



Erwan Duhamel

Software Engineer, Graphics Developer, Freelancer, Ph. D

About me

Roughly half a decade of experience with C++ software development, I am proficient with C++11 to C++23. I have a PhD in Computer Graphics, specialised in real-time direct volume rendering for medical data visualisation. I have been maintaining most of the GPU-related facilities in the codebases I have worked on, including both graphics paths and parallel computing paths (CUDA). Accustomed to modern software development, Agile and Kanban methodologies, I enjoy working with a team and join efforts on large-scale projects. On my free time, I develop **Ofubuki**, an open-source C++23 framework for Vulkan and low-level graphics.

Personal

Erwan Duhamel
Nationality: French
07/07/1998 (27 years old)

Areas of specialization

Computer graphics • C++ • Real-time graphics • Image processing • Parallel computing

Technical center of interest

Real-time graphics / Vulkan
Direct Volume Rendering
Modern C++

I'm passionate about modern low-level real-time graphics and advances in recent C++ Standards, which I follow closely. On my spare time, I'm a cat lover interested in cooking.

Interests

Dedicated cat-person
Japanese culture & language
Cooking
Gaming / Retro-Gaming

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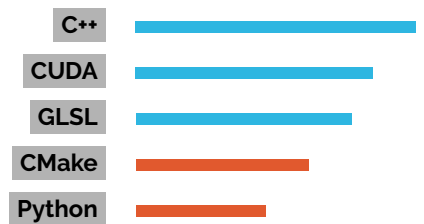
SHORT RESUMÉ

- 2025 **Freelancing**
INDEPENDENT DEVELOPER · Strasbourg, France 📍
- 2021–2024 **IRCAD France**
RESEARCHER, PH. D CURRICULUM · Strasbourg, France 📍
- 2019–2020 **Chauvin Arnoux GmbH**
UNDERGRADUATE DEVELOPER · Sundheim, Germany 📍

DEGREES

- 2024 **Doctoral Thesis / Ph. D**
Ph. D · University of Strasbourg, France 🏛️
C++, CUDA, GLSL, Real-time graphics, volume rendering
- 2021 **Electrical engineering**
MASTER DEGREE · INSA Strasbourg, France 🏛️
C++, C, Embedded systems, Bare-metal programming
- 2021 **Robotics and automatics**
MASTER DEGREE · Telecom Physique Strasbourg, France, 🏛️
C++, Real-time safety-critical systems, Multi-task systems
- 2019 **Electrical engineering**
BACHELOR OF ENGINEERING · Strasbourg, France 🏛️

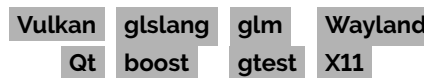
PROGRAMMING



TOOLS



FRAMEWORKS & APIS



CURRICULUM

- 2025 **Freelancing**
INDEPENDENT DEVELOPPER · Strasbourg, France 📍
Maintenance of existing code, integration, etc.
Development of **Ofubuki**, open-source idiomatic C++23 cross-platform composable abstraction framework for Vulkan and low-level graphics.
- 2021–2024 **IRCAD France**
RESEARCHER, PH. D CURRICULUM · Strasbourg, France 📍
Company-hosted Ph. D Thesis.
Research topic: Interactive Visualization of 3D Echography Images with Volume Rendering. Developement and integration in the company framework of a new method of direct volume rendering for ultrasound data, and various data-sensitive processing. The work is integrated in the internal framework and in use in several applications actively developed.
- 2019–2020 **Chauvin Arnoux GmbH**
UNDERGRADUATE DEVELOPPER · Sundheim, Germany 📍
Software development for the technical support service.
Integration with internal platforms and hardware to homogenise the calibration and follow-up process of products sold by the company.



CERTIFICATES & GRANTS PUBLICATIONS

2019 TOEIC (965/990 points)

2025 <Embargoed publication>

LANGUAGES

French		C2	Mother tongue
English		C1	<div><div></div><div></div><div></div><div></div></div>
Japanese		C1	<div><div></div><div></div><div></div><div></div></div>
German		A2	<div><div></div><div></div><div></div><div></div></div>

2024 *Expressive Direct Volume Rendering for medical image visualisation: application to ultrasound imaging (PhD Thesis)*

2022 *Ray-casted surfaces for expressive direct volume rendering of volumetric ultrasound data, JFIG 2022.*