Curriculum Vitæ

Identity

Guillaume Charpiat

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Nationality : French
Birth : October 6, 1981, in Paris

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Studies and Employment

From **Dec. 15, 2007 :** Researcher in INRIA Sophia-Antipolis, in the Pulsar team (permanent position).

Feb. 2007 - Dec. 2007 : Post-doctoral position in *statistical learning for computer vision* in the Max Planck Institute for Biological Cybernetics, in Bernhard Schölkopf's team, in Tübingen (Germany).

Sep. 2003 - Jan. 2007 : PhD thesis on « Shape statistics for image segmentation with priors » supervised by Olivier Faugeras and Renaud Keriven, in the Odyssée team (INRIA).

2002 - 2003 : Theoretical Physics (Master's final year lessons as free attender).

2001 - 2002 : Vision and Learning (Master's final year degree) at the ENS Cachan (with highest honors),
Master internship on « Planar curve deformation », supervised by Olivier Faugeras and Renaud Keriven.

2000 - 2001 : Mathematics (Master's first year degree, with high honors),
Mathematics (Bachelor's degree, with great honors),
Physics (Bachelor's degree, with highest honors),
Master's internship on numerical scheme errors of fluid mechanics, supervised by Cécile Appert (LPS).

Sep. 2000 - Aug. 2004 : École Normale Supérieure (ENS) student.

2000 : Successful candidate in the exams of the Ecole Normale Supérieure and École Polytechnique.

Teaching

2006 - 2007 : C++ Programming assignment at the École Polytechnique.

2004 - 2006 : Numerical Analysis and Optimization assignment at the École Polytechnique.

2003 - 2004 : Computer Science at the École Nationale des Ponts et Chaussées.

Supervision

Jan. 2011 - ... :	Ratnesh Kumar *(Fiber-based segmentation of videos for activity recognition)*, PhD thesis co-supervised with Monique Thonnat (INRIA).
Jan. 2011 - June 2011 :	Kandan Ramakrishnan *(Detection and tracking dust particles in a fusion reactor)*, co-supervised with Vincent Martin (CEA).
Feb. 2010 - July 2010 :	Ezequiel Cura *(Strategies for automatic model construction).*
Oct. 2009 - Mar. 2010 :	Anja Schnaars *(Texture-based segmentation).*

Publications

Thesis :

- G. Charpiat, *Distance-based shape statistics for image segmentation with prior*, PhD Thesis, École Polytechnique, 12/2006.

Book Chapters :

- G. Charpiat, I. Bezrukov, Y. Altun, M. Hofmann and B. Schölkopf, *Machine Learning Methods for Automatic Image Colorization*, Computational Photography : Methods and Applications (R. Lukac ed.), CRC Press, 11/2010.
- G. Charpiat, M. Hofmann and B. Schölkopf, *Kernel methods in medical imaging*, Handbook of Biomedical Imaging (N. Paragios, J. Duncan and N. Ayache, eds.), Springer, 12/2008.
- G. Charpiat, O. Faugeras, R. Keriven and P. Maurel, *Approximations of shape metrics and application to shape warping and empirical shape statistics*, Statistics and Analysis of Shapes (H. Krim and A. Yezzi, eds.), Birkhäuser, 2006, pp. 363–395.

International Journals with Reviewing Board :

- A. Gamal Eldin, X. Descombes, G. Charpiat and J. Zerubia, *Multiple Birth and Cut Algorithm for Multiple Object Detection*, Journal of Multimedia Processing and Technologies (2011).
- M. Hofmann, F. Steinke, V. Scheel, G. Charpiat, J. Farquhar, P. Aschoff, M. Brady, B. Schölkopf and B. J. Pichler, *MR-based attenuation correction for PET/MR : A novel approach combining pattern recognition and atlas registration*, Journal of Nuclear Medicine, 11/2008.
- G. Charpiat, P. Maurel, J.-P. Pons, R. Keriven and O. Faugeras, *Generalized gradients : Priors on minimization flows*, International Journal of Computer Vision (2007).
- G. Charpiat, O. Faugeras and R. Keriven, *Approximations of shape metrics and application to shape warping and empirical shape statistics*, Foundations of Computational Mathematics 2005, no. 1, 1–58.

Other International Journals :

- O. Faugeras, G. Adde, G. Charpiat, C. Chefd'Hotel, M. Clerc, T. Deneux, R. Deriche, G. Hermosillo, R. Keriven, P. Kornprobst, J. Kybic, C. Lenglet, L. Lopez-Perez, T. Papadopoulo, J.-P. Pons, F. Ségonne, B. Thirion, D. Tschumperlé, T. Viéville and N. Wotawa, *Variational, geometric, and statistical methods for modeling brain anatomy and function*, NeuroImage 23S1 (2004), S46–S55, Special issue : Mathematics in Brain Imaging - Edited by P.M. Thompson, M.I. Miller, T. Ratnanather, R.A. Poldrack and T.E. Nichols.

International Conferences wih Reviewing Board and Proceedings :

- V. Martin, V. Moncada, J.-M. Travere, T. Loarer, F. Bremond, G. Charpiat and M. Thonnat, *A Cognitive Vision System for Nuclear Fusion Device Monitoring*, International Conference on Computer Vision Systems, 2011.
- A. Gamal Eldin, X. Descombes, G. Charpiat and J. Zerubia, *A Fast Multiple Birth and Cut Algorithm using Belief Propagation*, International Conference on Image Processing, 2011.
- G. Charpiat, *Exhaustive Family of Energies Minimizable Exactly by a Graph Cut*, Computer Vision and Pattern Recognition, 2011.
- S. Chen, G. Charpiat and R.J. Radke, *Converting Level Set Gradients to Shape Gradients*, European Conference on Computer Vision, 2010.
- G. Charpiat, *Learning Shape Metrics based on Deformations and Transport*, Second Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment, 2009.
- G. Charpiat, M. Hofmann and B. Schölkopf, *Automatic image colorization via multimodal predictions*, 10th European Conference on Computer Vision, 2008, pp. 126–139.
- M. Hofmann, F. Steinke, V. Scheel, G. Charpiat, M. Brady, B. Schölkopf and B. J. Pichler, *MR-based PET attenuation correction – Method and validation*, IEEE Medical Imaging Conference, 2007.
- G. Charpiat, O. Faugeras and R. Keriven, *Shape statistics for image segmentation with prior*, Conference on Computer Vision and Pattern Recognition, 2007.
- G. Charpiat, R. Keriven, J.-P. Pons and O. Faugeras, *Designing spatially coherent minimizing flows for variational problems based on active contours*, 10th International Conference on Computer Vision, vol. 2, 2005, pp. 1403–1408.
- G. Charpiat, R. Keriven and O. Faugeras, *Image statistics based on diffeomorphic matching*, 10th International Conference on Computer Vision, vol. 1, 2005, pp. 852–857.
- G. Charpiat, O. Faugeras and R. Keriven, *Shape metrics, warping and statistics*, International Conference on Image Processing, vol. 2, 2003, pp. II–627–630.

Other International Conferences with Proceedings :

- G. Charpiat, P. Maurel, R. Keriven and O. Faugeras, *Distance-based shape statistics*, ICASSP Special Session : Statistical Inferences on Nonlinear Manifolds with Applications in Signal and Image Processing, vol. 5, 2006, pp. V–925–926.

Invited Talks

December 2011 :	« Estimating metrics suitable to an empirical manifold of shapes, using transport against the curse of dimensionality » at the *INRIA Workshop on Statistical Learning*, Institut Henri Poincaré, Paris ;
April 2010 :	« Estimating Suitable Metrics for an Empirical Manifold of Shapes » at the workshop *Metric and Riemannian methods in Shape Analysis*, during the *SIAM Conference on Imaging Science*, Chicago (IL, USA) ;
July 2007 :	« Shape Statistics for Image Segmentation with Prior » at the workshop *Geometry and Statistics of Shape Spaces* at the Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park (NC, USA) ;
November 2005 :	« Statistiques de formes et d'images » at the Physical Spectrometry laboratory seminarium, Joseph Fourier University, Grenoble (France) ;
June 2005 :	« Moyenne et statistiques de formes » at the special day *Optimisation de forme et analyse d'images* in Paris Dauphine University ;
November 2004 :	« Shape and Image Statistics » in Guillermo Sapiro's team, in Minneapolis (MN, USA) ;
September 2003 :	Poster at the workshop *Designing Tomorrow's Category-Level 3D Object Recognition Systems : An International Workshop*, in Taormina (Sicily, Italy).

Misc.

Reviewer for :	- the International Journal of Computer Vision (IJCV), - Transactions on Pattern Analysis and Machine Intelligence (TPAMI), - as well as for JMIV, CVIU, IVC, MICCAI, Proc. of the Royal Soc., TIP, etc. ;
Computer skills :	C/C++, HTML, LaTeX (Linux et Windows) ;
Languages :	French (native), English (fluent), German (basics) ;
Other :	Driving licence ; Piano, music.