Michaël **Ramamonjisoa**

PHD STUDENT IN COMPUTER VISION AND DEEP LEARNING

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Education

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)

Projects:
- **Unsupervised Learning**: Low Rank Matrix Completion, Face Clustering (Matlab)
- **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 Diploma in Engineering with IOGS
- **Optics**, **Photonics**, **Information theory**, **Biophotonics**

Institut d'Optique Graduate School Paristech (IOGS) *Paris area, France*
GRANDE ECOLE - 3RD YEAR ABROAD *2011 – 2014*

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

Professional experience

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

Meta – Reality Labs *Zurich, Switzerland*
RESEARCH INTERN *Aug. – Dec*
Research in Computer Vision and Deep Learning

Niantic *London, United Kingdom*
RESEARCH INTERN *Jul. – Nov. 2020*
Research in Computer Vision and Deep Learning – led to an accepted paper at CVPR 2021

Prophesee *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

- **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***, Y. Du*, 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*, **M. Ramamonjisoa***, V. Lepetit, **On Object Symmetries and 6D Pose Estimation from Images**, *2019 International Conference on 3D Vision (3DV)*, 2019

- 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

* denotes equal contribution

Teaching

- **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

- **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)