

Looking for a postdoctoral position in Computer Vision

Paris area, France

(+33) 6 62 41 64 80

pierre.jacob@ensea.fr

linkedin.com/in/pierre-jacob

github.com/pierre-jacob

Pierre Jacob

ABOUT ME

I am a PhD student in Computer Vision and Deep Learning at CY Paris University. My research interests include computer vision and deep learning. Specifically, I work on high-order representations, dictionary learning and attention-based approaches in deep metric learning.

OBJECTIVES

I am looking for a postdoctoral research position to tackle metric learning oriented tasks using supervised or unsupervised learning. Especially, I would like to focus on dictionary learning, manifold-based approaches, sparse representation or high-order representations. I may also consider to work on few/one/zero-shot learning, domain adaptation, transfer learning but also certifiable or explainable AI for computer vision tasks.

LANGUAGES

French	Native speaker
English	Proficient (TOEIC 830)

PROGRAMMING LANGUAGES AND FRAMEWORKS

Python	<div><div></div></div>
Tensorflow	<div><div></div></div>
Keras	<div><div></div></div>
Matlab	<div><div></div></div>
Java - C#	<div><div></div></div>
C	<div><div></div></div>

EDUCATION

Sept. 2020 -
Mar. 2017
(Paris area,
France)

PhD at CY Paris University

- Title: "High-order statistics for representation learning"
- Supervisors: David Picard, Aymeric Histace and Edouard Klein
- Fine-grained image analysis (bilinear pooling, higher-order pooling, dictionary learning)
- Deep metric learning (example generation with GANs, regularization methods, attention models)

Sept. 2016 -
Sept. 2015
(Paris area,
France)

MSc at Cergy-Pontoise University

- MSc in Computer Science with honors
- Major specialization in "Artificial Intelligence and Robotics"
- Minor in image processing

Sept. 2016 -
Sept. 2013
(Paris area,
France)

MSc at ENSEA School of Engineering

- A three-year program in a French engineering graduate school
- Graduated with high honors
- Fields of study: telecommunication – electrical – electronics – computer science engineering
- Specialization in "Electronics and Embedded Systems"

WORK HISTORY

Sept. 2016 -
Apr. 2016
(Angers area,
France)

Limagrain Group R&D intern

- Automatic seed classification and disease detection using machine learning and multispectral imaging
- Gaussian mixture models, neural networks, linear discriminant analysis
- Real-time implementation using Matlab and C# (more than 5 seeds per second)

Aug. 2015 -
July 2015
(Paris area,
France)

Cergy-Pontoise University Research engineer intern

- 3D-printed hand design and control for bio-inspired robotic
- 3D design modification and hardware + software development

INTERESTS

Personal projects

- Keras backend for deep learning inference for System-on-Chip with FPGA accelerator
- Supervision of student projects in computer vision (application to mimic the Terminator vision, airsoft helmet with AR, ...)

TEACHING

Sept. 2020 -
Sept. 2018
(Paris area,
France)

Part-time professor in Pattern Recognition at EISTI School of Engineering

- Responsible for teaching an introduction course concerning pattern recognition (28h per year)
- Machine learning algorithms (SVM, LDA, GMM, regression, among others), feature matching and aggregation (BoVW, VLAD), deep learning
- Python toolkits: scikit-learn/image, numpy, tensorflow, keras

Sept. 2020 -
Sept. 2017
(Paris area,
France)

Part-time professor in Computer Science at ENSEA School of Engineering

- Practical work supervisor for a Kernel programming course: Shell and FTP development in C (16h per year)
- Responsible for teaching the course "Artificial Intelligence for Optimal Control" (16h per year)

MAIN PUBLICATIONS

[1] **Pierre Jacob**, David Picard, Aymeric Histace and Edouard Klein. "Improving Deep Metric Learning with Virtual Classes and Examples Mining". In submission.

[2] **Pierre Jacob**, David Picard, Aymeric Histace and Edouard Klein. "DIABLO: Dictionary-based Attention Block for Deep Metric Learning". In submission.

[3] **Pierre Jacob**, David Picard, Aymeric Histace and Edouard Klein. "Metric Learning with HORDE: High-Order Regularizer for Deep Embeddings". In IEEE International Conference on Computer Vision (**ICCV**), 2019.

[4] **Pierre Jacob**, David Picard, Aymeric Histace and Edouard Klein. "Efficient Codebook and Factorization for Second Order Representation Learning". In IEEE International Conference on Image Processing (**ICIP**), 2019.

[5] Gaetan Raynaud, Camille Simon Chane, **Pierre Jacob**, Aymeric Histace. "Active Contour Segmentation based on Histograms and Dictionary Learning for Video-capsule Image Analysis". In International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, 2019.

[6] Romain Leenhardt, Pauline Vasseur, ..., **Pierre Jacob**, Camille Simon Chane, Olivier Romain. "A neural network algorithm for detection of GI angiectasia during small-bowel capsule endoscopy". In Gastrointestinal endoscopy, 2019.

[7] Marc Souchaud, **Pierre Jacob**, Camille Simon Chane, Aymeric Histace, Olivier Romain. "Mobile Phones Hematophagous Diptera Surveillance in the field using Deep Learning and Wing Interference Patterns". In IFIP/IEEE International Conference on Very Large-Scale Integration, 2018.

[8] **Pierre Jacob**, David Picard, Aymeric Histace and Edouard Klein. "Leveraging Implicit Spatial Information in Global Features for Image Retrieval". In IEEE International Conference on Image Processing (**ICIP**), 2018.