– Olivier LALIGANT, Prof. – Brief CV –

olivier.laligant@u-bourgogne.fr

- Born in France
- Full Professor at the University of Burgundy
- Research with ImViA Lab (Computer vision)
- Main research interests : edge detection, noise estimation
- Address: IUT, Campus, 71200 Le Creusot, France

Education

- Habilitation à Diriger les Recherches, 2004.
  Jury: MM A. Baskurt (R), Ph. Bolon (R), A. Diou, J.C. Pesquet (R), F. Truchetet, (M. Unser (R)).
- PhD Thesis, 1995, Univ. of Burgundy
- Master in Robotics, 1992, Pierre et Marie Curie University, Paris VI

Service

- Deputy director of the ImViA Lab, 2023 - ...
- Mission board member of the Forthem Alliance, 2022 - ...
- Coordinator of the Bachelor *Hydraylic design and Maintenance*, 2024 - ...
- Head of the Campus des Métiers et Qualification *Industrie Technologique Innovante et Performante* (CMQ ITIP – growing interaction network between education-research and economy), Sep. 2017 – Dec. 2022
- Head of the Institute of Technology (100 employees, 700 students), Le Creusot, Jan. 2015 – Dec. 2019
- Co-director of the Doctoral School SPIM (Sciences for engineers – 450 PhD students), Jan 2012 - Déc. 2014
- Head of the department "Measures in Physics" (associate degree – 10 permanent teachers and 120 students), Institute of Technology, 2004-2007
- Creation of several training programs (two national diplomas), 2007, 2016 and 2019

Teaching

- "Signal Processing", "Image Processing", "Applied Mathematics", Engineering School ESIREM since 2021
- " Fundamental Mathematics" and "Computer Science", *Hydraylic design and Maintenance*, since 2024
- "Signal Processing", "Image Processing", "Scene Segmentation", Master in Computer Science and Computer Vision, since 2002

Awards and Achievements

- New university curricula with innovative pedagogy (#ICI curicula and Bachelor Smart Innovative Project, 2016–2023)
- European project Inclusive Digital Learning (KA220-HED - Coop. partner. in higher educ.) with Finland, Germany, Bulgaria, Italy, Rumania, Slovenia. 400k€, 2022-24.
- Higher Education Minister's National award (international jury) in innovative pedagogy (PEPS 2018) for #ICI and regional award for the Bachelor SIP
- National label of *excellence* (2020 and 2022) for the CMQ ITIP (see Service)
- National grant (2M€) for an innovative project (VRAI : International learner-resource village) in pedagogy and strong interactions between education-research and economy (2020)

- Book "L'écolier qui rêvait", Ed. Omaël MAYOR, 2025 — Doc. *The story of an 8-year experiment at the IUT Le Creusot of the University of Burgundy*, 2025

Some research activities

- *Invited speaker* 5th International Conference on Computational Harmonic Analysis, Nashville, TN, USA, Mai 2014.
- Co-chairman of the conferences colloque *Wavelet applications in industrial processing*, SPIE, USA, 2004 to 2009
- "Reviewer" pour *Optical Engineering*, *Electronic Imaging*, *IEEE Medical Imaging*, *IEEE Image Processing*, *IEEE Signal Processing*, *EURASIP*, ...

Applications

- Technology Transfer contracts with companies – Usinor (2002): image segmentation, SEB (2014) : signal processing for 1D sensors, HOLDING CASSIER SAS 58340 Cercy-la-Tour (2017) : image processing for visual inspection of tires.
- CNRS education "Advanced tools for industrial vision"
- CIFRE PhD Theses (companies Alitheon Lyon, MSC-SGCC Lyon)

Patent

- FR1358355 - Méthode et dispositif de détermination de la position et de l'orientation d'une surface spéculaire formant un dioptre – Drouet F., Leconte M. (MSC-SGCC), Colle O. (MSC-SGCC), Laligant O., Aubreton O., Stolz C. (2014).

Some publications in journals

1. H. A. Khan, J.-B. Thomas, J. Y. Hardeberg, O. Laligant. "Multispectral camera as spatio-spectrophotometer under uncontrolled illumination", Optics Express, Optical Society of America, 27 (2), pp.1051-1070, 2019.
2. H.A. Khan, J.B. Thomas, J.Y. Hardeberg, O. Laligant, "Illuminant estimation in multispectral imaging", JOSA A 34 (7), 1085-1098, 2017
3. Q. Lu, E. Fauvet, A. Zakharova, O. Laligant, "Entire reflective object surface structure understanding based on reflection motion estimation", Pattern Recognition Letters, Volume 68, pp. 176-182, Part 1, 15 December 2015.
4. F. Drouet, C. Stolz, O. Laligant, and O. Aubreton, " 3D reconstruction of external and internal surfaces of transparent objects from polarization state of highlights", *Optics Letters*, Vol. 39, No. 11, June 1, 2014
5. O. Laligant, F. Truchetet, E. Fauvet. "Noise Estimation From Digital Step-Model Signal", IEEE Trans. Image Processing, vol. 22, no.12, pp.5158–5167, Dec. 2013.
6. B. Jalil, E. Fauvet, O. Laligant, "Signal Restoration via a Splitting Approach", EURASIP Journal on Advances in Signal Processing, 2012:38. Constant Signal", Optical Engineering. Vol. 50, No. 11, 2011.
7. I. Lertrusdachakul, Y. Fougerolle, O. Laligant, "Dynamic (de)-focused projection for three dimensional reconstruction", Optical Engineering 50, 11 (2011) 113201.
8. O. Laligant, F. Truchetet, "A nonlinear derivative scheme applied to edge detection", IEEE PAMI, vol. 32, no. 2, pp. 242-257, Feb. 2010.
9. O. Laligant et *al.* "Regularization preserving localization of close edges". IEEE Signal Processing Letters, Mars 2007
10. F. Truchetet, O. Laligant, "Optical tomography from focus", Optics Express, 15 (12), pp. 7381-7392, June 2007