4.00

Nanjing University, China

Bachelor of Computer Science

Graduation Date: June 2006

RESEARCH/SCHOLARLY/CREATIVE ACTIVITIES

Publications in Journal/Transactions - Refereed Journal

- [1]. G. Samaraweera, R. Guo and J. Quarles, "Head Tracking Latency in Virtual Environments Revisited: Do Users with Multiple Sclerosis Notice Latency Less?," in *IEEE Transactions on Visualization and Computer Graphics*, vol. 22, no. 5, pp. 1630-1636, May 1 2016.
- [2]. Guo, R., Samaraweera, G., Quarles, J. "Mobility Impaired Users Respond Differently than Healthy Users in Virtual Environments", in *Wiley: Computer Animation and Virtual Worlds (CAVW)*, 2014.
- [3]. Rongkai Guo & Lin Wang "Visual Simulation for Learning in Kinesiology- Developing the Volleyball Smash Feet Tracks Visualization System", *International Journal of Sports Science and Engineering*, Vol. 06 (2012) No. 01, 003-008.
- [4]. Wang, L., Guo, R. K., Lu, P., & Tsai, P. S. "Color of Rhythm – A 3-D Visual Representation," *International Journal of Sport Science and Engineering*, 4(4), 246-250 2010.

Publications in Conference Proceedings – Refereed Conference

- [1]. Michael Isaza, Jingjing Zhang, Karis Kim, Chao Mei and Rongkai Guo “Mono-Stereoscopic Camera in a Virtual Reality Environment: Case Study in Cybersickness” In *2019 11th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games)*
- [2]. Kim, Karis, Devan Patel, Nick Murphy, and Rongkai Guo. "Exploring Virtual and Mixed Reality Environments as Mobility Assistance for People with Visual Impairments." Submitted to *2019 The First IEEE VR Workshop on Smart Work Technologies*
- [3]. Rosengrant, D., Patel, D., & Guo, R. Pre-Service Elementary Teachers Using Augmented Reality to Learn about Force and Motion. Submitted to *International Society for Technology in Education Conference Proceedings. (Accepted)*
(Download the latest Augmented Reality Application
<https://play.google.com/store/apps/details?id=com.KSU.MotionSimulation>)
- [4]. Murphy, Nick, Devan Patel, Drew Savas, Derek Martin, Chao Mei, and Rongkai Guo. "Recreating Virtual Environments from User Traffic Pattern." In *2018 10th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games)*, pp. 1-4. IEEE, 2018.
- [5]. Mei, Chao, and Rongkai Guo. "Enable an Innovative Prolonged Exposure Therapy of Attention Deficits on Autism Spectrum through Adaptive Virtual Environments." In *2018 10th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games)*, pp. 1-4. IEEE, 2018.
- [6]. Preston, Jon, Jeff Chastine, and Rongkai Guo. "3D Digital Training of a High-Risk Environment: A Case Study of an Industry-Academia Partnership for Improved Learning." In *EdMedia+ Innovate Learning*, pp. 17-26. Association for the Advancement of Computing in Education (AACE), 2017.
- [7]. Dong, M., Wang, H., Guo, R., “Towards Understanding the differences of Using 3D Auditory Feedback in Virtual Environments between People With and Without Visual Impairments”, in Proceedings of the Workshop on Sonic Interaction for Virtual Environments (SIVE) at IEEE VR 2017, Los Angeles, CA.
- [8]. Rongkai Guo, Chao Mei, Yinshu Wu, Matthew Puckett, and Kai Qian, "WIP: Promote Inquiry-Based Linear Algebra Conceptual Learning Using Mobile Devices with Collaborative Augmented Reality (CAR)," Lecture Notes in Engineering and Computer Science: Proceedings of The World Congress on Engineering and Computer Science 2016, 19-21 October, 2016, San Francisco, USA, pp259-262 (Selected as Certificate of Merit for International Conference on Education and Information Technology 2016)
- [9]. Dong, M., Guo, R., "Towards Understanding the Capability of Spatial Audio Feedback in Virtual Environments for People with Visual Impairments", in Proceedings of *the Workshop on Everyday Virtual Reality (WEVR) at IEEE VR 2016*, Greenville, SC.
- [10]. Chatta, A., Hurst, T., Samaraweera, G., Guo, R., Quarles, J. "Get off the Couch: A Generalizable Approach to Convert Sedentary Commercial Games to Exergames" *The ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play (CHI PLAY)*, London, England, 2015.
- [11]. Guo, R., Samaraweera, G., Quarles, J. "The Effects of Avatars on Presence in Virtual Environments for Persons with Mobility Impairments" *The 24th International Conference on Artificial Reality and Telexistence (ICAT 2014) and the 19th Eurographics Symposium on Virtual Environments (EGVE 2014)*, Bremen, Germany, 2014.
- [12]. M. Cantu, E. Espinoza, R. Guo, and J. Quarles, "Game Cane: An Assistive 3DUI for Rehabilitation Games," in *IEEE 9th Symposium on 3D User Interfaces (3DUI)*, Minneapolis, MN, USA, 2014.

- [13]. Guo, R., Quarles, J. "Towards Understanding and Improving Motivation for Rehabilitation in Virtual Environments" in IEEE VR 2014 Doctoral Consortium, Minneapolis, MN, USA, 2014.
- [14]. Guo, R., Samaraweera, G., Quarles, J. "The Effects of VEs on Mobility Impaired Users: Presence, Gait, and Physiological Response" *Proceeding of the 19th ACM Symposium on Virtual Reality Software and Technology (VRST 2013)*, 6-9 October 2013, Nanyang Technological University (NTU), Singapore.
- [15]. Guo, R., Quarles, J. "Converting Sedentary Games to Exergames: A Case Study with a Car Racing Game" *Proceeding of the fifth International Conference on Games and Virtual Worlds for Serious Applications 2013 (VS-Games 2013)*, 11-13 September, Bournemouth University, UK.
- [16]. Samaraweera, G., Guo, R. and Quarles, J. "Latency and Avatars in Virtual Environments and the Effects on Gait for Persons with Mobility Impairments" *Proceedings of IEEE Symposium on 3D User Interfaces 2013 (3DUI 2013)*, 16-17 March, Orlando, FL, USA. (Acceptance Rate: 18%, best paper nominees)
- [17]. Guo, R., Quarles, J. "Differences in Presence between Healthy Users and Users with Multiple Sclerosis" *Proceedings of the Perceptual Illusions in Virtual Environments Workshop at IEEE VR 2012 (PIVE 2012)*, Costa Mesa, CA.
- [18]. L. Wang, R. Guo, P. Lu, and P. Tsai, "Color of Rhythm – A 3-D Visual Representation," *World Conference on Educational Multimedia, Hypermedia & Telecommunications (ED-MEDIA 2010)*, Toronto, ON, Canada, June 2010.
- [19]. Figueroa Andres, Ping-Sing Tsai, Bent Elizabeth and Rongkai Guo, "Robust Spots Finding in Microarray Images with Distortions," in *Proc. 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC08)*, pp. 1339-1342 Vancouver, BC, Canada, August 2008.

Publications in Conference Proceedings – In Progress/Revision

- [1]. Guo, R., Curran, D., Quarles, J. "Converting Existing Games to Exergames: The Impact of Interface Mapping DOF" 2012.

Posters

- [1]. Costa, R., Guo, R. and Quarles, J., 2017, March. Towards usable underwater virtual reality systems. In *Virtual Reality (VR), 2017 IEEE* (pp. 271-272). IEEE.
- [2]. Chatta, A., Hurst, T., Samaraweera, G., Guo, R., Quarles, J. "Get Off the Couch: A Generalizable Approach to Convert Sedentary Commercial Games to Exergames", The UTSA College of Sciences (COS) Research Conference, 2014.
- [3]. Guo, R., Samaraweera, G., Quarles, J. "A unique way to increase presence of mobility impaired users - increasing confidence in balance", *IEEE Virtual Reality Short Papers and Posters (VRW), 2014 IEEE*, March 29 - April 2 2014.
- [4]. Guo, R., Samaraweera, G., Quarles, J. "Do avatars affect presence differently for mobility impaired users than for healthy users? ", The UTSA College of Sciences (COS) Research Conference, 2013.
- [5]. Guo, R., Quarles, J., "Exercise-based interaction techniques for a virtual reality car racing game," *Virtual Reality Short Papers and Posters (VRW), 2012 IEEE*, 4-8 March 2012.

GRANTING ACTIVITIES

- Guo, R. (Principal Investigator), IIS-1566170 "CRII: CHS: Towards Understanding the Capability of Spatial Audio Feedback in Virtual Environments for people with Visual Impairments," Sponsored by NSF, \$169,497.00. (May 2016 - May 2018).

- Guo, R. (Principal Investigator), FY 17 OVPR Pilot/Seed Grant to Attract External Funding (“OVPR Grant”) “Promote inquiry-based math and CS conceptual learning using mobile devices with collaborative augmented reality,” Sponsored by Kennesaw State University, \$11,752 (August 2016 – August 2017)
- Guo, R. (Principal Investigator), OVPR Grant "Towards Understanding And Developing Virtual Environments To Increase Accessibilities For Persons With Visually Impairments," Sponsored by Kennesaw State University, \$10,000.00. (August 2015 - August 2016).
- MS Entrepreneurs grants: Virtual Reality Walk MS San Antonio, Role: PI, (Co-PI: Quarles), Funding source: National MS Society, Requested: \$5,000, Approved: \$5,000.

AWARDS

- Kennesaw State University Outstanding Early Career Faculty, 2019
- Honorary membership in the Lamda Chapter of Upsilon Pi Epsilon, the International Computer Science Honor Society, 2019
- Undergrad Research Faculty Learning Community from CTEL, Kennesaw State University 2018

SERVICES

Professional Service

- Serving as CGDD Program Coordinator since 2016
- Served as 2019 IEEE VR IPC member (The best and biggest International VR conference in the world)
- Served as 2019, 2018, 2017, 2016, 2015 IEEE 3DUI Contest Chair (One of the program of IEEE VR Conference)
- Served as 2019 ACMSE Track Chair
- Served as 2018 IEEE AIVR program committee
- Served as 2017 IEEE VR Student Volunteer Chair
- 2016 External Reviewer, Fonds de recherche du Québec – Nature et technologies, Canada (NSF in Canada)
- 2015, 2018 Panelist, National Science Foundation (NSF)

Reviewer Service

- 2016, 2018 International Journal of Human-Computer Studies
- 2018 IEEE Transactions on Visualization and Computer Graphics
- 2018 The ACM Symposium on Virtual Reality Software and Technology (VRST)
- 2015, 2017, 2018 IEEE VR Conference
- 2015-2018 IEEE Symposium on 3D User Interfaces
- 2015 Book Unity Virtual Reality Projects, Packt Publishing
- 2015 ACM CHI Conference
- 2015 ACM Conference on Intelligent User Interfaces (IUI)
- 2015 ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play (CHI PLAY)
- 2014 ACM Symposium on Spatial User Interaction (SUI)
- 2014 Virtual and Augmented Assistive Technology (VAAT) Workshop at IEEE Virtual Reality
- 2014 International Conference on Artificial Reality and Telexistence (ICAT) and Eurographics Symposium on Virtual Environments (EGVE)

Community Service

- 2013 – 2015 Working with National Multiple Sclerosis (MS) Society San Antonio Office on Virtual Reality Walk MS San Antonio application
- 2015 - Present Working with Conley Hills School on educational games design

- 2015 Worked with Marietta Center for Advanced Academics on educational games design
- 2015 Worked with Dunleith Elementary School on educational games design
- 2015 Dunleith Elementary School Career Day

PRESENTATIONS

Paper - Peer-Reviewed/Refereed

- "Game Cane: An Assistive 3DUI for Rehabilitation Games," in *IEEE 9th Symposium on 3D User Interfaces (3DUI)*, Minneapolis, MN, USA, 2014.
- "Towards Understanding and Improving Motivation for Rehabilitation in Virtual Environments" in *IEEE VR 2014 Doctoral Consortium*, Minneapolis, MN, USA, 2014.
- "A unique way to increase presence of mobility impaired users - increasing confidence in balance", *IEEE Virtual Reality Short Papers and Posters (VRW), 2014 IEEE*, March 29 - April 2 2014.
- "Converting Sedentary Games to Exergames: A Case Study with a Car Racing Game" *Proceeding of the fifth International Conference on Games and Virtual Worlds for Serious Applications 2013 (VS-Games 2013)*, 11-13 September, Bournemouth University, UK.
- "How Does Usability Impact Motivation in Augmented Reality Serious Games for Education?" *Proceeding of the fifth International Conference on Games and Virtual Worlds for Serious Applications 2013 (VS-Games 2013)*, 11-13 September, Bournemouth University, UK.
- "Differences in Presence between Healthy Users and Users with Multiple Sclerosis" *Proceedings of the Perceptual Illusions in Virtual Environments Workshop at IEEE VR 2012 (PIVE 2012)*, Costa Mesa, CA.
- "Exercise-based interaction techniques for a virtual reality car racing game," *Virtual Reality Short Papers and Posters (VRW), 2012 IEEE*, 4-8 March 2012.

Invited Talk - Not Peer-Reviewed/Refereed

- "Changes of Computer Gaming and Virtual Reality Technology" Georgia Game Developers Association (GGDA), 2015, Norcross, GA

PROJECTS

- Designed and Developed a Mobile Phone Based Augmented Reality Physical Simulation for Physics Teachers. Download the latest Augmented Reality Application at [Google Play](#)
- Released a safety training system for an international rail service company to do the employee safety training. The system includes database and report websites.
- 2014 - 2015, supervised 5 undergraduate students to develop a multi-user virtual walking game modeled to match the location and timing of the real event in San Antonio called Walk MS San Antonio using Unity3D. We are currently developing the mobile platform version (Android and iOS). (<http://walkms.rongkaiguo.com/>) <https://youtu.be/YqSEnftPBHI?list=PLMy6qz02qVbGSZ7zaz-ePry6Dv1p4nXbN>
- 2014, mentored two master students for designing a general method of developing exercise-interfaces for any sedentary games. We used JAVA developed another layer of screens on top of the game screen to interact with players. Used Kinect to track the motions; used C# developed a socket communicating with Kinect and sending global key events to manipulate the layered screen to give players feedbacks of doing exercises. We designed two modes: 1) Single Player Mode and 2) Two-Player Competitive Mode. Here is video of the game: <http://youtu.be/yM1Cp5ZzDss>
- 2013, mentored two undergraduate students for building an assistive 3DUI for rehabilitation games: Game Cane. We integrated a WiiMote and an Arduino Uno plus a force sensor to a regular cane. Designed two different types

- of user interfaces for two Unity3D tutorial games. Here is the video of the game http://youtu.be/K_IwPPZXfLg
- 2013, VR Conference FLAVRS: Used Google SketchUp to create the layout of the demo room. <http://youtu.be/OtF23njZIMI>
 - 2012, used Kinect and Unity3D developed two exercise based user interfaces for a Unity3D car racing game. <http://youtu.be/FexYmPMvZOg?list=UUhytgQzAbkKYrTQLE5hkSGQ>