

Curriculum Vitae

John E. Muñoz, M.E.

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Degrees

- Universidad Tecnológica de Pereira, Physical Engineering, 2010
- Universidad Tecnológica de Pereira, Master in Electrical Engineering. (Thesis: Motor Imagery Patterns Classification in a low-cost Brain Computer Interface using open source software)

Academic Experience

- Scholarship Holder from Colciencias (Government Department of Science and Technology) in the program *Jovenes Investigadores e Innovadores* with a research called "Design of Interactive Platform for rehabilitation of stroke patients using a brain computer interface". Colombia, March 2013- March 2014.
- Scholarship Holder from Colciencias in the program *Jovenes Investigadores e Innovadores* with a research called "Design of an interactive system based on virtual reality for the treatment of motor attention in ADHD patients using a BCI system". Colombia, Jan 2013, Present.
- Senior Research Scientist, Universidad Tecnológica de Pereira, Facultad de Ciencias de la Salud, Pereira, Colombia, 2012 Present.
- Laboratory assistant, Laboratorio de Metrología en Variables Electromédicas, Universidad Tecnológica de Pereira, 2008-2009.

Professional Experience

- Founder of HCI Group, Colombia (www.hcigroup.tk); research group dedicated to investigate in Videogames, BCI, Biomechanical Analysis and Virtual Reality applications in Health.
- HCI Researcher, Unidad de Acción Motora, Clínica de Dolor del Eje Cafetero, Physical Rehabilitation and Neurorehabilitation. Colombia 2011-Present.
- Artificial Intelligence Advisor, SENA Tecnoparque nodo Pereira, Colombia, 2010-2011.
- Researcher in Interactive Technologies, Indesap S.A.S, Pereira, Colombia, 2013-Present.

Awards and Honors

- Best technological project of Red Tecnoparque Nodo Pereira, SENA 2012.
- Best technological project in the health field with the proposal “CIRAC: Interactive Rehabilitation Center Assisted By Computer”, Medellin, Colombia 2013.

Invited Lectures

SENA, Tecnoparque Pereira

- Image Processing techniques for industrial applications, 2010.
- Use of low-cost motion capture sensors for rehabilitation, 2011.
- Design of Hybrid BCIs for rehabilitation, 2012.
- BCI and motion capture techniques for rehabilitation therapies, 2013.
- Serious Games for Health Creation. A novel methodology. 2014.

Universidad Tecnológica de Pereira

- The revolutionary Kinect Sensor. Use in robotics and health (2013).
- Games for health using the Kinect sensor (2013).
- EEG Brain Computer Interface signal Processing using OpenViBe. (Master's degree in Electrical Engineering)

Campus Party

- Serious Games for Health Creation.
<https://www.youtube.com/watch?v=NyB3Dc0gG38>
- Videogames using Brain Computer Interfaces
<https://www.youtube.com/watch?v=ZNa6m292uLY>

Universidad Católica de Pereira

- Serious videogames for health. (7th Semester Students of Psychology)
- Computational Biomechanics

Participation in Technological Events

- Campus Party Bogotá, 2010.
- LatinAmerican Congress of Animation and Videogames, AniGames, Bogotá, 2010.
- LatinAmerican Congress of Animation and Videogames, AniGames, Bogotá, 2011.
- Campus Party Bogotá, 2012.
- Campus Party Medellín, 2013.
- CNBI, EPFL Switzerland and Universidad Javeriana Colombia, "Interdisciplinary design of technological products for people with motor disabilities", Cali 2013.
- Campus Party Cali, 2014.

Journal Articles

- Trujillo, José Carlos Giraldo, John Edison Muñoz, and Julian Felipe Villada. "Exergames: una herramienta tecnológica para la actividad física." *Revista Médica de Risaralda* 19.2 (2013).
- Muñoz-Cardona, John E., Cristian D. Muñoz-Cardona, and Oscar A. Henao-Gallo. "Rehabilitation System based on the Use of Biomechanical Analysis and Videogames through the Kinect Sensor." *Tecno Lógicas* (2013): 55-66.
- Muñoz-Cardona, John E., Cristian D. Muñoz-Cardona, and Oscar A. Henao-Gallo. "Design of a Workstation for People with Upper-Limb Disabilities Using a Brain Computer Interface." *Tecno Lógicas* (2013): 55-66.

Conference/Abstract Publications

- J. Muñoz, Luis H. Rios, O, Henao. “*Low Cost Implementation of a Motor Imagery Experiment with BCI system and its use in neurorehabilitation*”, 36th Annual Conference of the IEEE Engineering in Medicine and Biology Society”, Chicago E.U., 2014.
- J. Muñoz, R. Chavarriaga, J.F. Villada. “*BCI and Motion Capture Technologies for Rehabilitation based on Videogames*”, IEEE Global Humanitarian Technology Conference (GHTC), Silicon Valley, E.U, 2014.
- Muñoz, J., et al. "BKI: Brain Kinect Interface, a new hybrid BCI for rehabilitation." *Games for Health Europe*. Springer Fachmedien Wiesbaden, 2013. 233-245.
- J. Muñoz, J.F. Lopez, O. Henao (2013). BCI games with motion capture and its possibilities in rehabilitation. In BCI Meeting 2013, (Published: <http://dx.doi.org/10.3217/978-3-85125-260-6-55>).
- J. Muñoz, J.F. Lopez (2014). Shoulder Flexion Rehabilitation in Patients with Monoparesis Using an Exergame. (SEGAH 2014: IEEE International Conference on Serious Games and Applications for Health).
- J. Muñoz, J. Villada, O. Henao (2013). Implementation of an Interactive Gestural Interface for displaying images and 3D models obtained from brain SPECT Gammagraphy. In International Congress of Medical Physics, Costa Rica (Abstract, Accepted)
- J. Muñoz, J. Gil (2009). Definición de los parámetros instrumentales de diseño para un estimulador magnético de campo débil. In NationalPhysicalCongress, Santa Marta, Colombia 2009.

Languages

Spanish (native), English (B2)

Hobbies

Play Latin Percussion Instruments

