Nicolas Ducros

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Positions

2025–Present	**Full Professor**, *INSA-Lyon Biomedical Imaging Laboratory CREATIS*, (Lyon, France)
2014–2024	**Associate Professor**, *INSA-Lyon Biomedical Imaging Laboratory CREATIS*, (Lyon, France)
2013	**Researcher**, *CEA Tech, Leti Healthcare Department (Grenoble, France)* Material decomposition in spectral X-ray imaging
2010–2012	**Postdoctoral Fellow**, *Politecnico di Milano, Department of Physics (Milan, Italy)* Diffuse optical tomography (joint work with SR Arridge, University College London, UK)
2007–2009	**PhD student**, *CEA Tech, Leti Healthcare Department (Grenoble, France)* Diffuse optical tomography, time-resolved measurements, diffusion equations.
2007–2008 (7 months)	**Visiting PhD student**, *ÉPFL Biomedical Imaging Group (Lausanne, Switzerland)* Exponential splines (under the supervision of M. Unser)
2005 (3 months)	**MSc student**, *Imperial College, Bioengineering Department (London, UK)* Pattern recognition, AC voltammetry.

Fellowships and Awards

2023–2027	**Academic Institute of France (IUF)**, *Junior Member*, (∼top 1%)
2021–2024	**University Bonus for Scientific Excellence**, *PEDR*, Ranked A (∼top 10%)
2017–2020	**University Bonus for Scientific Excellence**, *PEDR*, Ranked B (∼top 20%)
2010	**Best PhD thesis in Biomedical Engineering**, *Award from the French Section of IEEE EMBS, GdR Stic-Santé, and the* Société Française de Génie Biologique et Médical *(SFGBM)*
2008	**PhD Scholarship**, *Explora doc program from the Rhône-Alpes region* Funded a seven-month project at EPFL (Lausanne, Switzerland)

Education

2007–2009	**PhD in Signal and Image Processing**, *Université Claude Bernard, Lyon I* *PhD committee* : E. Perrin (Chairman), L. Blanc-Ferraud (Reviewer), R. Carminati (Reviewer), A. da Silva, J.-M. Dinten, F. Peyrin and M. Unser
2005-2006	**MSc in Medical Imaging**, *University of Strasbourg*, (Strasbourg, France)

2004-2006 **MSc in Electrical Engineering**, *Télécom Physique Strasbourg*, (Strasbourg, France)
French Engineering school

Research funding

- *Principal Investigator*

2023–2026 **ULHYB**, *Collaborative Project, ANR €400k, 2 partners*, (acceptance rate <15%)

2020–2022 **CSPIM**, *Call for PhD grant, Labex Primes, €110k*

2019–2022 **ARMONI**, *Young Researchers, ANR €290k*, (acceptance rate <15%)

2019–2022 **Monopix+**, *Call for innovative instrumentation, CNRS €15k*

2017–2020 **MatDecSCT**, *Call for PhD grant, Labex Primes, €110k*

2014–2017 **CSPix**, *UFI-Vinci chapitre III, €100k*, (acceptance rate <5%)

- *Co-applicant/Involvement*

2016–2018 **H2020 Project**, *SPCCT €6.1M, 11 partners*

2014–2015 **ANR Project**, *Spepix €600k, 4 partners*

2013 **FP7 Project**, *Quicom €5M, 12 partners*

Editorial activities and involvement in scientific meetings

2024–present **Co-Chair of the JIONC**[*]

2021–2023 **Member of the Program Committee of the JIONC**[*]

2022–2023 **Full Member of the IEEE BISP[‡] technical committee**

2019–2021 **Associate Member of the IEEE BISP[‡] technical committee**

2021 **Member of the Organization Committee of IEEE ISBI[†] 2021**, *(Student liaison)*

2010–Present **Reviewer of journal papers**
Biomedical Optics Express, Biomedical Physics and Engineering Express, IEEE Transactions on Computational Imaging, IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, IEEE Transactions on Radiation and Plasma Medical Sciences, Nature Communications, Optics Express, Optics Letters, Medical Physics, Physics in Medicine and Biology.

2010–Present **Reviewer of conference proceedings**
European Signal Processing Conference (EUSIPCO), Colloque francophone de traitement du signal et des images (GRETSI), IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), IEEE International Symposium on Biomedical Imaging (ISBI).

Participation to PhD committees

Nov, 2025 **Reviewer**, *LMBA, Université de Bretagne Sud*
Corentin Vazia. *Diffusion models for image reconstruction and material decomposition in spectral computed tomography.*

Sep, 2025 **Reviewer**, *LARIS, Université d'Angers*
Valentin Gilet. *Smart scanning for Raman microscopy.*

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[*]JIONC ('Journées Imagerie Optique Non Conventionnelle') is an annual workshop dedicated to unconventional optics research. This is the major event in France on this topic with 100+ participants.

[†]ISBI (International Symposium on Biomedical Imaging) is a leading international conference dedicated to biomedical imaging. ∼1,000 participants. Acceptance rate ∼ 30%

[‡]BISP (Bio Imaging and Signal Processing). The purpose of the BISP technical committee is to promote activities within the broad technical field of biomedical image and signal processing. BISP technical committee Members are nominated by their peers and are actively involved in awards, conferences, publications, and educational activities.

Nov, 2024	**Examiner**, *Fresnel Institute, Aix-Marseille Université*
	Guillaume Giroussens. *3D Random Illumination Microscopy for fluorescence microscopy*. Link.
Mar, 2024	**Examiner**, *CPPM, Aix-Marseille Université*
	Floriane Cannet. *Deep learning for photon-counting spectral CT and treatment design in mouse models of liver cancer*. Link.
May, 2023	**Reviewer**, *ÉPFL*
	François Marelli. *Practical computational imaging by use of spatiotemporal light modulation: from simulations to applications in biological microscopy*. Link.
May, 2021	**Reviewer**, *Department of Physics, Politecnico di Milano*
	Gianmaria Calisesi, *Compressive sensing in light sheet fluorescence microscopy*. Link.

Supervision of PhD students

2024–2026	**Séréna Hariga**, *Co-supervisor (50%, with J. Cohen 50%)*
	Joint reconstruction and spectral unmixing for medical imaging
2024–2026	**Thomas Maitre**, *Co-supervisor (40%, with E. Bretin 30% and M. Sdika à 30%)*
	Motion compensated reconstruction using deep learning for computational optics.
2020–2022	**Sébastien Crombez**, *Co-supervisor (50%)*
	Hyperspectral compressive light-sheet microscopy by deep convolutional neural networks
	PhD Committee: N. Ducros, University of Lyon; C. Dujardin, University of Lyon; C. Fournier Corinne, University of St Etienne; M. Liebling, Idiap, Switzerland (Reviewer); C. Ray, University of Lyon; F. Ruggiero, CNRS; A. Sentenac, CNRS (Reviewer); W. Supatto, CNRS.
2019–2021	**Suzanne Bussot**, *Co-supervisor (30%)*
	Deep-learning-based algorithms for spectral CT
	PhD Committee: Y. Boursier, Aix/Marseille University; C. Chappard, INSERM; P. Douek, Lyon Civil Hospitals (Chairman); N. Ducros, University of Lyon; F. Peyrin, INSERM; T. Rodet, ENS Cachan (Reviewer); D. Visvikis, INSERM, (Reviewer).
2019–2021	**Antonio Lorente Mur**, *Main supervisor (60%)*
	Single-pixel imaging: compressed video acquisition and reconstruction using deep learning.
	PhD Committee: S. Arridge, University College London (Reviewer); T. Blu, (Chinese University of Hong Kong), N. Ducros, University of Lyon; S. Gigan, Sorbonne University (Chairman); J.-F. Giovannelli, University of Bordeaux (Reviewer); F. Peyrin, INSERM.
2020 (3 months)	**Valeriya Pronina**, *(visiting student from Skoltech, Moscow, Russia)*
	Deep learning for hyperspectral image reconstruction
2017–2019	**Tom Hohweiller**, *Co-supervisor (50%)*
	Nonlinear material decomposition methods for spectral CT.
	PhD Committee: L Desbat, Université Grenoble Alpes (Chairman); N. Ducros, INSA-Lyon; C. Fournier, CEA LETI; C. Morel, Aix-Marseille Université (Reviewer); F. Peyrin, INSERM; T. RODET, ENS Cachan (Reviewer); B. Sixou, INSA-Lyon.
2015–2017	**Florian Rousset**, *Main supervisor (60%)*, international joint supervision
	Recipient of the PhD award of the "Amis Université Lyon"
	Single-pixel imaging: from theory to medical applications
	PhD Committee: S. Arridge, University College London (Chairman); R. Baraniuk, University of Rice (Reviewer); C. D'Andrea, Politecnico di Milan; N. Ducros, University of Lyon; F. Peyrin, INSERM; C. Soussen, CentraleSupélec (Reviewer); P. Taroni, Politecnico Milan.

Teaching activities

2023–Present	**Assistant Professor at INSA-Lyon**, *70 hours/year*, Lyon, France
	Embedded system programming, image reconstruction

2014–2022 **Assistant Professor at INSA-Lyon**, *230 hours/year*, Lyon, France
Signals and systems, signal processing, embedded system programming, image reconstruction

2017–Present **Coordinator** of the **embedded system programming course** (100+ 1st year MSc students)

2014–2017 **Coordinator** of the **bioimaging course** (20+ 2nd year MSc students). This module is an introduction to medical imaging (e.g., computerized tomography, magnetic resonance, ultrasound, optical imaging), which involves 24 industrial and academic speakers.