Caio Brito

Montreal - Canada (Permanent Resident)

4386806427 | ✉ caio.jb91@gmail.com | 🏠 cjsb.github.io | cjsb | 🔗 caio-brito

Experience

LIGUM - University of Montreal
Montreal, Canada

RESEARCHER
02/2019 - present

- Proposed a novel voxel-based representation for real-time rendering that is capable of approximating the appearance of an asset.
- Published a paper on High-Performance Graphics (HPG) 2023 (more details on cjsb.github.io/hpg2023/).
- C++, CUDA, OpenGL and Python.

Google Summer of Code 2023 - BRL-CAD
Montreal, Canada

GOOGLE SUMMER OF CODE CONTRIBUTOR
05/2023 - 10/2023

- Created a new entity for volumetric data (VDB) into BRL-CAD. Additionally, the VDB structure was used to render volumetric data with ray tracing.
- More details on https://summerofcode.withgoogle.com/programs/2023/projects/X9kIPCbP.
- C++, OpenVDB.

Voxar Labs - CIn/UFPE
Recife, Brazil

RESEARCHER
08/2012 - 02/2019

- Proposed a new method to simulate fluids using Smoothed Particle Hydrodynamic (SPH) for different behaviors (viscoelastic and multiphase) in interactive rates.
- Proposed a shader-based rendering and a ray tracing based solution render the fluid in real time.
- Conducted academic research applied in several partnership projects with Brazilian and multinational companies.
- C++, OpenGL, Unity, NVIDIA OptiX, OpenMP and CUDA.

Disney Research
Los Angeles, US

INTERN
07/2018 - 09/2018

- Worked on repurposing an existing landmark dataset for face tracking on HMD cameras.
- The mouth and eyes landmarks were used as input to animate the face of a 3D character.
- C#, Unity and OpenCV.

Samsung / Voxar Labs
Recife, Brazil

RESEARCH ENGINEER
07/2017 - 07/2018

- Researched and developed on the subject of camera manipulation and object tracking.
- C++ and OpenCV.

SimplifiqueGP / Voxar Labs
Recife, Brazil

RESEARCH ENGINEER
01/2017 - 06/2017

- Developed a multiplatform 3D rendering solution to help project management using AR. Website: https://www.sgpar.app/.
- Unity, C#, C++, OpenGL.

Education

University of Montreal
Montreal,CA

PHD STUDENT IN COMPUTER SCIENCE
2019 - present

- Research focuses on developing a novel voxel-based representation for real-time rendering that is capable of approximating the appearance of an asset.
- Advisor: Pierre Poulin.

Federal University of Pernambuco - CIn/UFPE
Recife, Brazil

MASTER'S STUDENT IN COMPUTER SCIENCE
2016 - 2018

- Worked on real-time rendering ad fluid simulation using particle-based methods.
- Advisor: Veronica Teichrieb.

Federal University of Pernambuco - CIn/UFPE
Recife, Brazil

BACHELOR'S DEGREE IN COMPUTER SCIENCE
2010 - 2016

Programming skills

Languages

C++, C# AND PYTHON.

Libraries and tools

OPENGL, UNITY, CUDA, OPTIX, OPENCV, LATEX, GIT, VISUAL STUDIO, MICROSOFT OFFICE.

Languages

English
FLUENT

French
INTERMIDIATE

Portuguese
NATIVE

Publications

[1] **Voxel-based Representations for Improved Filtered Appearance**. Brito, Caio; Poulin, Pierre; Teichrieb, Veronica. *High-Performance Graphics (HPG)*. 2023.

[2] **The impact of domain randomization on cross-device monocular deep 6DoF detection**. da Cunha, Kelvin; Brito, Caio; Valença, Lucas; Figueiredo, Lucas; Simões, Francisco; Teichrieb, Veronica. *Pattern Recognition Letters*. 2022.

[3] **Systems and methods for modifying labeled content**. Brito, Caio; Mitchell, Kenny. *US Patent (No.: US11182634B2)*. 2021.

[4] **Recycling a Landmark Dataset for Real-time Facial Capture and Animation with Low Cost HMD Integrated Cameras**. Brito, Caio; Mitchell, Kenny. *Iternational Conference on Virtual Reality Continuum and Its Applications in Industry (VRCAI)*. 2019.

[5] **Ray Tracer Based Rendering Solution for Large Scale Fluid Rendering**. Brito, Caio; e Silva, André L. Vieira; Teixeira, João Marcelo; Teichrieb, Veronica. *Computers & Graphics*. 2018.

[6] **Large Viscoelastic Fluid Simulation on GPU**. Brito, Caio; e Silva, André L. Vieira; William, Mozart; Teixeira, João Marcelo; Teichrieb, Veronica. *SBGames - Computing Track* . 2017.

[7] **Screen Space Rendering Solution for Multiphase SPH Simulation**. Brito, Caio; William, Mozart;e Silva, André L. Vieira; Teixeira, João Marcelo; Teichrieb, Veronica. *Symposium on Virtual and Augmented Reality (SVR)* . 2017.

[8] **Multimodal Augmentation of Surfaces Using Conductive 3D Printing**. Brito, Caio; Barros, Gutenberg; Correia, Walter; Teichrieb, Veronica; Teixeira, João Marcelo. *ACM SIGGRAPH 2016 Posters*. 2016.