Online version :

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).

(*) References available upon request.

Relevant Projects

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

McGill, ÉTS Montréal — *Montréal, CANADA*

Shool 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*

Shool 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 Staumann.	*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