

Caroline Magnain

CONTACT INFORMATION	375A Harvard St, apt 19A Cambridge, MA 02138, USA	<i>Phone:</i> +1 (857) 756-3335 <i>E-mail:</i> caroline.magnain@gmail.com
CITIZENSHIP	French	
RESEARCH INTERESTS	Optics applied to biomedical imaging (human brain imaging using Optical Coherence Tomography, <i>in-vivo</i> blood flow measurements by Doppler Holography), to modeling (multiple Light scattering in complex multilayered material such as the skin, assesement of hemodynamic parameters in tissues and mechanical properties in living cells) and cultural heritage (pigment and varnishes identification)	
EDUCATION	PhD (Physics) , Institut des NanoSciences de Paris • Université Pierre et Marie Curie, Paris, France • Thesis Topic: Skin color modeling and its representation in works of art • Advisors: Pr. Mady Elias and Pr. Jean-Marc Frigerio	Oct. 2006 to Oct. 2009
	Postgraduate degree following my master • Université Paris-Sud, Orsay, France • Topic: Matter and Radiation	Sept. 2005 to Jun. 2006
	Master's Degree • Université Paris-Sud, Orsay, France • Topic: Fundamental and Applied Physics	Sept. 2004 to Jun. 2005
	First Degree (licence) • Université Paris-Sud, Orsay, France • Topic: Fundamental and Applied Physics	Sept. 2003 to Jun. 2004
	Two-year university degree (Science) • Université de Poitiers, Poitiers, France	Sept. 2001 to Jun. 2003
	Language: French, fluent english (TOEIC: 935), conversational spanish	
PROFESSIONAL EXPERIENCE	Post-doctoral fellowship , A.A. Martinos Center for Biomedical Imaging • Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA • Topic: Optical imaging of the human brain, part of the Human Connectome Project • Advisors: Dr. Bruce Fischl, Dr. David Boas, Dr Van Wedeen	Nov. 2011 -
	Post-doctoral fellowship , Institut Langevin • ESPCI, CNRS UMR 7587 - INSERM U 979, Paris, France • Topic: Quantitative Doppler imaging of blood microflow • Advisor: Dr. Michael Atlan	Jan. 2010 to June 2011
PUBLICATIONS	Articles <ul style="list-style-type: none">• C. Wachinger, P. Golland, C. Magnain, B. Fischl and M. Reuter, "Multi-Modal Robust Inverse-Consistent Linear Registration", <i>Human Brain Mapping</i> 36:13651380 (2015).• C. Magnain, J. C. Augustinack, E. Konukoglu, M. Frosch, A. Varjabedian, N. Garcia, V. Wedeen, D. Boas and B. Fischl, "Optical Coherence Tomography Visualizes Neurons In Entorhinal Cortex", <i>Neurophotonics</i> 2(1), 0154004 (2015).• C. Magnain, A. Castel, T. Boucneau, M. Simonutti, I. Ferezou, A. Rancillac, T. Vitalis, J. A. Sahel, M. Paques and M. Atlan, "Holographic laser Doppler imaging of microvascular blood flow", <i>J. Opt. Soc. Am. A</i> 31(12), pp. 2723-2735 (2014).• C. Magnain, J. C. Augustinack, M. Reuter, C. Wachinger, M. Frosch, T. Ragan, T. Akkin, V. Wedeen, D. Boas and B. Fischl, "Blockface histology with optical coherence tomography: A comparison with Nissl staining", <i>NeuroImage</i> 84, pp.524-533 (2014).	

- J.C. Augustinack, C. Magnain, M. Reuter, A.J.W. van der Kouwe, D.A. Boas and B. Fischl, "MRI Parcellation of Ex Vivo Medial Temporal Lobe", *NeuroImage*, **93**, pp.252-259 (2014).
- N. Miyamoto, L.-D. D. Pham, K. Hayakawa, T. Matsuzaki, J. H. Seo, C. Magnain, C. Ayata, K.-W. Kim, D. Boas, E. H. Lo and K. Arai, "Age-related decline in oligodendrogenesis retards white matter repair in mice", *Stroke* **44**(11), pp.2573-2578 (2013).
- M. Simonutti, M. Paques, J.A. Sahel, M. Gross, B. Samson, C. Magnain and M. Atlan, "Holographic laser Doppler ophthalmoscopy", *Opt. Lett.* **35**(12), pp. 1941-1943 (2010).
- M. Elias, C. Magnain and J.M. Frigerio, "Contribution of surface state characterization to studies of works of art", *Appl. Opt.* **49**(11), pp.2151-2160 (2010).
- C. Magnain, M. Elias and J.M. Frigerio, "Skin color modeling using the radiative transfer equation solved by the auxiliary function method, II: inverse problem", *J. Opt. Soc. Am. A* **25**(7), pp. 1737-1748 (2008).
- C. Magnain, M. Elias and J.M. Frigerio, "Skin color modeling using the radiative transfer equation solved by the auxiliary function method, I", *J. Opt. Soc. Am. A* **24**(8), pp. 2196-2205 (2007).

Proceedings

- C. Magnain, M. Elias and J.M. Frigerio, "Influence of the artistic techniques on the visual appearance of complexions in art", *SPIE Europe Optical Metrology, International Society for Optics and Photonics*, p.739108 (2009).
- M. Elias, C. Magnain, C. Barthou, A. Nevin, D. Comelli and G. Valentini, "UV-fluorescence spectroscopy for identification of varnishes in works of art: Influence of the underlayer on the emission spectrum", *SPIE Europe Optical Metrology, International Society for Optics and Photonics*, p.739104 (2009).

PATENT

Co-inventor on a patent by the CNRS (National centre for the scientific research), with Mady Elias and Carlos Barthou, in the optical spectrometry domain, n°09/51796, deposit date 20/03/09.

AWARDS

Trainee Abstract Travel Award for the 2013 OHBM Annual Meeting in Seattle, WA, USA

PARTICIPATION AT CONFERENCES

- Oral presentation "Ex vivo human brain by optical coherence tomography: from cortical layers to the individual neurons", *Organization for Human Brain Mapping, Honolulu, HI, USA, June 14-18, 2015.*
- Oral presentation "Visualization of the cytoarchitecture of ex vivo human brain by optical coherence tomography", *OSA Optics and the Brain, Vancouver, BC, Canada, Apr 12-15, 2015.*
- Poster presentation "Ex-Vivo Human Brain Mapping Using Optical Coherence Tomography", *OSA Biomedical Optics, Miami, FL, USA, Apr. 26-30, 2014.*
- Oral presentation "Using Optical Coherence Tomography to Validate Diffusion MRI", *Organization for Human Brain Mapping, Seattle, WA, USA, June 16-20, 2013.*
- Poster presentation "Cytoarchitecture of cortex imaged by Optical Coherence Tomography", *Organization for Human Brain Mapping, Seattle, WA, USA, June 16-20, 2013.*
- Oral presentation "Assessment of flow rates in holographic laser Doppler imaging", *SPIE/OSA European Conferences en Biomedical Optics, Munich, Germany, May 22-26, 2011.*
- Oral presentation "Quantitative assessment of perfusion velocities with holographic laser Doppler", *SPIE Photonics West, San Francisco, USA, Jan. 22-27, 2011.*
- Oral presentation "Holographic mapping of blood flow from optical fluctuations measurements", *EOS Annual Meeting, Paris, France, Oct. 26-29, 2010.*
- Oral presentation "Quantitative microflow mapping with wide-field optical heterodyne detection", *SPIE/COS Photonics Asia, Beijing, China, Oct. 18-20, 2010.*
- Invited paper "The influence of the artistic techniques on the visual appearance of complexions in art", *SPIE Europe Optical Metrology, Munich, Germany, June 14-18, 2009.*
- Oral presentation "Skin color: modeling, inverse problem, art representation", *22nd General Conference of the Condensed Matter Division of the European Physical Society, Roma, Italy, Aug. 25-29, 2008.*
- Poster presentation "Modélisation de la couleur de la peau et résolution du problème inverse", *GDR Ondes, Bordeaux, France, Nov. 21-23, 2007.*
- Oral presentation "Modélisation de la couleur de la peau", *Congrès Général 2007 de la Société Française de Physique, Grenoble, France, Jul. 9-13, 2007.*
- Poster presentation "Diffusion multiple dans les milieux hétérogènes et stratifiés. Modélisation de

l'aspect visuel de la peau et des couches picturales", 10ème Journée de la Matière condensée, Toulouse, France, Aug. 28 - Sept 1, 2006.

OTHER
PROFESSIONAL
EXPERIENCES

Editions "Techniques de l'ingénieur", Paris, France
Co-author of a french-english scientific vocabulary **Nov. 2008 to Jan. 2009**

- Gathering of scientific terms used in nanosciences and nanotechnology.
- Translation of those terms in english.

Participation in a european project: Laserlab Europe,
Identification of varnishes with two complementary devices. **Oct. 2008**
Adviser: Daniela Comelli, Politecnico di Milano, Italy

Participation in a european project: FingArtPrint,
In Situ, 3D non-contact microscale documentation and identification of paintings and polychrome objects **Nov. 2007 to Apr. 2008**
Coordinator: Bill Wei, Instituut Collectie Nederland

Musée des Beaux-Arts et Fond Régional d'Art Contemporain de Dijon, Dijon, France
Measurement campaign **Jul. 2007**

- Identification of pigments for restoration and documentation purposes of old and contemporary works of art.
- Adviser: Mady Elias

Centre for Ultrahigh bandwidth Devices for Optical Systems, University of Sydney, Sydney, NSW Australia
Trainee **May 2005 to Jul. 2005**

- Topic: Third harmonic generation in microstructured optical fibers (MOF or photonic crystal fibers).
- Simulation of MOF mode and dispersive curves using CUDOS MOF Utilities.
- Adviser: Dr. Boris Kuhlmeiy, Prof. Ross McPhedran and Prof. Martijn de Sterke

Institut d'Astrophysique Spatiale, Université Paris-Sud, Orsay, France
Trainee **Jun. 2004 to Jul. 2004**

- Topic: Spectral imaging of Saturn and its rings.
- Data processing of infrared images from ISO mission with IDL codes
- Adviser: François Poulet

ACADEMIC
EXPERIENCE

PhD students' representative at the scientific council
Université Pierre et Marie Curie, Paris, France **Mar. 2008 to Oct. 2009**

PhD students' representative at the board laboratory
Institut des NanoSciences de Paris, Paris, France **Oct. 2007 to Oct. 2008**

Supervision of scientific trainees

SCIENTIFIC
OUTREACH

Festival of science **Oct. 2006, Oct. 2007, Nov. 2008**

- Institut des NanoSciences de Paris, Paris, France
- Workshops for children

European city of science **Nov. 2008**

- Grand Palais, Paris, France
- Scientific demonstration of the pigments'identification

TECHNICAL SKILLS

Instrumentation

- Optical Coherence Tomography

- Holographic laser Doppler imaging
- Goniospectrophotometry
- Colorimetry
- Spectrofluorimeter
- Ellipsometry

Computing

- Programming: C, C++, Fortran, IDL, Matlab
- Applications: L^AT_EX, B_IB_TE_X, Microsoft Office, Labview and other common productivity packages for Windows and OS X
- Operating Systems: Microsoft Windows, Linux and Apple OS X

SOCIAL ACTIVITIES

- Sport (martial arts, fitness, running)
- Art (photography, music...)