

Loïc Tetrel

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Computer vision scientist (M. A. Sc.) specialized in **medical imaging**.
I define myself as a **curious** and **autonomous** person with ease in **communication**.

Professional profile

Epipolar geometry, optical calibration, image/volume registration and reconstruction, metrology procedures, AI, statistical analysis, tracking, ultrasound, 3D rendering, GPGPU, camera and computer hardware.

Education

ÉTS (École de technologie supérieure) Montréal (include McGill course)

Montréal, CANADA

M. A. SC. IN ELECTRICAL ENGINEERING, GRADUATED WITH HONORS, GPA : 4.1/4.3

Sept. 2014 - Aug. 2016

Lyon INSA (National Institute of Applied Sciences of Lyon)

Lyon, FRANCE

M. ENG. IN ELECTRICAL ENGINEERING

Sept. 2012 - Aug. 2016

IUT (University Institutes of Technology) Lyon 1

Lyon, FRANCE

TECHNICAL DEGREE IN INDUSTRIAL ENGINEERING AND MAINTENANCE, GRADUATED WITH HONORS

Sept. 2010 - Jun. 2012

Skills

Low-level programming	C++11 (OpenCV, Ceres, Boost, Eigen), C (GSL, MEX), CUDA, Assembly
High-level programming	Python (Matplotlib, Numpy, Plotly, jupyter, TensorFlow), MATLAB (statistical and machine learning toolbox)
Softwares	VS 2017, TortoiseGit, Redmine, Spyder, LaTeX, Blender, CMake, make
Operating systems	Windows, GNU/Linux
Languages	French (mother tongue), Polish (fluent), English (professional, TOEIC 925), Spanish (basics)

Work Experience

Dental Wings/Straumann Group, Digital Business Unit

Montréal, CANADA

C++ COMPUTER VISION DEVELOPPER : 3D SOLUTIONS FOR DIGITAL DENTISTRY.

Dec. 2016 - PRESENT

- Algorithms for optical calibration, 3D scanning/reconstruction, dental metrology, with state of the art technology.
 - Prototyping in Python (Numpy, plotly, jupyter notebooks)
 - Agile development in C++ (OpenCV, Ceres, Eigen, Boost)
 - Building and versioning (VS 2017, Git)
- Conception of a virtual scanner for hardware/software experimentation and validation.
- Camera (and other devices) hardware validation. CMOS and camera integration.
- Conferences attendance (CVPR 2018, Agile Tour 2017), open days for recruiting interns (Concordia university, Polytechnique, McGill).

LATIS, ÉTS Montréal

Montréal, CANADA

RESEARCH ASSISTANT (*) : GRAPH-BASED ESTIMATION OF PROBE TRAJECTORY FOR SENSORLESS FREEHAND 3D US.

Jan. 2015 - Nov. 2016

- Calibration of optical and electromagnetic probes for freehand 3D US.
 - Development in C++ (3rd party lib, SVN) and compilation (CMake).
- Image registration from echographic sequence using speckle-decorrelation. Trajectory estimation by a directed graph with uncertainty (gaussian process regression and Lie Algebra). https://link.springer.com/chapter/10.1007/978-3-319-47157-0_25
 - Programming in C/C++ (GSL, OpenCV, Boost, Eigen), compilation under GNU/Linux (make)
 - Quantitative and qualitative analysis (MATLAB)
- Poster presentation at Colloque REPARTI 2016. Accepted paper for MICCAI/MLMI 2016 conference.

Thales Group, Thales Air Systems

Limours, FRANCE

INTERN (*) : FAST INITIALIZATION OF CARTESIAN TRACK USING FM BAND

Feb. 2014 - Aug. 2014

- Track initialization in cartesian coordinates with range measurements, using a custom non-linear filter and statistical methods.
 - Implementation on MATLAB.
- Validation on aircraft records.
 - Validation on MATLAB (MEX function) and C++ (Eigen).

Relevant Projects

- Blog about computer science (python, jupyter notebooks). <https://ltetrel.github.io/>.
- Automatic row counting for knitting. Image processing and edge detectors (Python).
- Stock market indicator analysis for best investment (TensorFlow).
- Design of an autonomous robot's detection system for an international competition. Programming (C) and PCB design (Altium).

McGill, ÉTS Montréal

Montréal, CANADA

SCHOOL PROJECTS

2014 - 2016

- Registration of MRI and CT images using Gaussian Process interpolation with uncertainty.
- GPGPU and GPU architecture introduction, Sobel filtering development using CUDA (NPP) on Nvidia GTX.
- Automatic classification and prediction models for early Parkinson disease. Features extracted from MRI images of patient's brain.

Lyon INSA

Lyon, FRANCE

SCHOOL PROJECT MANAGER : BUSINESS CREATION SIMULATION FOR ELECTRONIC SHOES.

Sept. 2012 - Jun. 2013

- Team management of 10 people with establishment of project plan, functional analysis and marketing mix.

Volunteer Experience

Hacking Health Montreal

Montréal, CANADA

EVENT VOLUNTEER

Oct. 2016 - Dec. 2016

- Promote innovations between health and science. Helped the organization of HIP Ottawa 2016 in CHEO-OCTC.

Big Band ÉTS

Montréal, CANADA

EVENT COORDINATOR AND GUITARIST

Sept. 2015 - Aug. 2016

YES (Young Employees Society) Thales

Limours, FRANCE

MEMBER

Feb. 2014 - Aug. 2014

- Young professional events. Thales trainees forum day.

ClubEleK (Lyon INSA)

Lyon, FRANCE

BEGINNER TEAM MANAGER

Sept. 2012 - Jun. 2013

- Conception of an autonomous robot. Coordinator assistant for InnoRobo Lyon 2013.

IUT Lyon 1

Lyon, FRANCE

FREE TUTORING IN MATHEMATICS

Sep. 2010 - Jun. 2012

Conferences & Awards

Jun, 2018	CVPR 2018 , Attendance to promote computer vision research for Staummann.	Salt Lake City (UT), USA
Nov, 2017	Agile Tour 2017 , Training for agile development.	Montréal, CANADA
March, 2016	Grant , Bourse interne ÉTS : merit scholarship for graduate students (3.000 CAD).	Montréal, CANADA
Oct, 2016	MICCAI 2016 , Poster presentation of thesis work.	Athens, GREECE
May, 2015	1st place , 24h de l'innovation : Mobile app to teach science for children.	Montréal, CANADA
2014	Grant , Explora'sup : regional merit scholarship for undergraduate students (2.000 EUR).	Lyon, FRANCE
March, 2013	InnoRobo 2013 , Volunteer work as an event coordinator.	Lyon, FRANCE
2013	Qualification phase , Eurobot : international robotic contest with autonomous robots.	La Ferté Bernard, FRANCE

Interests

Travels	Europe (France, Poland, England, Spain, Germany, Greece, Switzerland), USA (UT, FL, CA, NV, NY), Canada (QC, ON, BC), Asia (Thailand)
Hobbies	IT (video games, computer vision, blockchain), politics, reading books (fantasy, SF), playing music (rock, jazz)
Sports	Weight training, ski, salsa dance