

Nicolas Ducros

Associate Professor, INSA Lyon

University of Lyon, INSA Lyon
CREATIS Laboratory

✉ nicolas.dot'ducros'at'creatis.insa-lyon.fr
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Personal Information

 orcid.org/0000-0002-3996-710X

 publons.com/H-1878-2014

 scholar.google.fr/hWPDrBoAAAAJ

 www.creatis.insa-lyon.fr/~ducros

 My manuscripts can be found [here](#)

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

Current and previous positions

- 2014–Present **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 **Visiting PhD student**, *ÉPFL Biomedical Imaging Group (Lausanne, Switzerland)*
(7 months) Exponential splines (under the supervision of M. Unser)
- 2005 **MSc student**, *Imperial College, Bioengineering Department (London, UK)*
(3 months) 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)

Organisation and involvement in scientific meetings

2022 **Chair of two sessions at JIONC* 2022**, (*Deep Learning I and II*)

2021 **Chair of two sessions at IEEE ISBI† 2021**, (*Student career and 3-Minute Thesis contest*)

2021 **Chair of two sessions at JIONC* 2021**, (*Biomedical Imaging session and Microscopy session*)

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

2020 **Chair of the Computed Tomography session at IEEE ISBI† 2020**

2021–present **Member of the Program Committee of the JIONC***

Editorial activities and membership of scientific societies

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

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

2010–Present **Reviewer of journal papers**

Biomedical Optics Express, Biomedical Physics and Engineering Express, 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).

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**, Spenix €600k, 4 partners

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

*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 >160 participants in 2021.

†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.

Supervision of PhD students

- 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 **Valeriya Pronina**, (*visiting student from Skoltech, Moscow, Russia*)
(3 months) 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

- 2014–Present **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.