

# ALEXANDRE BOURQUELOT

Software Engineer, Machine Learning



(+33) 6 89 08 04 26



(+1) 609 255 0380



alexandre.bourquelot@gmail.com



in/alexandre-bourquelot



github.com/elrandar



bourquelot.dev



## EDUCATION

### EPITA, Paris

Master's Degree in Computer Science

- Image Processing Major
- Graduate Research Student Role

2017 - 2022



## TECHNICAL SKILLS

### Programming languages

Python C++ CUDA C Java  
Javascript HTML CSS SQL

### Frameworks / Libraries

PyTorch TensorFlow Pandas Unity  
OpenCV Scikit-Learn ITK / VTK Qt

### Additional Skills

AI Machine Learning Deep Learning  
Image Processing Signal Processing  
Git Linux Docker Hugging Face



## LANGUAGES

- French: Native
- English: Full proficiency (C2)
  - TOEIC 985
- Japanese: Limited Working Proficiency



## INTERESTS

- News and advancements surrounding Artificial Intelligence
- AR / VR
- Rock Climbing
- Automotive industry
- Medical Imaging
- Japanese Language and Culture



## EXPERIENCE

### Machine Learning Research Intern

Mar 2022 - Mar 2023

Siemens Healthineers

Princeton, NJ, USA

- Worked on Cardiac Magnetic Resonance **Medical Images** using **Python** and **PyTorch**
- Improved AI algorithms that are part of the pipeline for CMR image processing
  - Increase in view classification accuracy of **17%**
  - Increase in landmark detection performance of **24%**
  - Increase in segmentation score of **15%**
- Proposed new method for LGE **semi-supervised learning**
  - Abstract **accepted** to **SCMR 2023**

### Graduate Research Student

(1 Year) 2021 - 2022

LRDE (EPITA Research Laboratory)

Paris, France

- Implemented a new method for line detection in document images using tracking via **Kalman filter**
- Prototyping of the method in **Python** and efficient implementation in **C++**, with Python bindings
- Monthly advancement presentations and weekly progress reports

### C++ Software Engineering Intern

(6 Months) 2020

Soletanche-Bachy

Rueil-Malmaison, France

- Development of features for construction machine supervision software
- Rewriting of a file synchronisation software
- Implementation of a data exchange framework, using WebSockets and REST calls, along with OAuth2 and OpenID connect security
- Documentation and construction site assistance



## PROJECTS



### Cycle GAN Photograph ↔ Ukiyo-e (Python / PyTorch)

- Generative adversarial network able to create Ukiyo-e from photographs
- Development of demo website



### Hyper-spectral image segmentation (Python / Scikit-Learn)

- Segmentation of fields in hyper-spectral images
- Random Forest, Support Vector Machine, PCA



### Line detection algorithm (C++ / CUDA)

- Massively parallel implementation of a tracking based line detection algorithm
- Detection of lines in map documents



### Chess engine and AI (C++)

- AI able to predict 5 turns in advance in 1 sec
- Arrived 2nd Place at school chess AI competition