

Diogo Gonçalves

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Education

University of Minho

October 2016 – April 2022

- Master's in Software Engineering (specialized in Computer Graphics and Parallel & Distributed Computing)
- Bachelor's in Software Engineering

Employment

Bsolus

October 2020 – November 2021

Software Engineer

- Architected a Marketing Automation platform based on state-of-the-art micro-service patterns
- Created CI/CD pipelines to deploy code base to infrastructure using Bitbucket Pipelines
- Implemented the designed architecture using NestJs, MongoDB, and Docker
- Increased uptime to 99.9% after automating the horizontal micro-services scaling
- Decreased development time by creating a project-specific testing framework

Technical Experience

Projects

- **Cactus3D** [C++, OpenGL, CMake, ImGui]
 - Developed a rudimentary real-time 3D engine
 - Created cross-platform make system with CMake with git integration for ImGui, Assimp, and STB
 - Scene configuration via XML with options for camera, light, and model
- **Ray tracer** [C++, CMake]
 - Developed a simple Ray tracing based renderer
 - Optimized the solution by implementing Russian Roulette and BBVH
 - Decreased render time by creating a per-row thread render
- **Interactive Wind** [GLSL]
 - Developed a real-time heuristic wind simulation tested on a procedurally generated grass field
 - Simulated the wind effect by applying the Navier-Stokes equations
 - Implemented obstacles interaction with the voxelization of the objects
- **Procedural Terrain Generation** [GLSL]
 - Developed a real-time procedural terrain generator using simplex noise
 - Implemented tessellation detail levels dependent on camera position to increase realism and performance
 - Developed a semi-random terrain height system utilizing simplex noise

Skills

- **Programming Languages** C++; C; Python; Typescript; Bash;
- **Frameworks** OpenGL; Jest; NestJS;
- **Developer Tools** Git; Agile; Jira; Docker; Postman; Confluence;
- **Languages** English (C1 level), Portuguese (Native)