NICOLAS BLIN

PARIS, FRANCE

Looking for a 6-month end of study internship in C++/GPGPU programming starting in February 2022

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EDUCATION

Double major Image/Research 2019-2022
EPITA – Software engineering school

Bachelor in IT 2017-2019
University Paris Descartes

TECHNICAL SKILLS

Programming languages

- Advanced: C ; C++ ; CUDA
- Intermediate: Python ; Java ; SQL
- Basic: Assembly

Frameworks / libs

- Keras / TensorFlow
- OpenCV / Scikit-Learn / ITK;VTK
- OpenGL

Additional technical skills

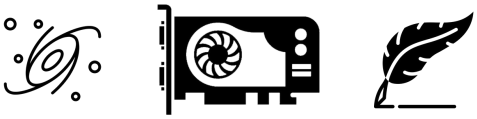
- Optimization and parallelization
- Image Processing
- Machine learning & Deep learning

LANGUAGES

- French (mother tong)
- English (fluent ~ TOEIC 970)

ACTIVITIES & INTERESTS

- GPU programming applied to science
- Deep-learning
- Cosmology
- Personal development & coaching
- Analysis of musical texts



WORK EXPERIENCES

Research assistant (C++/CUDA) 2 years / 2020-2022

EPITA's research laboratory (LRDE) - Paris, France

- GPU parallelization of the max-tree algorithm
- State of the art review and design of a massively parallel algorithm
- Programming, benchmarks, and optimizations
- **Goal:** Achieve real-time processing
- **Result:** x10 speed-up, real-time achieved (382 fps)

Internship in medical imaging (C++/CUDA) 5 months / 2020

National Center for Scientific Research (CNRS) - Paris, France

- GPU optimization of the real-time retinal blood flow analysis software, *Holovibes*
- Use of C++/CUDA optimization skills
- Form an open-source association, status: Vice-President
- **Goal:** speed-up input throughput from 500 fps to 8000 fps
- **Result:** x20 speed-up, 10000 fps, goal achieved

PROJECTS

Ray Tracer (C++/CUDA) 2 months – 2021

- Program from scratch a Ray Tracer working on GPU
- Camera, rays, 3D world management via projective geometry
- Handle lights, shadows, interactions between objects...
- **Result:** photorealistic scene with mirror spheres in real-time

Deep learning framework (C++/CUDA) 2 months – 2020

- Creation of a framework able to classify images using advanced C++ design (CRTP, variadic template, move semantics...)
- Implementation of tensors, dense layers...
- Acceleration via massively parallel operations on GPU

Image Processing and Drosophila (Python) 1 month – 2021

- State of the art review to propose the best solution
- Segmentation of wings using mathematical morphology
- Identification of key points using ORB Harris
- **Result:** Race deduction based on the number of points

$_ Fully functional shell (C) 1 month – 2019

- Team organization using GitKraken
- Program a lexer/parser LL & AST to handle if, for, while...
- Write a documentation & a python test suite (>500 tests)