

Henrique Galvan Debarba

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RESEARCH INTERESTS

Human-Computer Interaction and Interfaces – Virtual and Mixed Reality – Computer Graphics

EDUCATION

- 2012 - present **PhD.** in Robotics, Control and Intelligent Systems in progress at **École Polytechnique Fédérale de Lausanne (EPFL)**, Switzerland. Advisers : **Dr. Ronan Boulic** and **Dr. Bruno Herbelin**
- 2010 - 2012 **MSc.** in Computer Science at the **Federal University of Rio Grande do Sul**, Porto Alegre (Brazil). Advisers: **Dr. Luciana Nedel** and **Dr. Anderson Maciel**.
- 2006 - 2009 **BSc.** in Digital Technologies at the **University of Caxias do Sul**, Caxias do Sul (Brazil). Adviser: **Dr. Anderson Maciel**.

RESEARCH EXPERIENCE

- **Sept 2012 – present** : doctoral assistant at École Polytechnique Fédérale de Lausanne, Immersive Interaction Group and Laboratory of Cognitive Neuroscience. Advisers : **Dr. Ronan Boulic** and **Dr. Bruno Herbelin**
- **Mar 2010 – Aug 2012** : Master studies at Federal University of Rio Grande do Sul, Computer Graphics, Image Processing and Interaction Group. Scholarship provided by CAPES. Advisers: **Dr. Luciana Nedel** and **Dr. Anderson Maciel**.
- **May 2011** : Research Internship at Université Catholique de Louvain, OpenInterface project. Advisers: **Dr. Benoit Macq** and **Dr. Jean-Yves Lionel Lawson**.
- **Mar 2009 - Dec 2009** : Undergraduate research internship at University of Caxias do Sul, Digital Technologies laboratory. Volunteer. Adviser: **Dr. Anderson Maciel**.
- **Mar 2006 - Dec 2009** : Undergraduate research internship at University of Caxias do Sul, New Technologies in the Visual Arts (NTAV) laboratory. Scholarship provided by CNPq. Adviser: **Dr. Diana Domingues**.

AWARDS AND GRANTS RECEIVED

- IEEE 3D User Interaction 2016 **Contest winner**
- Medicine Meets Virtual Reality 2012 **Poster Prize**
- Grant from the Brazilian **Ministry of Culture** with the group LART (University of Brasilia) for a cultural exchange during the **Oncena Bienal de La Habana** (2012)

COMPUTER SKILLS

- **Programming:** R, C/C++, C#, MatLab, Objective-C, Javascript, and Python (most to least experience).
- **GPU Programming:** CUDA, Cg/HLSL, GLSL.
- **Graphical Libs and Game Engines:** Unity3D, OpenGL, Irrlicht, Ogre3D (most to least experience).
- **Mobile Devices Development:** iOS, Android (Java SDK and C/C++ NDK)

- **I/O devices, sensors and displays:** Phasespace, Wiimote, PSMove, Kinect, Phantom Omni, touch screens, accelerometer, gyroscope, magnetometer, tracking systems, tiled displays, HMD, CAVE.

PUBLICATIONS

- **Debarba, H. G.**, Perrin, S., Herbelin, B., & Boulic, R. (2015, November). **Embodied interaction using non-planar projections in immersive virtual reality.** In *Proceedings of the 21st ACM Symposium on Virtual Reality Software and Technology* (pp. 125-128). ACM. (**18%** acceptance rate)
- **Debarba, H. G.**, Molla, E., Herbelin, B., & Boulic, R. (2015, March). **Characterizing embodied interaction in First and Third Person Perspective viewpoints.** In *3D User Interfaces (3DUI), 2015 IEEE Symposium on* (pp. 67-72). IEEE. (**32%** acceptance rate)
- Grandi, J., Maciel, A., **Debarba, H.**, & Zanchet, D. (2014, May). **Spatially aware mobile interface for 3D visualization and interactive surgery planning.** In *Serious Games and Applications for Health (SeGAH), 2014 IEEE International Conference on* (pp. 1-8). IEEE
- **Debarba, H. G.**, Grandi, J. G., Maciel, A., Nedel, L., & Boulic, R. (2013). **Disambiguation Canvas: a precise selection technique for virtual environments.** In *Human-Computer Interaction-INTERACT 2013* (pp. 388-405). Springer Berlin Heidelberg. (**31%** acceptance rate)
- **Debarba, H.**, Nedel, L., & Maciel, A. (2012, March). **Lop-cursor: Fast and precise interaction with tiled displays using one hand and levels of precision.** In *3D User Interfaces (3DUI), 2012 IEEE Symposium on* (pp. 125-132). IEEE. (**21%** acceptance rate)
- **Debarba, H. G.**, Grandi, J., Maciel, A., & Zanchet, D. (2012). **Anatomic hepatectomy planning through mobile display visualization and interaction.** In MMVR. In *Medicine Meets Virtual Reality 19, MMVR* (pp. 111-115). IOS Press.
- **Debarba, H. G.**, Zanchet, D. J., Fracaro, D., Maciel, A., & Kalil, A. N. (2010, August). **Efficient liver surgery planning in 3D based on functional segment classification and volumetric information.** In *Engineering in Medicine and Biology Society (EMBC), 2010 Annual International Conference of the IEEE* (pp. 4797-4800). IEEE.
- **Debarba, H. G.**, Grandi, J. G., Oliveski, A., Domingues, D., Maciel, A., & Nedel, L. P. (2009). **WindWalker: Using Wind as an Orientation Tool in Virtual Environments.** In *Proceedings of the XIth Symposium on Virtual and Augmented Reality, 2009 (SVR)*. (pp. 133-140). Brazilian Computer Society.

EXTENDED ABSTRACTS

- Grandi, J., Bernardt, I., **Debarba, H. G.**, Nedel, L., & Maciel, A. (2016, March). **Collaborative 3D Manipulation using Mobile Phones.** In *3D User Interfaces (3DUI), 2016 IEEE Symposium on*. IEEE.
- **Debarba, H. G.**, Grandi, J., Maciel, A., Nedel, L., & Boulic, R. (2013, March). **Towards a disambiguation canvas.** In *Virtual Reality (VR), 2013 IEEE* (pp. 113-114). IEEE.
- **Debarba, H.**, Franz, J., Reus, V., Maciel, A., & Nedel, L. (2011). **The cube of doom: A bimanual perceptual user experience.** In *3D User Interfaces (3DUI), 2011 IEEE Symposium on* (pp. 131-132). IEEE.

ARTISTIC/CULTURAL PRODUCTION

- Domingues, D., Miosso, C., Rocha, A., **Debarba, H.**, Donato, C., Oliveira, A.. **OROBORUS BIOCÍBRIDO: Geografismos do Êxtase** – workshop and exhibition, 2012.
Presented at the **Oncena Bienal de La Habana**, Habana, Cuba.
- Domingues, D., **Debarba, H.**, Miosso, C., Rocha, A., Lucena, T., Marques, M.. **Tangible Instants** (Átimos Tangíveis) - installation, 2012.

Presented at: **Sensorial Experiences** (Vivências Sensoriais), Casa da Cultura Percy Vargas de Abreu e Lima, Caxias do Sul, Brazil. Chapter at the “**Vivências Sensoriais-Leituras Múltiplas**” book.

- Domingues, D., **Debarba, H.**, Artecno Group. **Tagged Idols** - installation, 2008.

Presented at: **8° International Image Festival** (8° Festival Internacional de la Imagen), Manizales, Colombia / **13° National Literary Journey** (13° Jornada Nacional de Literatura), Passo Fundo, Brazil / **7° International Meeting of Art and Technology** (7° Encontro Internacional de Arte e Tecnologia), Brasília, Brazil.

- Domingues, D., **Debarba, H.**, Artecno group. **The Cavern of Trance** - installation, 2007.

Presented at: **Memories of the Future: Ten Years of Art and Technology in Itaú Cultural** (Memórias do Futuro: Dez Anos de Arte e Tecnologia no Itaú Cultural), São Paulo, Brazil / **A presença do Curso de Artes nos 40 anos da UCS**. UCS CAVE. Caxias do Sul, Brazil.

- Domingues, D., Venturelli, S., Prates, E., **Debarba, H.**, Lucena, T., Hamdam, C., Moreira, A., Aucusto, L., Ribeiro, R., Rampon, M.. **Blind Snake** (Cobra Cega) - installation, 2009.

Presented at: **8° International Meeting of Art and Technology** (8° Encontro Internacional de Arte e Tecnologia). Brasília, Brazil. 2009.

LANGUAGES

- **Portuguese** (native) - **English** (proficient) - **French** (intermediate)

REVIEWING EXPERIENCE

- **Conferences: CHI** 2016 - **VR** 2015 - **3DUI** 2015/2016 - **CASA** 2012/2013 - **IHC/CLIH** 2011 - **CLEI** 2011 - **SVR** 2010/2011/2012 - **WRVA** 2010/2011.

- **Journals: IJHCI**

TEACHING EXPERIENCE

- Teaching assistant for the **Virtual Reality** (2014, 2015 and 2016) and **C Programming** (2013, 2014 and 2015) courses at **EPFL**, Lausanne, Switzerland.
- Teaching assistant for the **Human-Computer Interaction** (2011 and 2012) course at **UFRGS**, Porto Alegre, Brazil.
- Teaching assistant for the **Cyberspace and Creation in Digital Culture I** (2008), **Games and Multi-user Worlds** (2009) and **Computer Graphics I** (2009) courses at **UCS**, Caxias do Sul, Brazil.

REFERENCES

- **Dr. Ronan Boulic**, Head of the Immersive Interaction Group (IIG) – EPFL, Switzerland. Contact: ronan.boulic [at] epfl.ch
- **Dr. Bruno Herbelin**, Center for Neuroprosthetics Deputy Director – EPFL, Switzerland. Contact: bruno.herbelin [at] epfl.ch
- **Dr. Diana Domingues**, Founder and Head of LART – Laboratory of Research in Art and TechnoScience, University of Brasília - UnB, Brazil. Contact: dgdomingues [at] gmail.com
- **Dr. Luciana Porcher Nedel**, Associate Professor at the Federal University of Rio Grande do Sul - UFRGS, Brazil. Contact: nedel [at] inf.ufrgs.br
- **Dr. Anderson Maciel**, Associate Professor at the Federal University of Rio Grande do Sul - UFRGS, Brazil. Contact: amaciell [at] inf.ufrgs.br