Filipe de Carvalho Nascimento

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SUMMARY

I am a CS Ph.D. passionate about Problem Solving, Computer Graphics, Geometry Processing, and Physically Based Simulation. My experience includes the design/implementation of fluid solvers, real-time rendering techniques, geometric and spatial data structures, and physically based animation research.

EDUCATION

PhD	2017 - 2024
M.S. IN COMPUTER SCIENCE	2013 - 2016
B.S.	2008 - 2012

INSTITUTE OF MATHEMATICS AND COMPUTER SCIENCE (ICMC) -
UNIVERSITY OF SÃO PAULO (USP), SÃO CARLOS, SÃO PAULO, BRAZIL

SKILLS & INTERESTS

OPENGL/CUDA/HOUDINI'S HDK/OPENVDB/OPENUSD/OPENFOAM
VULKAN/M. LEARNING

PROGRAMMING

C/C++(PROFICIENT)/PYTHON *and some experience with*: RUST/R

LANGUAGES

PORTUGUESE, ENGLISH, FRENCH (DÉBUTANT), JAPANESE (BEGINNER)

PROFESSIONAL EXPERIENCE

RnD Software Engineer at Blizzard Entertainment   JAN 2023 - PRESENT
WORKED ON C++ 3D TOOLS FOR CINEMATICS AT BLIZZARD ANIMATION:
- OPTIMIZATION AND EXTENSION OF THE PROPRIETARY HAIR SYSTEM, INCLUDING THE RE-DESIGN OF DATA STRUCTURES, RESEARCH OF INTERPOLATION METHODS, AND IMPLEMENTATION OF VISUAL DEBUGGING TOOLS;
- HOUDINI AND KATANA PLUGIN C++ DEVELOPMENT;
- INTEGRATION OF OPENUSD INTO EXISTING CODE.

Software Engineering Intern at Google Inc. (YouTube)   JAN - MAR 2016
WORKED ON 360° VIDEO SUPPORT FOR YOUTUBE APP ON SONY'S PLAYSTATION 4 VR.

RESEARCH EXPERIENCE

Digital Animation of Powder Snow Avalanches   2017 - 2022
APPLIED CFD TO SOLVE GEOPHYSICAL EQUATIONS TO SIMULATE AVALANCHES AND PRODUCE ANIMATION DATA. DEVELOPED IN C++ WITH OPENFOAM.
GRADUATE RESEARCH SUPPORTED BY FAPESP

Multimaterial Fluid Simulation for Comp. Graphics   SEP 2014 - FEB 2015
VISITING SCHOLAR AT UNIVERSITY OF WATERLOO (UW), CANADA. WORKED WITH DYNAMIC POLIGONAL MESHES UNDER CONTINUOUS COLLISION DETECTION.
SUPERVISOR: CHRISTOPHER BATTY

Reliable polygonal approximation of implicit curves   2011-2012
UNDERGRADUATE RESEARCH SUPPORTED BY FAPESP. SUPERVISOR: AFONSO PAIVA

SCIENTIFIC PUBLICATIONS

RBF Liquids: An Adaptive PIC Solver Using RBF-FD   2020
PAPER AT ACM SIGGRAPH ASIA 2020 AND ACM TRANSACTIONS ON GRAPHICS

Approximating implicit curves on plane and surface triangulations with affine arithmetic (AA)   2014
PAPER AT COMPUTERS & GRAPHICS JOURNAL (CAG), VOLUME 40

Approximating implicit curves on triangulations with AA   2012
PAPER AT XXV SIBGRAPI CONFERENCE ON GRAPHICS, PATTERNS AND IMAGES

ACTIVITIES

Programming Contests (ACM-ICPC)
- World Finals (as coach)   2014
- Latin America Regional Contest (1st Place) (as coach)   2013
- Latin America Regional Contest   2009
- Brazilian Regional Contest   2009-2012

Teaching Assistant
- Advanced Algorithms Laboratory Course   2013