



Thomas Castelli

Computer Vision Research Engineer

Experience

- 2016 - now **Optronics and imaging system engineer** [Survey Copter \(Airbus D&S\), France](#)
 - Development of an embedded image processing board for mini-UAVs, featuring **image stabilization, moving object detection and tracking**. Programming on target hardware Nvidia Jetson TX1, in multi-threaded C++ using GPU optimized **OpenCV** library.
 - Specification and supplier sourcing for custom **LWIR** and **visible** cameras.
- 2013 - 2016 **PhD. Student "CIFRE Défense"** [Survey Copter \(Airbus D&S\), France](#)
 - Design and development of algorithms for UAV-embedded image processing and computer vision, using **OpenCV** on PC and on Nvidia Jetson TK1.
 - Tuning and integration of embedded image processing FPGA board.
 - Laser and visible & LWIR** image sensors pipeline definition, and DRI computation/testing for our drone fleet, as well as for **military tender** submission.
- 04/15 - 03/16 **Visiting scholar** [CRCV, University of Central Florida, USA](#)
 - Safe navigation for micro-UAVs in urban areas using **computer vision**, under the supervision of *Dr. Mubarak Shah*. Links to *project page* and *paper*.
- 2010 - 2013 **MSc. Student in apprenticeship** [Survey Copter \(Airbus D&S\), France](#)
 - OEM camera** selection, definition of the calibration process prior to integration, and **image processing** onboard UAVs.
- 09/12 - 10/12 **Internship** [Airbus D&S, Friedrichshafen, Germany](#)
 - Algorithm design for **object detection** on images made from LIDAR data.
- 04/10 - 06/10 **Internship** [Sheffield Hallam University, UK](#)
 - Rehabilitation of a Surface Plasmon Resonance bench, use of an ellipsometer and a spectrophotometer **UV/Visible**.

Contact

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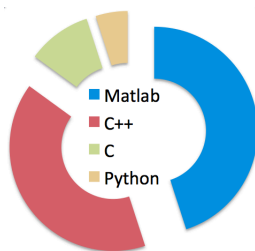
Skills

Image processing
LWIR
Cameras Jetson TK1
MWIR GPU Matlab
Object detection
Linux C Qt
OpenCV 3D
Stabilization
C++ Jetson TK1
Research Features
SWIR Tracking
Computer vision

Languages

French ★★★★★
English ★★★★★
German ★★★☆☆

Programming



Address

19 chemin de la Resse
26200, Montélimar,
France

Hobbies

Hockey, Squash,
Historical novels,
Tech., TV-shows

Education

- 2013 - 2016 **PhD. in Image, Signal, Vision** [Université Jean Monnet, France](#)
 - French DoD grant recipient. Main subjects: **Moving object detection, Tracking**, Image processing, UAV navigation.
 - Title of Thesis: "Development of embedded image processing for low-altitude surveillance UAVs to assist operators in their mission".
 - Thesis supervisors: *Prof. Alain Trémeau, Dr. Hubert Konik, Dr. Eric Dinet*.
- 2010 - 2013 **MSc. in Optics and Computer Vision** [TELECOM St-Etienne, France](#)
 - Dual studies, 50% in school and 50% in the company (Survey Copter).
 - Main subjects: Optics, Computer science, **Image processing, Computer vision**. Link to *projects page*. Relator: *Dr. Hubert Konik*
- 2008 - 2010 **HND Measurements and Instrumentation** [IUT de Rouen, France](#)
 - Main subjects: Optics, Physics, Programming, Electronics, Mechanics.

Publications

T. Castelli, A. Tremeau, H. Konik, and E. Dinet, **Moving Object Detection for Unconstrained Low-Altitude Aerial Videos, a Pose-Independent Detector Based on Artificial Flow**, ISPA 2015, doi:10.1109/ISPA.2015.7306030

T. Castelli, A. Sharghi, D. Harper, A. Tremeau, M. Shah, **Autonomous navigation for low-altitude UAVs in urban areas**, arXiv 2016, 1602.08141

Miscellaneous

Ice hockey player, 2001 to 2010 in France, Switzerland, Canada, USA. Team France U20.