Call for Papers
IEEE Transactions on Games (ToG)
Special Issue on Serious Games for Health

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Games have been used since antiquity to train, develop, explore and take human behavior and their understanding of the world to unprecedent levels. Digital games have inherited this responsibility, and while they have lived up to expectations in many areas of military simulation and vehicles control, they have still a long way to go in many other promising areas, namely in healthcare. A considerable number of research groups and companies have already developed interesting health related games and gamification scenarios, many with relevant results in areas such as physical fitness, medication and chronic condition management, physical therapy and rehabilitation. However, there is a plethora of health areas barely untouched by digital games and gamification, but which the research community is just now starting to explore, leverage by the recent developments in big data, artificial intelligence and virtual reality. We expect this Special Issue will motivate more research in digital games and gamification in health, especially by bringing new technologies to tackle old and new problems of the many different areas of health. In the call, we invite the submission of papers about high quality work on the discussion and sharing of knowledge, experiences and scientific and technical results, related to state-of-the-art solutions and technologies on serious games and applications for health and healthcare, as well as the demonstration of advanced products and technologies. We particularly welcome research on topics in the following areas:

- Simulation for healthcare
- Virtual environments and virtual patients in healthcare
- VR therapy
- Games for rehabilitation
- Exercising and active living
- Exergames
- Cognitive games
- Human-computer interface
- Biofeedback/neurofeedback through gaming
- Brain-computer interface-controlled games for health
- Artificial intelligence in healthcare
- Assistive technologies
- Accessibility
- Serious games as diagnostic tools
- Game design and development
- Clinical training through games
- Healthcare professionals training
- Game-based learning
- Public health education
- Patient education

We invite the submission of papers about high quality work on games and gamification strategies for health to obtain novel applications, experimental results, or as educational and teaching material. Regular, short and letter papers are invited to this special issue, with the following suggestion for these lengths:

- Letter papers detailing use of existing games to specific health scenarios;
- Short papers with a technical description of the game and/or gamification processes;
- Regular papers describing work on the development of novel games or gamification strategies for health and the results achieved.

Authors should follow normal ToG guidelines for their submissions, but clearly identify their papers for this special issue during the submission process. Extended versions of previously published conference or workshop papers are welcome, provided that the journal paper is a significant extension and is accompanied by a cover letter explaining the additional contribution. See https://cis.ieee.org/publications/t-games/tciaig-information-for-authors for author information and page length limit.

Prospective authors should mention this special issue name ("Special Issue on Serious Games for Health") in the cover letter when submitting their papers to IEEE Transactions on Games (ToG).

Submission site for IEEE Transactions on Games:
https://mc.manuscriptcentral.com/tg-ieee

About the guest editors

Duarte Duque is the Course Director for the Digital Games Development Engineering at the Polytechnic Institute of Cávado and Ave – Portugal, Vice Chairman of the Supervisory Board at Portuguese Society of Video Games Sciences (SPCV), integrated member of the 2Ai – Applied Artificial Intelligence Laboratory, and a Steering Committee member of the International Conference on Serious Games and Applications for Health – IEEE SeGAH. His research is focused on Image Processing, Pattern Recognition and Computer Graphics. Duarte is graduated in Industrial Electronic Engineering from the University of Minho, and gained is PhD in 2009, at the same institution. In 2008 he founded the EXVA – Experts in Video Analysis, a spin-off from the University of Minho, a company devoted to research and development in the areas of computer vision and human-machine interaction.

João L. Vilaça graduated in Industrial Electronics and Computers at University of Minho, Portugal in 2004. In 2008, he obtained the PhD degree in Industrial Electronics from the University of Minho, Guimarães, Portugal. During his PhD thesis, he worked on develop of medical devices for automatic modelling/bending of personalized surgical prosthesis, and he founded the company iSurgical3D – Spin-off. Besides the development of new medical devices for personalized surgical prosthesis, he is currently focused on the development of new human-machine interfaces based on natural user interfaces, and, robotic guided surgery for minimal invasive surgeries. João L. Vilaça is presently coordinator of 2Ai Laboratory and Director of Technology Department at School of Technology, Polytechnic Institute of Cávado and Ave, Portugal.

Marjorie A. Zielke, Ph.D., is Director of the Center for Modeling and Simulation/Virtual Humans and Synthetic Societies Lab and Research Professor at the University of Texas at Dallas. Working primarily in emerging forms of simulation focused on virtual humans and learning portals, she is the UT Dallas principal investigator on several innovative simulation research projects in the medical, education and military/law enforcement sectors. Under Dr. Zielke's direction, the Center has formed numerous research partnerships with support from the National Institutes of Health, Southwestern Medical Foundation, the Texas Department of Transportation and the National Science Foundation. The Center's projects have won first place for faculty twice at the International Meeting for Simulation in Healthcare (IMSH), the U.S. Army's Modeling and Simulation Training Team Award as part of the HINT Federation, the government category

in the I/ITSEC Serious Games Competition, and the National Training and Simulation Association (NTSA) Cross-Functional Simulation Award. Dr. Zielke's simulation for impaired drivers won the NTSA award for Education and Human Performance in 2018. Dr. Zielke served a fellowship in 2018 with the Special Operations Command. Dr. Zielke is a member of the National Modeling and Simulation Coalition (NMSC) policy committee and chair of the education committee.

Nuno Dias is Professor at the Polytechnic Institute of Cávado and Ave, skilled in Electronics, Computer Science and Artificial Intelligence. Strong biomedical engineering professional with a bachelor's degree in Industrial Electronics and Computers and a PhD in Biomedical Instrumentation from University of Minho, Portugal. Visiting scholar at Penn State University, PA, USA. Particularly curious about serious games in health and cognitive training.

Nuno F. Rodrigues is a member of the board of directors of the Portuguese Science and Technology Foundation, and also an associate member of the Algoritmi Research Unit at the University of Minho. His main research interests focus on the application of sound and efficient programming methods and analysis to the development of serious games and medical systems. He coordinates and is involved in several research and development projects, namely projects supported by National and European funding agencies, many of which in collaboration with technology companies. He served as the Director of the School of Technology at the Polytechnic Institute of Cávado and Ave from 2011 to 2017. He graduated in Mathematics and Computer Science in 2003, and obtained his Ph.D. in Informatics Engineering in 2009, both from the University of Minho. Between 2009 and 2010 he joined the European project CACE (Computer Aided Cryptography Engineering) as a Postdoc Researcher.

Ruck Thawonmas is a Professor in College of Information Science and Engineering at Ritsumeikan University (Japan) where he is leading the Intelligent Computer Entertainment Laboratory with more than 40 lab graduates currently working in game industry. He has published more than 200 peer-reviewed papers in both Japanese and English. His current research interests include games for health and for humanities. He is a member of Ritsumeikan Center for Game Studies. He is currently an Associate Editor for both IEEE Transactions on Games and Games for Health Journal.