

# Michaël Ramamonjisoa

## PHD STUDENT IN COMPUTER VISION AND DEEP LEARNING

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| 📱 MichaelRamamonjisoa

## Education

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### Ecole Normale Supérieure Paris-Saclay

*Paris area, France*

#### MASTER'S DEGREE - MATHÉMATIQUES VISION APPRENTISSAGE (MVA)

2017 – 2018

- **3D Computer Vision** (R. Marlet, P. Monasse, M. Aubry); **Audio signal Analysis, Indexing and Transformations** (R. Badeau, G. Richard); **Introduction to Digital Imaging** (J. Delon, Y. Gousseau); **Object Recognition and Computer Vision** (I. Laptev, J. Ponce, C. Schmid, J. Sivic); **Speech and Language Processing** (E. Dupoux, B. Sagot, N. Zeghidour);
- **High Dimension Statistical Learning** (S. Mallat); **Convex Optimization** (A. D'Aspremont); **Deep Learning** (V. Lepetit); **Kernel Methods for machine learning** (J. Mairal, J-P. Vert); **Probabilistic Graphical Models** (F. Bach, G. Obozinski); **Unsupervised Learning** (R. Vidal)

**Unsupervised Learning:** Low Rank Matrix Completion, Face Clustering (Matlab)

#### Projects:

**Object Recognition and Computer Vision:** Training CNNs using synthetic images of people (Torch, Python, Blender)

**Introduction to Digital Imaging:** Texture Synthesis using CNNs (Caffe, Python)

### Imperial College London

*London, United Kingdom*

#### MSC OPTICS AND PHOTONICS

2013 – 2014

- Double degree in engineering with IOGS
- **Optics, Photonics, Information theory, Biophotonics**

### Institut d'Optique Graduate School Paristech (IOGS)

*Paris area, France*

#### GRANDE ÉCOLE - 3RD YEAR ABROAD

2011 – 2014

- Engineering Diploma
- **Optics, Signal and image processing, Electronics, Physics**

## Professional experience

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### IMAGINE team- Ecole des Ponts/LIGM

*Paris area, France*

#### PHD STUDENT

Oct. 2018 – present

Disentangling for Scene Understanding from Images – **Supervisor: Prof. Vincent Lepetit**

- 3D Geometry Estimation, Scene Understanding, 3D Pose Estimation

### Facebook

*Zurich, Switzerland*

#### RESEARCH INTERN

Aug. – Dec. 2021

Research in Computer Vision and Deep Learning

### Niantic

*London, United Kingdom*

#### RESEARCH INTERN

Jul. – Nov. 2020

Research in Computer Vision and Deep Learning

### Prophesee (formerly Chronocam)

*Paris, France*

#### RESEARCH INTERN

Apr. – Sept. 2018

Double Frequency Tracking Using Event-Based Cameras

### HGH Systèmes Infrarouges

*Paris area, France*

#### PROJECT ENGINEER

Jan. 2015 – Sept. 2017

- Manager of the infrared testing software (Infratest) of HGH: designed signal and image processing algorithms for optronics systems

### Thalès Research & Technology

*Paris area, France*

#### INTERN

June – Nov. 2014

Optical Design of a Lidar; signal processing for imaging on Matlab

### ONERA (The French Aerospace Lab)

*Paris area, France*

#### INTERN

May – July 2013

Designed a 3D-model of an urban area using Cinema 4D, then tested ONERA's Radar imaging algorithms on the 3D model

## Publications

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- M. Ramamonjisoa, M. Firman, J. Watson, V. Lepetit, D. Turmukhambetov, **Single Image Depth Prediction with Wavelet Decomposition**, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021
- M. Ramamonjisoa<sup>†</sup>, Y. Du<sup>†</sup>, V. Lepetit, **Predicting Sharp and Accurate Occlusion Boundaries in Monocular Depth Estimation Using Displacement Fields**, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020
- M. Ramamonjisoa, V. Lepetit, **SharpNet: Fast and Accurate Recovery of Occluding Contours in Monocular Depth Estimation**, *The IEEE International Conference on Computer Vision (ICCV) Workshops*, 2019
- G. Pitteri<sup>†</sup>, M. Ramamonjisoa<sup>†</sup>, V. Lepetit, **On Object Symmetries and 6D Pose Estimation from Images**, *2019 International Conference on 3D Vision (3DV)*, 2019 <sup>†</sup> denotes equal contribution
- C. Barrat, T. Lepot, M. Ramamonjisoa, S. Fradcourt, **Extension to NIR and visible ranges of high-resolution relative spectral response measurement using Fourier Transform Infrared Spectrometer (FTIR) of CMOS FPAs**, *Proc. SPIE 10433*, Electro-Optical and Infrared Systems: Technology and Applications XIV, 1043316 (6 October 2017); doi: 10.1117/12.2278301
- C. Barrat, T. Lepot, M. Ramamonjisoa, S. Fradcourt, **A practical implementation of high resolution relative spectral response measurement of CMOS IRFPAs using Fourier Transform Infrared Spectrometer (FTIR)**, *Proc. SPIE 9987*, Electro-Optical and Infrared Systems: Technology and Applications XIII, 99870V (21 October 2016); doi: 10.1117/12.2242014

## Teaching

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- **Computer Vision**, 1st year of Master practical sessions, Ecole des Ponts Paristech
- **Numerical Methods**, 1st year of Master practical sessions, Institut d'Optique Graduate School
- **Artificial Intelligence**, 1st year of Master practical sessions, Université de Bordeaux
- **Deep Learning**, 1st year of Master practical sessions, Bordeaux INP

## Relevant skills

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- **Computer skills**: Python, C++, Matlab, Pytorch, Keras, Tensorflow, Unix shell, Cinema 4D, Blender, SolidWorks, LaTeX
- **Languages**: French (native); English (fluent, TOEFL 108/120); Spanish (conversational); Malagasy (basic skills); Mandarin (basic skills)