

Prof. Aymeric Histace's CV

(Short Version)

A. General Information

Last Name: HISTACE	First Name : Aymeric
Date of Birth: 04/09/1977	
Position: Full Professor (Professeur des Universités 1re classe)	
Where: ENSEA (Graduated School of Engineering in Electronics and its Applications), Cergy, France	
Expertise: Computer Vision, Machine Learning, Signal/Image Processing, Application to Computer-Aided Diagnosis	
Laboratory: ETIS UMR 8051 (CYU, ENSEA, CNRS)	
Contact: aymeric.histace@ensea.fr, +33 1 32 72 62 36	
URL: aymeric.histace.free.fr, scholar web page	
Current administrative responsibilities: ENSEA Deputy Director (since 2018), ENSEA Head of Research, Innovation and Partnerships (since 2017), Head of CELL Team of ETIS lab (since 2017).	
Other activities: Co-funder of "Augmented Endoscopy" Start-up (07/2019)	

B. Diploma and Career

Since Sept 2015	Full Professor in Computer Vision (PR1 since sept. 2022) <u>Laboratory:</u> ETIS UMR CNRS 8051 <u>Teaching:</u> ENSEA (School of Engineering), Electronics and Physics dpt.
28 November 2014	« Habilitation à Diriger des Recherches » : 'Contributions to Image Processing in the Perspective of Medical Image Analysis : From CAD to in Situ Diagnosis'
Sept 2006 – (Aug 2015)	Associate Professor in Computer Vision <u>Laboratory:</u> ETIS UMR CNRS 8051, ICI team (Information Communication, Imagery) <u>Teaching:</u> Institute of Technology of Cergy-Pontoise, Electrical Engineering/Electronics/Industrial Informatics dpt, Cergy-Pontoise, France
Oct 2004 –Aug 2006	Assistant Professor, University d'Angers <u>Laboratory:</u> LARIS (formerly LISA) <u>Teaching:</u> Institute of Technology of Angers, ISTIA (School of Engineering),
19 November 2004	PhD in « Signal and Image Processing» (obtained with « Félicitations du jury » University of Angers
Oct 2001 – Sept 2004	PhD Student "Allocateur ministériel de recherche / Moniteur" <u>Laboratory:</u> LARIS (formerly LISA) <u>Teaching:</u> ISTIA (School of Engineering), University of Angers (L1/L2/L3)
September 2001	MSc Signal and Image in Biology and Medecine, University of Angers, "Mention Bien" School of Engineering Diploma (EIGSI - La Rochelle, France)

B. Research Activities: Summary

Keywords: Variational Approaches in Image Processing, Statistical Learning, Machine Learning, Pattern Recognition, Computer-Aided Diagnosis, Smart Embedded Systems, Health, Security.

Main Contributions:

- **Smart Camera:**
 - **Embedded Computer Vision for unconventional sensors** (with a focus on Event-Based camera)
 - **Embedded Real-Time Computer-Aided Detection of Abnormal Structures** (application to real-time polyp detection in videocolonoscopy and intestinal lesion detection in videocapsule analysis)
- **Deep Learning for image classification and lesion detection**
- **Embedded Real-Time Computer-Aided Analysis of Physiological Signals**
- **Shape-prior Active Contour** (Image segmentation)
- **Statistical Region-Based Active Contour** (Image segmentation)

Focus on 5 recent publications

[1] Loic Jezequel, Ngoc-Son Vu, Jean Beaudet, Aymeric Histace, Efficient Anomaly Detection Using Self-Supervised Multi-Cue Tasks, *IEEE Transactions on Image Processing*, 2023, pp.1-1. online (10.1109/TIP.2022.3231532)

[2] Clara Brémond Martin, Camille Simon Chane, Cedric Clouchoux, Aymeric Histace, AAEGAN Optimization by Purposeful Noise Injection for the Generation of Bright-Field Brain Organoid Images, *IPTA 2022*, Apr 2022, Salzburg, Austria

- [3] Loic Jezequel, Ngoc-Son Vu, Jean Beaudet, Aymeric Histace, Fine-grained Anomaly Detection via Multi-task Self-Supervision, Proceedings of AVSSP 2021, IEEE, Nov 2021, Washington (Virtual), United States
- [4] Pierre Jacob, David Picard, Aymeric Histace, Edouard Klein, "DIABLO: Dictionary-based attention block for deep metric learning", *Pattern Recognition Letters*, Elsevier, 2020, Vol. 135, pages 99-105, (10.1016/j.patrec.2020.03.020)
- [5] Pierre Jacob, David Picard, Aymeric Histace, Edouard Klein, "Metric Learning with HORDE: High-Order Regularizer for Deep Embeddings", *IEEE International Conference on Computer Vision (ICCV)*, Oct 2019, Seoul, South Korea, pp. 6538-6547.

Publications since 2006 :

Full list available at aymeric.histace.free.fr or on HAL

International + National journal Papers	Patents	International + National Conferences	Book, Book Chapters, Proceedings Editor	Invited Talks
33+1	5	82+16	2+4+1	12 (including 1 Winter School)

Supervising

- **7 Defended PhD:** *Dr Leila Meziou* (2010-28/11/2013, 70%), Active contour segmentation based on alpha-divergence optimization, *Dr Clément Fouquet* (2011-13/06/14, 50%), Computer-Assisted detection of oil pipe abnormalities using ultrasonix images, *Dr Quentin Angermann* (01/10/2014-19/07/2017, 50%), Computer-Vision and Embedded Systems for Videocolonoscopy, *Dr Alejandro Von Chong* (01/10/2015- 16/07/2019, 50%), Smart Embedded Systems for Implanted Oxymetry, *Dr Edwin De Roux* (01/10/2015- 12/07/2019, 50%), Smart Embedded Systems for in situ monitoring of Fibrosis phenomenon in implantable systems, *Dr Pierre Jacob* (01/12/2016- 2020, 33%), Automatic Retrieval of Sensitive Data with low resources equipment in the context of Police Enquiries). *Dr Abdul Karim Gizzini (Janv 2019-Dec 2021)*, Deep Learning for application to channel estimation in High Velocity Telecommunication, *Dr Victor Besnier (Sept 19 – Nov 22)*, Deep Learning for safety in autonomous vehicle.
- **5 ongoing supervising:** *Romain Leenhardt* (01/10/2019- , 50%), Computer-Aided Diagnosis for Classification and lesion Detection of videocapsule images, *Clara Brémont* (2020- , 30%), Deep Learning approaches for Organoid images analysis, *Loïc Jezequel* (2020- , 30%), Deep Learning for DeepFake detection in Security application. *Laure ACIN* (2021 - , 50%) Machine Learning for Event-Based Camera, *Antoine Montmaur* (2022- , 30%), *DeepFake Learning for Face recognition*.
- **3 Post-Docs:** *Dr Ozgun Yilmaz* (01/09/2019-may 2022, 50%), *Machine Learning for Event-Based Camera*, *Dr Mehdi Terosiet* (01/09/2014-01/2018, Embedded Electronics for Smart Computer-Aided Diagnosis Systems 50%), *Dr Maroua Hammami* (01/12/2016-30/11/2017, Real-Time Automatic Polyp Detection in Videocolonoscopy, 50%).

National and International Expertise

- **2019-2022:** Member and Vice President (2021 and 2022) of the "Comité d'expertise 45" at French ANR (Mathématiques et sciences du numérique pour la biologie et la santé)
- **2017-2019:** Member of the Scientific Committee of "Initiative d'Excellence" University Paris-Seine (Lauréat i-Site 2017)
- **2016:** Scientific Expert for the Dutch Research Council
- **2016:** Scientific Expert for the "African Center of Excellence in Communication and Information Technologies" (CETIC)
- **2016:** Scientific Expert for PEPS grant proposal ("First Grant for Exploratory Projects") of CNRS/University Paris-Est
- **2015:** External Reviewer for French ANR (National Research Agency)

Awards and others

- **2022 :** National *iLab award* for Augmented Endoscopy Start-up
- **2017 and 2021 :** PEDR after national evaluation of the CNU
- **2018:** "Most Innovative Project for Health Application" of the 15th APInnov Day for the CAP-CAD project.
- **2017-2021:** Obtaining of the «**Prime d'Encadrement doctorale et de Recherche**» (after national expertise recommendations)
- **2015:** "**Visiting Professor**" Honorary Title from University of Central Lancashire
- **2013-2017:** Obtaining of the «**Prime d'Excellence Scientifique**» (after national expertise recommendations)
- **2012:** "**Best Student Paper Award**" (**Leila Meziou's PhD**) "*Fractional Entropy Based Active Contour Segmentation of Cell Nuclei in Actin-Tagged Confocal Microscopy Images*", Proceedings of the 16th BMVA-Medical Image Understanding and Analysis Conference (MIUA), Swansea (UK), July 2012, pp. 117-123.