ALEXANDRE BLANCHÉ

Computer Science PhD, developer

I am 30, I have a PhD in computer science, a degree in mathematics, and experience in software development.

CONTACTS

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PLATFORMS

GitHub
github.com/alexblanche

Website
alexblanche.github.io

MISCELLANEOUS

- Fluent in English, French mother tongue
- Driving license, vehicle
- Interests: cinema, video games, reading, programming

SKILLS

- Working in autonomy and in a team
- Pedagogy. Teaching and talks given in French and English
- Collaborations with english, american, japanese researchers

PROFESSIONAL EXPERIENCES

2024-2025 (Short term) — **Physics Programmer** ASOBO Studio
C++ code optimization of *Microsoft Flight Simulator 2024* (memory and computation time optimization)
Real-time physics simulations (rigid body, cloth, gas), water simulations

2018-2023 — **Academic research** LaBRI, Université de Bordeaux
Publications in SIAM Journal on Discrete Mathematics, Journal of Graph Theory
Talks given at EuroComb 2021, CanaDAM 2021, IWOCA 2020
Complete list of my publications and talks on my website

2017-2023 — **Teaching**
Université de Bordeaux (L1-M1), IUT d'informatique de Bordeaux
Lycée Chateaubriand, Rennes (Preparatory class MP*), see below

Languages : **C++, C, OCaml, Python, Java, Javascript, GLSL** (shader)**, SQL**
Tools : **CMake, Git, PIX** (profiler)**, SDL, Three.js**

PORTFOLIO

Raytracer
C++
3D *path-tracing* rendering engine
Display of textured 3D models (.obj/.mtl files parser) with realistic lighting (global illumination), reflections, refraction and shadows on materials with custom properties.
Anti-aliasing, post-processing, configurable scenes and camera.

Casio Basic Emulator
OCaml
Emulator of Casio graphics calculators (fx-9750GII, fx-9860GII), executes Casio Basic programs. Reader/writer of Casio files (.g1m), transferable on calculators.
I have developed several games on Casio calculators in 2011-2013. They were awarded the quality label of the Planet Casio website, and I was one of the winners of their 2012 contest (see the video of the emulator on my website)

Code of my projects on Github, demonstrations on my website

TEACHING EXPERIENCES

Python - Object oriented Python projects (first year, preparatory class): development of a video pointer software, and online video games (TKinter, PodSixNet)
- Introduction to programming (first year), Array algorithmics (second year)

OCaml Functional programming exercises in MP* prepa and second year university

C language (1st year), **Java**, **SQL** (IUT), **Excel VBA** (2nd-3rd year Economy Management)
Probability, Statistics (3rd year), Algorithmic Complexity (master), Networks, Systems (Linux)

EDUCATION

2018-2021 — **PhD in Computer Science (Graph theory)**
LaBRI, Université de Bordeaux
Topic: *Gallai's path decomposition conjecture in planar graphs*

2014-2018 — **Student** École normale supérieure de Rennes, Université de Rennes
2017-2018 **Master's degree (M2), research in computer science**
2016-2017 **Master's degree (M2 MEEF), teaching of mathematics**
2014-2016 Double Bachelor's degree :
Computer science Bachelor (L3), Mathematics Bachelor (L3)

2012-2014 — **Preparatory class, MPSI, MP***
Lycée Camille Guérin, Poitiers
Admitted to the entry exam of École normale supérieure de Rennes

ACTIVITIES

- I was elected president of AFoDIB (association of computer science PhD students of Bordeaux) from 2019 to 2021.
- I hosted a Climate Fresk session (popularization of climate change concepts).
  I was a member of the association Maths à modeler (popularization of mathematics in middle and high school).