

Christopher Aykroyd

Game Programmer · Astrophysicist

Summary

After completing a PhD in astrophysics, I'm now focusing on game development as an outlet to creative problem-solving.

Profile

Junior game developer with experience in Unity, plus the basics of Unreal and Godot.

Specializations

- Game Development
- Computer Graphics
- Computer Vision
- AI
- Physics
- Simulations

Goals

Open to software, gameplay, tools, engine, and graphics programmer roles in Europe

Interests

- Gameplay programming
- Graphics programming
- Tools engineering
- Procedural systems
- Scientific computing

Software and Tools

Git, LaTeX,
OpenGL (basics),
OpenCV, PyTorch,

Working knowledge of
Maya, Photoshop

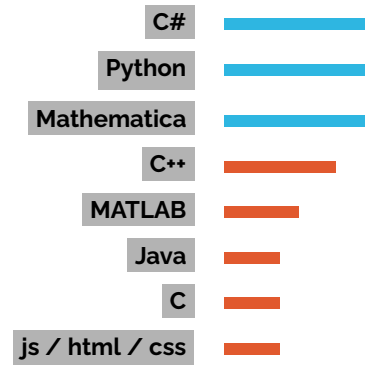
PROFESSIONAL EXPERIENCE

- 2022–2025 **Doctoral Researcher**
OBSERVATOIRE DE PARIS · Astrophysics
Developed analytical and computational models for complex dynamical systems; published peer-reviewed research and built strong numerical, scientific and functional programming skills in Mathematica.
- 2019 **Research Intern**
TECHNICOLOR SA · Computer Graphics & Computer Vision
Worked on ageing regression of 3D facial meshes in pytorch, graph-based generative models on surface data, and 3D face reconstruction from monocular video.
- 2018 **Game / Software Developer Intern**
WILDLIFE STUDIOS · Unity / C#
Implemented metagame features, UI systems, and enemy AI behaviours for a mobile game production environment.

EDUCATION

- 2022–2025 **Ph.D. Astrophysics**
OBSERVATOIRE DE PARIS
- 2021–2022 **M.Sc. Astrophysics**
OBSERVATOIRE DE PARIS
Graduated with highest honours.
- 2017–2019 **Engineering Degree**
ÉCOLE POLYTECHNIQUE
Focus on computer graphics, computer vision, and artificial intelligence. GPA: 3.52/4.00.
- 2014–2021 **B.Sc. Control Engineering**
UNIVERSIDADE DE SÃO PAULO
Grade: 8.3/10, ranked 6/222.

PROGRAMMING



FEATURED TECHNICAL PROJECTS

- 2021 *Radiative Processes in Exoplanet Atmospheres*: implemented Monte Carlo and backward ray-tracing simulations in C++ with an interactive visualization tool.
- 2018–2019 *Möbius Voting for Surface Correspondence*: built a system for point-to-point correspondence between deformable 3D meshes, implemented in Python with a Three.js frontend.
- 2017–2018 *Theatrall*: developed server-side and .NET application components for automatic subtitle generation for theatre plays; winner of the French finals of Microsoft Imagine Cup 2018.

AWARDS & GRANTS

- 2022–2025 CNES doctoral research grant.
- 2021 USP best graduation project prize.
- 2020–2021 PIBIC/CNPq undergraduate research grant.
- 2018 Microsoft Imagine Cup France winner (Theatrall).
- 2017–2020 Eiffel Grant of Excellence.

LANGUAGES

English	C2	bilingual
Portuguese	C2	bilingual
French	C1	advanced

PUBLICATIONS

- (under review) **Non-conservative Hamiltonian perturbation methods for binary dynamics**
C. Aykroyd, A. Bourgoïn, C. Le Poncin-Lafitte
- (accepted) **Hamiltonian treatment of non-conservative systems**
C. Aykroyd, A. Bourgoïn, C. Le Poncin-Lafitte
- 2025 **Hamiltonian normal forms for the post-Newtonian binary problem (Phys. Rev. D)**
C. Aykroyd, A. Bourgoïn, C. Le Poncin-Lafitte
- 2024 **Embedded Star Catalog Calculation Tool for Autonomous Star Trackers (PASP)**
K. Bürger, F. Fialho, and C. Aykroyd
- 2024 **Detection of magnetic galactic binaries in quasi-circular orbit with LISA (Phys. Rev. D)**
E. Savalle, A. Bourgoïn, C. Le Poncin-Lafitte, S. Mathis, M.-C. Angonin, and C. Aykroyd
- 2023 **Secular dipole-dipole stability of magnetic binaries (A&A)**
C. Aykroyd, A. Bourgoïn, C. Le Poncin-Lafitte, S. Mathis, and M.-C. Angonin

📍 Europe

🌐 caykroyd.github.io

🌐 github.com/caykroyd

🌐 [christopher-aykroyd](https://www.linkedin.com/in/christopher-aykroyd)

✉️ christopher.aykroyd@obspm.fr