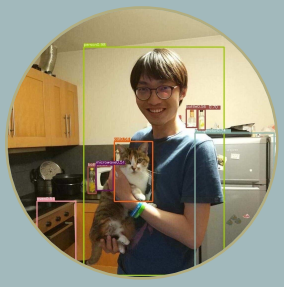

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PhD student

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ABOUT ME

I am a final year PhD student in IRISA/INRIA Rennes laboratory and University of Rennes 1. I am working under the supervision of Prof. Elisa FROMONT and Prof. Sébastien LEFEVRE. In the same time, I work as a Deep learning R&D Engineer at ATERMES in Paris. My current research interest is deep learning for **object detection**, **multi-sensor fusion**, **active learning** and **knowledge distillation**.

WORK EXPERIENCE

Deep Learning R&D Engineer
ATERMES | Paris, France | Dec. 2018 - ??
- Built Deep Learning models for accurate object detection (car, pedestrian, etc) at long distance (>1.5km).
- Adaptively fusing information from multiple sensors (e.g., thermal camera & visible camera) to improve the detection precision.
- Accelerate CNN model's inference speed for efficient DL integration under embedded constraints.

Training contract (one year)
Hubert Curien laboratory | Saint-Etienne, France | Sep. 2017 - Oct. 2018
- Implement different deep learning models (Faster RCNN, SSD, YOLO, RetinaNet) for face/person detection in public transport.
- Proposed efficient video object detection methods for video surveillance applications.

EDUCATION

Ph.D. student in Deep Learning and Computer Vision
University of Rennes 1 | Rennes, France | Dec. 2018 - ??
- Subject: Multispectral object detection.
- Industrial research training program, in cooperation with ATERMES company.

Engineer's degree (equivalent to a master's degree)
Télécom Saint-Etienne | Saint-Etienne, France | Sep. 2015 - Oct. 2018
- Major: Computer Science and Computer Vision
- One-year professional training contract with Hubert Curien laboratory.

Bachelor's degree
Xidian University | Xi'an, China | Sep. 2012 - Jun. 2016
- Major: Electronic Engineering

PUBLICATIONS

"Low-cost Multispectral Scene Analysis with Modality Distillation", in *WACV 2022*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Multispectral Scene Analysis, Thermal Sensor, Knwoledge Distillation*

[PDF] [Poster]

"PDF-Distil: Including Prediction Disagreements in Feature-based Knowledge Distillation for Object Detection", in *BMVC 2021*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Object Detection, Knwoledge Distillation, Model Compression*

[PDF] [Code] [Slides] GitHub stars

"Deep Active Learning from Multispectral Data Through Cross-Modality Prediction Inconsistency", in *ICIP 2021*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Multispectral Scene Analysis, Active Learning*

[PDF] [Video] [Poster]

"Guided Attentive Feature Fusion for Multispectral Pedestrian Detection", in *WACV 2021*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Multispectral Object Detection, Attentive Fusion, Multi-sensor Fusion*

[PDF] [Results] [Video] [Demo] GitHub stars

"Localize to Classify and Classify to Localize: Mutual Guidance in Object Detection", in *ACCV 2020*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Object Detection, Label Assignment, Anchor Matching*

[PDF] [Code] [Video] [Demo1] [Demo2] GitHub stars

"Multispectral Fusion for object detection with Cyclic Fuse-and-Refine blocks", in *ICIP 2020*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Multispectral Object Detection, Cyclic Fusion, Multi-sensor Fusion*

[PDF] [Results] [Video] [Demo] GitHub stars

"Méthodes de Fusion pour la Détection Multispectrale par Réseaux de Neurones Profonds", in *RFIAP 2020*
Heng Zhang, Elisa FROMONT, Sébastien LEFEVRE, Bruno AVIGNON
- *Keywords: Multispectral Object Detection, Multi-sensor Fusion*

[PDF] [Video]

"Improving video object detection by Seq-Bbox Matching", in *VISAPP 2018*
Hatem Belhassen, **Heng Zhang**, Virginie Fresse, El-Bay Bourennane
- *Keywords: Video Object Detection, Bounding Box Association*

[PDF] [Demo] GitHub stars