

CURRICULUM VITAE

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| Nicolas LOMENIE, Ing., Dr., Habil. | Birth date: 07 Jnuary1974 |
| E-mail : nicolas.lomenie@parisdescartes.fr | Site : http://www.math-info.univ-paris5.fr/~lomn/ |
| CNU Section: 27 | Research Team : LIPADE, EA 2517 |

EDUCATIONAL AND PROFESSIONAL BACKGROUND

| Organism | Date | Diplôme et Fonction |
|----------------------------------|-----------------------------|--|
| University Paris Descartes | 11 June 2013 | “Habilitation à Diriger des Recherches” : <i>Informatics and Image Processing</i> |
| CNRS - Singapore | Sept. 2009 – Sept. 2012 | Researcher (CNRS delegation) http://ipal.i2r.a-star.edu.sg/ |
| University Paris Descartes | since Sept.2002 - currently | Associate Professor http://w3.mi.parisdescartes.fr/sip-lab/ |
| University Paris Descartes | Nov. 1997-Dec. 2001 | Ph.D. <i>Computer Vision and Image Processing</i> |
| University Pierre et Marie Curie | Nov. 1996-Oct. 1997 | <i>Master Degree : Artificial Intelligence, Pattern Recognition and Applications</i> |
| Télécom-SudParis | Oct. 1994-Oct. 1997 | Telecommunications Engineering Degree <i>Specialization : Image Processing</i> |

COLLABORATIONS (FUNDED PROJECTS)

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| CNES, Toulouse | Laster Technology SA, INRIA and Cité des Sciences et de l'Industrie , France (Local responsible for a French Research Agency project ANR-RIAM-REVES-2007 about Virtual Reality) <i>Grant : 530 000 euros for the project, including 64 000 euros for the LIPADE partner.</i> |
| IGN, Paris | AGFA Healthcare and TRIBVN SA , French Research Agency project ANR-TECSAN-MICO about Cognitive Microscopy Grant : About 1 million euros for the project, including 300 000 euros for the IPAL partner. |
| Institut Pasteur, Paris | A*STAR, Biopolis Research Centers Singapore and I2R |
| Hôpital de la Pitié Salpêtrière, Paris | France Telecom, Paris |
| METU (Middle East Technical University) , Ankara, Turkey (Local responsible for a PAI Bosphorus – now Hubert Curien program - about Object Categorization) | INRA [French Agronomic Institute via ITAVI], Tours, France, (Local responsible for a French Research Agency project ANR-RNTL-VISAVI-2008 about Bird Visual Perception) Grant : 700 000 euros for the project, including 97 000 euros for the LIPADE partner |

PUBLICATIONS AND COMMUNICATIONS

Books

- [B1] N. Loménie, *Interprétation de nuages de points 3D en vision stéréoscopique:: Application à la modélisation d'environnements en robotique mobile*, ISBN:9786131511554, Editions Universitaires Européennes, 212 pages

Chapters

- [BC2] N. Loménie, **Rapid Prototyping and Morphological Point Set Analysis**, in *Rapid Prototyping Technology - Principles and Functional Requirements*, Ed. M.E. Hoque, vol. 1: InTech, 07/2011

[BC1] N. Loménie and G. Stamon, **Point Set Analysis**, Peter W. Hawkes Eds., San Diego: Academic Press, vol. 167, pp. 255–294, 2011

Edition

- [E3] N. Loménie, Daniel Racoceanu and Alexandre Gouaillard (Editors), **Advances in Bio-Imaging: from Physics to Signal Understanding Issues**, Springer Series Advances in Intelligent and Soft Computing, 268 pages, Springer; 2012 edition (January 19, 2012)
- [E2] N. Loménie, N. Vincent, R. Mullot (Editors)., **Les relations spatiales : de la modélisation à la mise en oeuvre** [*Spatial Relations : from modelling to implementation*], numéro spécial de la Revue des Nouvelles Technologies de l'Information, RNTI-E14, 2008.
- [E1] N. Loménie and G. Stamon, **Extraction de Connaissances à partir d'images**, chapitre 9, Extraction des Connaissances : Etat et Perspectives, RNTI-E-5, Ed. Cépaduès, novembre 2005

International Journal

- [J7] A. Othmani, C. Jiang, N. Lomenie, J.M. Favreau, A. Piboule and F.C. Lew Yan Voon. **A novel Computer-Aided Tree Species Identification method based on Burst Wind Segmentation of 3D bark textures**. Machine Vision and Applications. pp. 1–16. doi :10.1007/s00138-015-0738-2, Nov. 2015
- [J6] L. Roux, D. Racoceanu, N. Loménie, Maria S. Kulikova, H. Irshad, J. Klossa, F. Capron, C. Genestie, G. Le Naour and G. Metin. **Mitosis Detection in Breast Cancer Histological Images, An ICPR 2012 Contest**, Journal of Pathology Informatics, vol. 4, 2013
- [J5] N. Loménie and Daniel Racoceanu, **Point Sets Morphological Filtering and Semantic Spatial Configurations Modeling: application to microscopic image analysis**, Pattern Recognition, 45(8), pp. 2894–2911, 08/2012
- [J4] Chao-Hui Huang, Antoine Veillard, Ludovic Roux, Nicolas Loménie, Daniel Racoceanu, **Time-efficient sparse analysis of histopathological Whole Slide Images**, Computerized Medical Imaging and Graphics, 35(7), pp. 579-591, 11/2011
- [J3] G. Erus and N. Loménie, **How to involve structural modeling for cartographic object recognition tasks in high-resolution satellite images?**, Pattern Recognition Letters, vol. 31(10), pp. 1109-1119, 07/2010
- [J2] N. Loménie and G. Stamon, **Morphological Mesh filtering and α -objects**, Pattern Recognition Letters, vol. 29(10), pp. 1571-1579, 07/2008
- [J1] N. Loménie, F. Richard, E. Dusch, D. Segretain, **An automatic system for the analysis of intercellular communication and early carcinogenesis**, Cellular and Molecular Biology, vol.52, n°6, pp. 47-52, 2006

International Conferences with committee

- [C22] Shijian Lu, Byung-Uck Kim, Nicolas Loménie, Joo-Hwee Lim, Jianfei Cai. **Search Guided Saliency**. Computer Vision - ACCV Workshops, Singapore, LNCS, **Jawahar, C.V., Shan, Shiguang** (Eds.), pp. 443-456, Nov. 2014
- [C21] Lu, S. and Kim, B-U. and Lomenie, N. and Lim, J-H., **Adaptive Picture-in-Picture Technology based on Visual Saliency**, 5th Asia-Pacific Signal and Information Processing Association (APSIPA) - Annual Summit and Conference, Kaohsiung, Taiwan, 4 pages, October 2013.
- [C20] Othmani, A. and Piboule, A. and Dalmau, O. and Loménie, N. and Mokrani, S. and Lew Yan Voon, L., **Tree species classification based on 3D bark texture analysis**, 6th Pacific-Rim Symposium on Image and Video Technology (PSIVT), Guanajuato, México, 11 pages, October 2013.
- [C19] A. Othmani, N. Loménie, A. Piboule, C. Stolz and L.F.C. Lew Yan Voon, **Region-based segmentation on depth images from a 3D reference surface for tree species recognition**,

IEEE International Conference on Image Processing (ICIP), Melbourne, Australia, 4 pages, September 2013.

- [C18] N. Loménie, **Visual Point Set Processing with Lattice Structures: Application to Parsimonious Representations of Digital Histopathology Images**, Geometric Information of Science (GSI), Springer, Lecture Notes in Computer Science, Paris, France, 8 pages, August 2013.
- [C17] S. U. Rigaud, N. Loménie, S. Sankaran, A. Sohail, J-H. Lim, and D. Racoceanu, **Neurosphere fate prediction: an analysis-synthesis approach for feature extraction**, 7 pages, Brisbane, Australia, IJCNN 2012.
- [C16] A. Othmani, C. Meziat, and N. Lomenie, **Ontology-driven Image Analysis for Histopathological Images**, International Symposium on Visual Computing, ISVC'2010, Las Vegas, USA, 12 pages, December 2010.
- [C15] A. Veillard, N. Lomenie D. Racoceanu, **An Exploration Scheme for Large Images: application to Breast Cancer Grading**, International Conference on Pattern Recognition, ICPR'2010, Istanbul, Turkey, August 2010.
- [C14] N. Loménie, **Reasoning with spatial relations over high-content images**, IEEE World Congress on Computational Intelligence, WCCI'2010, hosting the International Joint Conference on Neural Networks, IJCNN'2010, Barcelona, Spain, July 2010
- [C13] N. Lomenie and Daniel Racoceanu, **Spatial Relationships over Sparse Representations**, IVCNZ 2009 – IEEE Image and Vision Computing New Zealand, Wellington, New-Zealand, 5 pages, November 2009.
- [C12] Ludovic Roux, Adina Tutac, Antoine Veillard, Jean-Romain Dalle, Daniel Racoceanu, Nicolas Loménie, Jacques Klossa, **A Cognitive Approach to Microscopy Analysis Applied to Automatic Breast Cancer Grading**, 22nd European Congress of Pathology, Sept. 2009, Florence, Italy.
- [C11] Ludovic Roux, Adina Tutac, Nicolas Loménie, Didier Balensi, Daniel Racoceanu, Wee-Kheng Leow, Antoine Veillard, Jacques Klossa and Thomas C. Putti, **A Cognitive Virtual Microscopic Framework for Knowledge-based Exploration of Large Microscopic Images in Breast Cancer Histopathology**, IEEE EMBC'09, 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society, “Engineering the Future of Biomedicine”, Minneapolis, Minnesota, USA, September 2009.
- [C10] R. Hachemi, N. Loménie, N. Vincent, **Discriminating poultry feeds by image analysis for the purpose of avoiding importunate poultry behaviors**, *SPIE Electronic Imaging, Machine Vision Applications, January 2009*. San Jose, California, January 2009.
- [C9] Erus G., Loménie, **Primitives for the Classification of Images Containing Structural Cartographic Objects**, *8th Canadian Conference on Computer and Robotic Vision CRV'2008*, pp. 221-227, Windsor, Ontario, June 2008.
- [C8] Erus G., Loménie N., **Classification of Structural Cartographic Objects Using Edge-based Features**, Proc. of the 3rd Intl. Symp. on Visual Computing (ISVC'07), volume 4841 of Lecture Notes in Computer Science (LNCS 4841), pp. 385-392, Nevada, USA, November 2007
- [C7] R.Hachemi, N.Vincent, N.Loménie : **Control of the visual and tactile aspects of poultry food according to the poultry food behaviour by image analysis**. Proc. of the 8th IEEE Intl. Conf. on Quality Control by Artificial Vision (QCAV'2007), Proc. SPIE Vol. **6356**, 635619, 7 pages, Awarded for the Best Poster, Le Creusot, France, May 2007.
- [C6] Erus G., Loménie N., **Extraction of cartographic objects in high resolution satellite images for object model generation**, 4th IAPR International Workshop on Pattern Recognition in Remote Sensing ((PRRS'06) in conjunction with ICPR 2006, Hong Kong, August 2006
- [C5] Erus G., Loménie N., **Automatic Learning of Structural Models of Cartographic Objects**, Proc. of the Intl. IAPR Workshop on Graph-based Representations in Pattern Recognition 2005 (GbrPR'05), volume 3434 of Lecture Notes in Computer Science (LNCS 3434), pp. 273-280,

Poitiers, France, March 2005,

- [C4] N. Loménie, F. Richard, E. Dusch, D. Segretain, **Segmentation and Analysis of 3D spatial configurations of proteins within cells**, *1st Symposium on Health Informatics and Bioinformatics*, HIBIT'05, Antalya, Turquie, pp. 196-200, novembre 2005.
- [C3] R. Trias-Sanz, Nicolas Loménie and Jérôme Barbeau, **Using textural and geometric information for an automatic bridge detection system**, *Advanced concepts for intelligent vision systems (ACIVS'04)*, pp. 325-332, Brussels, Belgium, Sep. 2004
- [C2] R. Trias-Sanz et Nicolas Loménie, **Automatic bridge detection in high-resolution satellite images**, *Proc. of the 3rd Intl. Conf. on Computer Vision Systems (ICVS 03)*, volume 2626 of *Lecture Notes in Computer Science (LNCS 2626)*, pp. 172-181, Graz, Autriche, avril 2003.
- [C1] N. Loménie, L. Gallo, N. Cambou, G. Stamon, **Morphological Operations on Delaunay Triangulations**, *Proc. of the IEEE -International Conference on Pattern Recognition (ICPR'00)*, pp. 556-559, Spain, Barcelona, September 2000.

International Conferences

- [c5] S. Rigaud and N. Loménie, **Neural stem cell segmentation in phase contrast movies**, *SPIE Medical Imaging*, February 2011, Orlando, Florida, 6 pages.
- [c4] Nicolas Lomenie, Ludovic Roux, Didier Balensi, Adina Tutac, Daniel Racoceanu, **MICO: The COgnitive Virtual MICroscope Project**, *COGIS09, COGNitive systems with Interactive Sensors*, Paris, France, 6 pages, Nov. 2009.
- [c3] R. Hachemi, N. Loménie, N. Vincent, **Discriminating poultry feeds by image analysis for the purpose of avoiding importunate poultry behaviors**, *SPIE Electronic Imaging, Machine Vision Applications*, January 2009.
- [c2] R. Hachemi, N. Loménie et N. Vincent, **Visual Characterization of Poultry Feeds: Towards an Explanation of the Feeding Behavior**, *Materials and Sensations*, Pau (France), Oct 22-24, 2008
- [c1] N. Loménie, Roger Trias, J. Barbeau, **Integrating Textural and Geometric Information for an automatic bridge detection**, *IGARSS'03*, Toulouse, France, July 2003.

National Conferences with committee and international audience

- [N4] G. Erus G., N. Loménie, **Geometrical Primitives for the Classification of Images Containing Structural Cartographic Objects**, *Computer and Robotic Vision (CRV'08)*, 8th Canadian Conference on *Computer and Robotic Vision CRV'2008*, pp. 221-227, Windsor, Ontario, June 2008.
- [N3] G. Erus, N. Loménie, **Apprentissage automatique des modèles structurels d'objets cartographiques**, *Extraction et Gestion de Connaissances (EGC'05)*, pp. 445-450, January 2005
- [N2] N. Loménie, **A generic methodology for partitioning unorganised 3D point clouds for robotic vision**, 4th Canadian Conference on *Computer and Robotic Vision (CRV'04)*, London, pp. 172-181, Canada, May 2004
- [N1] N. Loménie, L. Gallo, N. Cambou, G. Stamon, **Structuration plane d'un nuage de points 3D désorganisé et détection des obstacles** [*Planar structuring of unorganised 3D point sets and obstacle detection*], *Vision Interface (VI'99)*, pp. 164-171, Canada, Trois-Rivières, May 1999.

Research reports

- [R1] N. Loménie, Jérôme Barbeau, F. Cloppet, **Reconnaissance de structures géométriques dans les images satellitales** [Geometrical structures recognition of man-made objects in space images], *Research Report*, CNES (French Space Agency), January 2001, 80 pages.

Seminars

- National University of Singapore (NUS), Janvier 2015.
- Columbia University, Department of BioEngineering, New York, Mai 2014

- National University of Singapore (NUS), Juin 2008.
- Simon Fraser University of Vancouver (SFU), Déc. 2007.
- METU (Middle East Technical University), Ankara, Turkey. For Foreign Affairs Minister, as invited lecturer, Juillet 2001, Mai 2007.
- LAAS – CNRS, Octobre 1999 et Février 2000.
- CAOR, Ecole des Mines.

COLLECTIVE RESPONSIBILITIES

- Member of the **steering committee of the Bachelor Degree** Paris Descartes and **responsible for the joint degree at the master level** with ENIT, Tunis.
- **Organisation** of meetings with GDR ISIS and MIV : <http://www.gdr-isis.fr/index.php?page=reunion&idreunion=298> , <http://www.gdr-isis.fr/index.php?page=reunion&idreunion=276>
- **Leading** the *Medical Image Understanding* team (<http://ipal.i2r.a-star.edu.sg/research-axes>) at IPAL , CNRS from January 2010 to September 2011.
- **Organisation** of the third Singaporean-French Seminar SFBI 2011 about Bio-Imaging: <http://ipal.i2r.a-star.edu.sg/event/sfbi-2011/>
- **Organisation** of the Cross-Knowledge meeting between IPAL, NUS, I2R from January 2010 onwards: <http://ipal.i2r.a-star.edu.sg/event/cross-knowledge>
- Serving as **expert** for French Agencies: ANR, AUF, CIFRE
- **Organisation** of five ECOI workshops within the **EGC** conference from 2005 to 2009: Knowledge Extraction and Images <http://www.math-info.univ-paris5.fr/~lomn/ECOI.htm>
- Serving as **reviewer**: Pattern recognition, Pattern recognition letters, Geoscience and remote sensing letters, Computerized Medical Imaging and Graphics, etc.
- Serving as a member of **recruiting committee** (University Paris 5 (section 26) and Metz)
- Serving as a member of **9 Ph.D. defence committees and many mid-term committee reviews**:
 - **Adel Hafiane**, FCM with Spatial and Multiresolution Constraints for Image Segmentation, director **Bertrand Zavidovique**, President University Paris 11, 2005
 - **Julien Richefeu**, Motion detection and analysis in digital retina-based vision systems , director **Antoine Manzanera**, University Paris 6, 2006
 - **Elodie Dusch**, Modélisation de la réponse impulsionnelle pour la détection de particules en microscopie par fluorescence, director **Auguste Genovesio**, University Paris 5, 2008
 - **Guray Erus**, Reconnaissance d'objets cartographiques dans les images satellitaires à haute résolution, director **Georges Stamon**, University Paris 5 (as co-director 80%), 2008
 - **Rabie Hachémi**, Vision Artificielle pour l'Analyse de la Perception Animale: Un Outil d'Aide à la Prév́ision du Comportement Alimentaire, director **Nicole Vincent**, University Paris 5 (as co-director 50%), 2010
 - **Adina Tutac**, Formal Representation and Reasoning for Microscopic Medical Image-Based Prognosis. Application to Breast Cancer Grading, director **Daniel Racoceanu**, University of Besançon and University of Timisoara, 2010
 - **Stéphane Rigaud**, director **Daniel Racoceanu et Joo Hwee Lim**, Université Paris 6, (as co-director 50%), 2014.
 - **Aymen Sellaouti**, director **Aline Deruyver**, Université de Strasbourg, (as a reviewer) 2014.
 - **Chloé Murtin**, director **David Rousseau**, Université de Lyon (as president) october 2016.

ELECTIVE DUTIES

- 2005 -2009 Ass. Professors representative in faculty committees and councils
- Before 2007** : representative at the **CEVU** (Study and University Life Council) of the University and its board.
- Since 2007** : representative at the **CS** (Scientific Council) of the University and its board as well as the local department councils.
- 2007-2009** : councillor at the **Bureau de l'Université** (University Board).

ACADEMIC AND TEACHING SKILLS

Fields :Image Analysis, Computer Vision, Pattern Recognition, Machine Learning, Artificial Intelligence, Database and Data Mining, Bio-informatics, Computational Biology

Computer Languages : **C, C++, Java**

Operating Systems : Linux (**mainly used**), Unix, Windows

Languages : French (mother tongue), English (fluent)

ILLUSTRATION OF AVERAGE TEACHING DUTIES

| <i>Discipline</i> | <i>French Level</i> | <i>Hours Teaching A year</i> |
|---|---------------------|------------------------------|
| Database | M1 | 24 h tutorial |
| Data Mining | M1 | 40 h lecture / 40 h tutorial |
| Bio-Informatics | L3 | 15h TD |
| Computational Biology | L2 | 15h Cours / 20h tutorial |
| Image Analysis & Pattern Recognition | M2 | 22 h lecture / 15 h tutorial |
| Java | L3 | 15 h lecture / 15h tutorial |
| Artificial Intelligence | M2 | 10 h lecture |

All lectures apart from the programming language ones were designed from scratch. In particular the **Computer Vision** ones were part of our team efforts to build up a master program about Digital Image Handling.