NICOLAS BLIN

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Looking for a software engineering position in C++/GPGPU programming

🎓 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 / NumPy
- OpenMP / TBB / MPI / Cython

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
- Operational Research
- Cosmology
- Personal development & coaching
- Analysis of musical texts

💼 WORK EXPERIENCES

Software Engineering Intern (C++/CUDA)   6 months / 2022
***NVIDIA** - Paris, France*

- cuOpt team: VRP solver on GPU
- State-of-the-art review of metaheuristics algorithms
- Parallelization & optimization of GPU algorithms in C++/CUDA
- Cython/Python API/ bindings for simple user experience

Research assistant (C++/CUDA)   2 years / 2020-2022
EPITA's research laboratory (LRDE) - Paris, France

- GPU parallelization of the max-tree algorithm
- Programming, benchmarks, and optimizations
- **Goal:** Achieve real-time processing, publish a scientific paper
- **Result:** x10 speed-up, paper published (TPDS: A*)

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

📋 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 scenes 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

🗄️ Hyperspectral images classification (Python) 1 month – 2021

- Pipeline of PCA / SVM + grid search: best hyper parameters
- State of the art review to propose the best solution :
- Pre/post-processing using guided filters to improve solution
- **Result:** Overall accuracy of 86%