Cristina Lois

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Summary

9 years of experience in Biomedical Imaging, covering a wide range of topics from detector development to clinical applications. Broad expertise in PET/CT, PET/MRI, and SPECT, with clinical exposure and technical expertise in image processing and quantification. Proven track record of successful management, innovation, and impact in bioengineering. Proven ability to work in a team environment on multi-disciplinary, international projects, as well as independently.

Professional Experience

Harvard Medical School & Massachusetts General Hospital Boston, MA
Research Fellow in Radiology *Jul. 2015–present*

- Responsible of PET/MR imaging analysis in a clinical study to search for markers of disease and progression in Huntington's Disease.
- Using PET/MR neuroimaging to explore and develop new concepts in healthy and diseased brain function.
- Collaborating with a multi-disciplinary team of radiochemists, neuroscientists, and clinical physicians.

Massachusetts Institute of Technology Cambridge, MA
"M+Vision" Research Fellow in Translational Biomedical Imaging *Jul. 2012–June 2015*

- Intensive training on identifying unmet clinical needs and designing solutions with high translational potential and marketability.
- Conducted interviews with key opinion leaders in oncology, neurology, psychiatry, and radiology.
- Responsible of PET/MR imaging in a clinical study to investigate the biological basis of the placebo effect in depression.
- Built and co-managed an international team of radiochemists, biologists, engineers, and physicians, working on the development of a new PET tracer for early assessment of treatment response in melanoma patients.
- Received $283K in internal grant funding.
- Co-organized and taught a MIT IAP course on Biomedical Imaging.

Hospital Clinic Barcelona Barcelona, Spain
Postdoctoral Research Associate *Jan. 2012– Jun. 2012*

- Evaluated the value of dual-time-point PET for prediction of treatment response in lung cancer patients.

Imaging Science Institute of Tübingen Tübingen, Germany
Visiting Scientist *Feb. 2011– Jul. 2011*

- Analyzed the effect of MRI contrast agents on PET quantification for PET/MRI applications and demonstrated how to avoid potential artifacts that could impact clinical decisions.
- Evaluated artifacts caused by dental implants in PET/CT and PET/MR imaging.
- Worked in a highly collaborative multi-disciplinary team of physicians, MR and PET physicists, and computer engineers.

University of Santiago de Compostela Santiago de Compostela, Spain
"Ángeles Alvariño" Fellow *Dec. 2008–Dec 2011*

- Designed and built an affordable preclinical SPECT system by reusing a clinical gamma-camera.
- Received 60K € in competitive, public grant funding as PI.
- Led a multi-disciplinary team of physicists, nuclear medicine physicians, and mechanical engineers.
- Trained and supervised a graduate student and a postdoc.
- Responsible of designing and teaching one undergraduate laboratory course and two graduate courses.

University of Tennessee Medical Center Knoxville, TN
Postdoctoral Research Associate *Feb. 2007– Jul. 2008*

- Working in collaboration with Siemens, demonstrated the benefits of incorporating time-of-flight information in PET/CT by carrying out a study on a large population of 100 oncology patients.
- Published two highly cited papers, one chosen as cover in *Journal of Nuclear Medicine*.

University of Santiago de Compostela Santiago de Compostela, Spain
Postdoctoral Research Assistant *Sep. 2006–Jan 2007*

- Measured the neutron fluency in a linear accelerator to estimate its contribution to the radiation dose in radiotherapy patients.

University of Zürich Zürich, Switzerland
&
University of Santiago de Compostela Santiago de Compostela, Spain
Research & Teaching Assistant *Sep. 2001–Jun. 2006*

- Contributed to the design and development and carried out performance studies of the silicon microstrip detectors installed in the Silicon Tracker of the LHCb experiment at CERN.
- Trained and supervised undergraduate students.

Education

PhD in Physics, with European Doctorate mention *Oct. 2001 - May 2006*
University of Santiago de Compostela Santiago de Compostela, Spain

MSc in Particle Physics & Non-linear Dynamics *Oct. 2001 - Sep. 2003*
University of Santiago de Compostela Santiago de Compostela, Spain

BSc in Physics *Oct. 1995 - Sept. 2001*
University of Santiago de Compostela Santiago de Compostela, Spain

Leadership service

Chair of the "PET imaging" session at the 2011 IEEE Nuclear Science Symposium and Medical Imaging Conference, Valencia, Spain.

Referee for *Medical Physics*, *Physics in Medicine and Biology*, and *Zeitschrift für Medizinische Physik*.

Management Committee Member to EU COST Action TD1007 for "Bimodal PET-MRI molecular imaging technologies and applications for in vivo monitoring of disease and biological processes".

Grant reviewer for the Instituto de Salud Carlos III (Spain), in the modality of Technological Developments for Health Applications (AES 2015).

Skills

- Imaging techniques: (TOF)-PET/CT, PET/MR, and SPECT.
- Image processing software: FreeSurfer, SPM, PMOD, Amide, and FSL.
- Experience in international, large-scale R&D environments.
- Experience working in multi-disciplinary teams with members from academia, industry, and clinics.
- Principal Investigator in 3 research grants and collaborator in other 11 grants and contracts with industry.
- Authored 60+ scientific publications and delivered 20+ invited talks and conference presentations.
- Radioactive Facilities Supervisor License, Spanish Nuclear Safety Council, 2009.

- Languages: Native Spanish, native Galician, native competence in English, and basic German.

Honors & Awards

M+Vision Advanced Fellowship (declined), Madrid-MIT M+Vision Consortium — *Aug. 2013*

M+Vision Fellowship, Madrid-MIT M+Vision Consortium — *Jul. 2012*
Ranked 2nd among more than 100 applicants.

"Best Oral Presentation in Nuclear Medicine", Spanish Nuclear Society Annual Meeting — *Oct. 2010*

Front cover of the Journal of Nuclear Medicine, Vol. 50 — *Aug. 2009*
Featuring results on "Impact of Time-of-Flight on PET Tumor Detection".

José Castillejo Fellowship, Ministerio de Educación y Ciencia, Spain — *Sep. 2007–Jun. 2008*

Ángeles Alvariño Fellowship, Xunta de Galicia, Spain — *Dec. 2008–Dec. 2011*
Ranked 2nd among more than 200 applicants.

Predoctoral research grants
Universidad de Santiago de Compostela, Spain — *Oct. 2005–May 2006*
Excma. Diputación Provincial de A Coruña, Spain — *Jul. 2003–Jul. 2004*
Excma. Diputación Provincial de A Coruña, Spain — *Jul. 2002–Jul. 2003*

Selected Publications

See also my Google Scholar profile at bit.ly/cloispubs.

- F. D. Popota, P. Aguiar, S. España, **C. Lois**, J. M. Udias, D. Ros, J. Pavia, J. D. Gispert, "Monte Carlo simulations versus experimental measurements in a small animal PET system. A comparison in the NEMA NU 4-2008 framework ", Physics in Medicine and Biology 60 (1), 151 (2015).
- P. Aguiar, J. Silva-Rodriguez, D. M. Gonzalez-Castano, F. Pino, M. Sanchez, M. Herranz, A. Iglesias, **C. Lois**, A. Ruibal, "A portable device for small animal SPECT imaging in clinical gamma-cameras", *JINST* **9** P07004 (2014).
- **C. Lois**, I. Bezrukov, H. Schmidt, N. Schwenzer, M. K. Werner, J. Kupferschlger, T. Beyer "Effect of MR contrast agents on quantitative accuracy of PET in combined whole-body PET/MR imaging", *Eur. J. Nucl. Med.*, **39**, 1756 (2012).
- P. Aguiar and **C. Lois**, "Analytical study of the effect of the system geometry on photon sensitivity and depth of interaction of positron emission mammography", Journal of Oncology (2012).
- **C. Lois**, B. W. Jakoby, M. J. Long, K. F. Hubner, D. W. Barker, M. E. Casey, M. Conti, V. Y. Panin, D. J. Kadrmas, D. W Townsend , "An assessment of the impact of incorporating Time-of-Flight (TOF) into clinical PET/CT imaging", *J. Nucl. Med.*, **51**, 1315 (2010).
- D. J. Kadrmas, M. E. Casey, M. Conti, B. W. Jakoby, **C. Lois**, D. W. Townsend , "Impact of Time-of-Flight on PET Tumor Detection", *J. Nucl. Med.*, **50**, 3104 (2009).
- AA. Alves *et al.* (The LHCb Collaboration), "The LHCb Detector at the LHC", Journal of Instrumentation 3 (2008).

Authored 60+ scientific publications, 10+ as first or last author, and with a total of 3400+ citations.