Francielly Rodrigues

franciellymsr@gmail.com • https://franciellyr.github.io

SUMMARY

My expertise lies in 3D interaction techniques for immersive environments, with a specialization in the design, implementation, and evaluation of precise manipulation techniques. My research interests intersect the fields of **Human-Computer Interaction**, **Virtual and Augmented Reality**, **3D User Interfaces**, and **Artificial Intelligence**.

EDUCATION

National Laboratory for Scientific Computing, Petropolis, Rio de Janeiro, Brazil

- Ph.D. in Computational Modeling   Jun 2019 – Jan 2024
  - Dissertation: "Advancing 3D Manipulation in Virtual Reality: Design and Evaluation of High-Precision Techniques and a Comprehensive Taxonomy"
  - Visiting researcher at Virginia Tech, VA, USA
  - Advisors: Jauvane C. de Oliveira and Doug A. Bowman
  - Overall GPA: 3.78/4

- M.Sc. in Computational Modeling   Mar 2017 – Jun 2019
  - Thesis: "A Virtual Reality Environment Using Concepts of Serious Games and Gamification for the Treatment of Eating Disorders"
  - Advisor: Jauvane C. de Oliveira
  - Overall GPA: 3.5/4

Federal University of São João Del-Rey, São João Del-Rey, Minas Gerais, Brazil

- B.S. in Computer Science   May 2013 – Feb 2017
  - Thesis: "Investigação de Padrões de Mobilidade e Análise de Estratos Sociais no Rio de Janeiro (Investigation of Mobility Patterns and Analysis of Social Strata in Rio de Janeiro)"
  - Advisor: Vinícius da Fonseca Vieira
  - Overall GPA: 3.42/4

RESEARCH EXPERIENCE

3D Interaction Group, Virginia Tech

- Visiting Researcher   Aug 2022 – Present
  - **Digital Twins Inspection in Advanced Manufacturing:** I designed and evaluated 3D manipulation techniques to precisely align digital twins for inspecting defective parts in industrial applications, and conducted pilots and two user studies to assess the performance gains of these novel techniques compared to the state-of-the-art in 3D precise manipulation [C.6]
  - **Non-Verbal Visualizations for Immersive Collaboration:** I assisted as a co-investigator in a user study aimed at assessing the effects of various non-verbal visualizations on users' identification time, comprehension, and perception within collaborative virtual environments [J.1]
  - **Collaborative Literature Review Across the Reality-Virtuality Continuum:** I collaborated in the design of a hybrid a cross-reality platform for cross-border academic collaboration. This system allows users to read, annotate, and organize papers while collaborating to connect artifacts, establish argument sequences, and export 3D layouts to LaTeX files [C.5]
  - **An Immersive Experience for Authentication in the Metaverse:** I collaborated in the design and implementation of an immersive VR experience to engage users in privately securing and accessing information in the Metaverse while improving authentication-related interactions inside the virtual environment [C.4]
  - Supervisor: Doug A. Bowman

ACiMA Lab, National Laboratory for Scientific Computing

- Student and Graduate Research Assistant   May 2017 – Present
  - **Precise manipulation in 3D Immersive Environments:** I conducted a comprehensive literature review, encompassing all the research conducted in recent years on 3D manipulation, and identified a lack in techniques to address highly precise manipulation tasks. A survey is currently in progress [C.6]
  - **Virtual reality for the treatment of eating disorders:** I designed a new approach for eating disorders treatment using virtual reality and concepts of serious games and gamification. I also conducted pilot and user studies to assess the usability and sense of presence in the environment [C.2]
  - Supervisor: Jauvane C. de Oliveira

PUBLICATIONS

JOURNAL

[J.1] Alexander Giovannelli; Jerald Thomas; Logan Lane; Francielly Rodrigues; Doug A Bowman, "Gestures vs. Emojis: Comparing Non-Verbal Reaction Visualizations for Immersive Collaboration," *IEEE Transactions on Visualization and Computer Graphics*, Oct 2003.

CONFERENCES

[C.6] Francielly Rodrigues; Alexander Giovannelli; Leonardo Pavanatto; Haichao Miao; Jauvane C de Oliveira; Doug A Bowman, "AMP-IT and WISDOM: Improving 3D Manipulation for High-Precision Tasks in Virtual Reality," in *IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, Oct 2023.

[C.5] Ibrahim A Tahmid; Francielly Rodrigues; Alexander Giovannelli; Lee Lisle; Jerald Thomas; Doug A Bowman, "CoLT: Enhancing Collaborative Literature Review Tasks with Synchronous and Asynchronous Awareness Across the Reality-Virtuality Continuum," in *IEEE International Symposium on Mixed and Augmented Reality (ISMAR) Student Competition*, Oct 2023.

[C.4] Alexander Giovannelli; Francielly Rodrigues; Shakiba Davari; Ibrahim A Tahmid; Logan Lane; Cherelle Connor; Kylie Davidson; Gabriella N Ramirez; Brendan David-John; Doug A Bowman, "CLUE HOG: An Immersive Competitive Lock-Unlock Experience using Hook On Go-Go Technique for Authentication in the Metaverse," in *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, Mar 2023.

[C.3] Leandro Peres; Pablo Cecilio; Francielly Rodrigues; Nícollas Silva; Leonardo Rocha, "An overview of Brazilian researches in the Computer Science field in last years," in *Anais do VII Symposium on Knowledge Discovery, Mining and Learning*, SBC, Oct 2019.

[C.2] Francielly Rodrigues; Priscila Wilbert; José Carlos Tavares da Silva; Jauvane C de Oliveira, "A virtual reality environment using concepts of serious games and gamification for the treatment of eating disorders," in *Brazilian Symposium on Computing Applied to Health (SBCAS)*, Jun 2019. [Best Paper Award]

[C.1] Francielly Rodrigues; Carolina R Xavier; Alexandre G Evsukoff; Artur Ziviani; Vinícius da F Vieira, "Análise de Mobilidade Urbana em Diferentes Estratos Sociais a partir de uma Rede de Telefonia Móvel," in *Anais do II Workshop de Computação Urbana*, SBC, May 2018.

AWARDS & SCHOLARSHIPS	▪ Brazil Scientific Mobility Program scholarship recipient, PROCAD/CAPES Visiting doctoral researcher fellowship for an exchange program at Virginia Tech, USA.	2022 – 2023
	▪ Academic Excellence fellowship, CAPES/PROEX Full-tuition fellowship achieved due to high performance at Ph.D. program.	2019 – 2023
	▪ Best Paper, SBCAS'19 Best Full Paper Winner Award, with paper [C.2]	2019
	▪ Academic Excellence fellowship, CAPES/PROEX Full-tuition fellowship achieved due to high performance at M.Sc. program.	2017 – 2019
	▪ Outstanding Student, Brazilian Computer Society (SBC) Recognized as outstanding student with the highest GPA of the graduating class of 2017.	2017

SERVICE

▪ Academic Paper and Demo Presentations
- The 22nd IEEE International Symposium on Mixed and Augmented Reality (ISMAR'23), Sydney, Australia
- The 19th Brazilian Symposium on Computation Applied to Health (SBCAS'19), Rio de Janeiro, Brazil
- The 20th Symposium on Virtual and Augmented Reality (SVR'18), Foz do Iguaçu, Brazil
- 2nd Urban Computing Workshop (COURB'18 in SBRC'18), São Paulo, Brazil

▪ Academic Paper Reviewer
- ISMAR 2023
- IJHCS 2023

▪ Invited speaker at The Unifeso Academic-Scientific Conference, VIII Confeso, 2023
- Talk: "Sandwich Ph.D.: My experience at Virginia Tech"

▪ Student Member of IEEE

SKILLS

Expertise areas: Quantitative and qualitative research, Augmented Reality, Virtual Reality, 3D User Interfaces, Human-Computer Interaction, Advanced data analysis (Python and R), User Studies
Main Tools and Technologies: C/C++, C#, Java, Python, Javascript, Unity Engine, Web development, Adobe Graphic tools

LANGUAGES

Portuguese: Native language; English: Fluent (speaking, reading, writing); Spanish: Intermediate (reading)