

CURICULUM VITAE

PROFILE

Auguste GENOVESIO

37 years old, French

Language: French, English, Notions of German and Korean

EMPLOYMENT

Broad Institute of MIT and Harvard, USA

may/11-present

Computational Biologist, Group Leader Image Analysis

Institut Pasteur Korea, Seoul, *Republic of Korea*

jun/05-mar/11

Group leader Image Mining

Institut Pasteur, AIQ, Paris, *France*

feb/01-may/05

PhD on multi target tracking

Vitago France, Paris, *France*

apr/00-dec/00

Head of software development

Laboratoire d'Informatique LIP6, Paris, *France*

june/99-aug/99

Trained researcher in mathematics

EDUCATION	PhD Computer Science, Highest honor, IP - Rene Descartes P5	Graduated 2005
	Master (DEA) Artificial Intelligence, Honor, P. et M. Curie P6	Graduated 2001
	Licence & Maitrise Computer science, Honor, P. et M. Curie P6	Graduated 2000
	Licence Applied Mathematics and Economy, Denis Diderot P7	Graduated 1998
	Bachelor Applied Mathematics and Economy, Denis Diderot P7	Graduated 1997

COMPETENCES Computational biology / Applied mathematics / data mining / bioinformatics / Image analysis / Software development

Scientific management and recruitment

High Content Compound Screening on micro plates

High Content Genome Wide siRNA Screening on cellular microarrays

PATENTS

- (WO/2009/156162) GENOME WIDE VISUAL IDENTIFICATION OF HUMAN CO-FACTORS OF HIV-1 INFECTION
- (WO/2010/003533) PYRIDOPYRIMIDINE COMPOUNDS AS ANTI-TUBERCULAR AGENTS
- (WO/2010/006727) METHOD AND APPARATUS FOR IMAGING OF FEATURES ON A SUBSTRATE

GRANTS

- 2007: DNDi grant, Neglected Diseases, USD 610,000
- 2009: MEST grant, Basic Research Supporting Program, USD 210.000
- 2010: MEST grant, Pioneer program, USD 950.000

PUBLICATIONS (with review committee)

*: these authors equally contributed to the work.

Please note that the three first manuscripts of this list are under review.

1. **Auguste Genovesio***, Yong-Jun Kwon*, HiChul Kim, NamYoul Kim, SeoYeon Choi, JinYeong Heo, JinYeop Kim, Michael A.E. Hansen, Anton Yuryev, Veronica Soloveva, Natalie D. DeWitt, and Neil Emans. Chemical small molecule target identification by genome wide siRNA screening of dose-response curves. – under review, *Nature Genetics*, 2011
2. **Auguste Genovesio***, Yong-Jun Kwon*, Marc P. Windisch, Nam Youl Kim, Seo Yeon Choi, Hi Chul Kim, Sungyong Jung, Fabrizio Mammano, Virginie Perrin, Annette S. Boese¹, Nicoletta Casartelli, Olivier Schwartz, Ulf Nehrbass, and Neil Emans. Automated genome-wide visual profiling of cellular proteins involved in HIV infection – under final review, *Journal of Biomolecular Screen*, 2011
3. Jean-Philippe Carralot, Arnaud Ogier, Annette Boese, **Auguste Genovesio**, Priscille Brodin, Peter Sommer and Thierry Dorval. A Novel Specific Edge Effect Correction Method for RNA Interference Screenings - under final review *Bioinformatics*, 2011
4. **Auguste Genovesio**, Miriam A. Giardini, YongJun Kwon, Neil Emans & Lucio F. Junior. Visual Genome-Wide RNAi Screening to Identify Human Host Factors Required for *Trypanosoma cruzi* Infection. *Plos One*, Accepted for publication, 2011
5. Hee Chang Kim, Georges Stamon and **Auguste Genovesio**. A Method For Discontinuous Neurite Reconstruction Based On Diffusion Tensor, Hessian Eigenvector, And Diffused Gradient Vector Fields, Accepted for publication, *Proceedings of ICIP 2011*
6. High content phenotypic cell-based visual screen identifies *Mycobacterium tuberculosis* acyltrehalose-containing glycolipids involved in phagosome remodeling. Brodin P, Poquet Y, Levillain F, Peguillet I, Larrouy-Maumus G, Gilleron M, Ewann F, Christophe T, Fenistein D, Jang J, Jang MS, Park SJ, Rauzier J, Carralot JP, Shrimpton R, **Genovesio A**, Gonzalo-Asensio JA, Puzo G, Martin C, Brosch R, Stewart GR, Gicquel B, Neyrolles O. *PLoS Pathog*. 2010 Sep 9;6(9). pii: e1001100. PMID: 20844580
7. Contextual automated 3D analysis of subcellular organelles adapted to high-content screening. Dorval T, Ogier A, **Genovesio A**, Lim HK, Kwon do Y, Lee JH, Worman HJ, Dauer W, Grailhe R. *J Biomol Screen*. 2010 Aug;15(7):847-57. Epub 2010 Jul 16. PMID: 20639502
8. Antileishmanial high-throughput drug screening reveals drug candidates with new scaffolds. Siqueira-Neto JL, Song OR, Oh H, Sohn JH, Yang G, Nam J, Jang J, Cechetto J, Lee CB, Moon S, **Genovesio A**, Chatelain E, Christophe T, Freitas-Junior LH. *PLoS Negl Trop Dis*. 2010 May 4;4(5):e675. PMID: 20454559
9. A modified fluorescence in situ hybridization protocol for *Plasmodium falciparum* greatly improves nuclear architecture conservation. Contreras-Dominguez M, Moraes CB, Dorval T, **Genovesio A**, Dossin Fde M, Freitas-Junior LH. *Mol Biochem Parasitol*. 2010 Sep;173(1):48-52. Epub 2010 Apr 28. PMID: 20433875
10. Spatially Adaptive Relaxation For Active Contour Cell Segmentation. A. Ogier, T. Dorval and **A. Genovesio**. *Proceeding of IEEE ISBI 2010*
11. **A. Genovesio**. Active Vector Graph for Regularized Tesselation. *Proceeding of IEEE ICIP 2009*
12. H.-C. Kim and **A. Genovesio**, Neuron Branch Detection And Description Using Random Walk, *Proceeding of EMBC 2009*

13. T. Dorval, C. Borsoi Moraes, A. Ogier, L. Freitas Junior, and **A. Genovesio**. 3D Spatial Drift Correction Using Kalman Filtering for Fluorescence Bases Imaging, Proceeding of IEEE ISBI 2009
14. T. Christophe , M. Jackson , H. K. Jeon , **A. Genovesio** , D. Fenistein , M. Contreras-Dominguez , J.-P. Carralot , F. Ewann , E. H. Kim , J. Kim , H. Skovierova , H. Pham , G. Riccardi , J. Nam , L. Marsollier , M. Kempf , M.-L. Joly-Guillou , O. Taegwon , W. K. Shin , B. Lenseigne , Z. No , U. Nehrbass , R. Brosch , S. Cole. High content screening identifies decaprenyl-phosphoribose 2' epimerase as a target for intracellular antimycobacterial inhibitors' PLoS Pathogens, 2009,
15. MM Mhlanga, DP. Bratu, **A. Genovesio**, A. Rybarska, N. Chenouard, U. Nehrbass, JC. Olivo-Marin. In vivo colocalisation of oskar mRNA and trans-acting proteins revealed by quantitative imaging of the Drosophila oocyte. PLoS One. 2009 Jul 14;4(7):e6241.
16. JP. Carralot, TK Kim, B Lenseigne, AS Boese, P Sommer, **A Genovesio**, P Brodin. Automated high-throughput siRNA transfection in raw 264.7 macrophages: a case study for optimization procedure. J Biomol Screen. 2009 Feb;14(2):151-60.
17. T. Dorval, A. Ogier and **A. Genovesio**. Behind High Frequencies. Proceedings of MICCAI 2008
18. H.-K. Moon and **A. Genovesio**. IM.Grid, a Grid Computing Approach for Image Mining of High Throughput-High Content Screening. Proceeding of IEEE/ACM International Conference on Grid Computing, 2008
19. A.Ogier, T. Dorval and **A. Genovesio**. Inhomogeneous deconvolution in a biological images context. Proceedings of IEEE ISBI 2008
20. **A. Genovesio**, and J.-C. Olivo-Marin (2008) Particle Tracking in 3D+t Biological Imaging, in Microscope. Image Analysis for Life Science Applications, J. Rittscher, S.T.C. Wong, and R. Machiraju eds., Artech House
21. D. Fenistein, B. Lenseigne, T. Christophe, P. Brodin and **A. Genovesio**. A Fast, Fully Automated Cell Segmentation Algorithm for High-Throughput and High-Content Screening, Cytometry Part A 2008
22. F. M. Dossin*, A. Dufour*, E. Dusch*, J. L. Siqueira-Neto, C. B. Moraes, G. S. Yang, M. I. Cano, **A. Genovesio**, L. H. Freitas-Junior. Automated Nuclear Analysis of Leishmania major Telomeric Clusters Reveals Changes in Their Organization during the Parasites Life Cycle. PLoS ONE 3(6), June 2008
23. A. Dufour, N. Vincent and **A. Genovesio**. 3D multi-object segmentation, tracking and visualization in fluorescence microscopy using Active Meshes. Proceedings of IAPR PRIB 2007
24. T. Dorval, A. Ogier, **A. Genovesio**. Bias Image Correction via Stationarity Maximization. Proceedings of MICCAI 2007
25. B. Lenseigne, T. Dorval, A. Ogier and **A. Genovesio**. A new Color Representation for Intensity Independent Pixel Classification in Confocal Microscopy Images. Proceedings of ACIVS 2007
26. A. Dufour, N. Vincent and **A. Genovesio**. 3D automated nuclear morphometric analysis using Active Meshes. Proceedings of PRIB 2007

27. E. Dusch, T. Dorval, N. Vincent, M. Wachsmuth, **A. Genovesio**. 3D Point Spread Function Model for Line-Scanning Confocal Microscope with High-Aperture Objective. *Journal of Microscopy*, 2007
28. A. Ogier, T. Dorval, **A. Genovesio**, Biased Image correction based on Empirical Mode Decomposition, *Proceedings of IEEE ICIP*, 2007
29. E. Dusch, N. Vincent, **A. Genovesio**, 3D Fluorescent Spots Detection in Line-scanning Confocal Microscopy, *Proceedings of IEEE ICIP*, 2007
30. B. Lenseigne, P. Brodin, H. K. Cheon, T. Christophe, **A. Genovesio**, Support Vector Machines for Automatic Detection of Tuberculosis Bacteria in Confocal Microscopy Images, *Proceedings of IEEE ISBI 2007*
31. T. Dorval, A. Ogier, E. Dusch, N. Emans, **A. Genovesio**, Bias Free Features Detection for High Content Screening, *Proceedings of IEEE ISBI 2007*
32. Y J Kwon, **A. Genovesio**, N. Y. Kim, K. H. Chul, S. Jung, B. David-Watine, U. Nehrbass, N. Emans, High-content classification of nucleocytoplasmic import or export inhibitors. *J Biomol Screen* 2007, 12(5):621-627.
33. N. Arhel* **A. Genovesio*** Sarah Miko, E. Perret, J.-C. Olivo-Marin, S. Shorte and P. Charneau. Quantitative 4D tracking of flash-labelled cytoplasmic and nuclear HIV-1 complexes. *Nature Methods*, October 2006.
34. G. G. Cabal* **A. Genovesio*** S. Rodriguez-Navarro, C. Zimmer, O. Gadal, A. Lesne, H. Buc, F. Feuerbach-Fournier, J.-C. Olivo-Marin, E. C. Hurt and U. Nehrbass. SAGA interacting factors confine sub-diffusion of transcribed genes to the nuclear envelope. *Nature* 441, 770-773, June 2006
35. P. Therizols, C. Fairhead, G. Cabal, **A. Genovesio**, J.-C. Olivo-Marin, B. Dujon and E. Fabre. Telomere tethering at the nuclear periphery is essential for efficient DNA double strand break repair in the subtelomeric region. *Journal of Cell Biology*, Vol. 172 No. 2, Pages 189-199, January, 2006.
36. E. Mairey, **A. Genovesio**, E. Fabre, F. Jaubert, E. Pinard, J.-C. Olivo-Marin, X. Nassif and G. Dumesnil. Mechanical properties of *Neisseria meningitidis* adhesion determine attachment site and growth along cerebral capillaries. *Journal of Experimental Medicine*, accepted, August, 2006
37. T. Dorval and **A. Genovesio**, Automated Confocal Microscope Bias Correction, *Proceedings of WIO (WorkShop on Information Optics)*, Toledo, Spain, June 5-7, 2006.
38. A. Dufour, N. Vincent and **A. Genovesio**, 3D Mumford-Shah Based Active Mesh. *Lecture Notes on Computer Science*, Vol. 4225, pp. 207-210
39. **A. Genovesio**, T. Liedl, V. Emiliani, W. J. Parak, M. Coppey-Moisan and J.-C. Olivo-Marin. Multiple particle tracking in 3D+t microscopy: Method and application to the tracking of quantum dots. *IEEE Transaction on Image Processing*, Volume: 15, Issue: 5, pp1062- 1070, May 2006

40. **A. Genovesio** and J.-C. Olivo Marin. Interacting multiple model based method to track moving fluorescent biological spots. Proceedings of ISBI (IEEE International Symposium on Biomedical Imaging), pages 1239-1242, April 2004. Arlington, VA, USA.
41. **A. Genovesio** and J.-C. Olivo Marin. Split and merge data association filter for dense multi-target tracking. Proceedings of ICPR 2004 (International Conference on Pattern recognition), Vol. 4, pages 677-680, August 2004. Cambridge, Royaume-Uni.
42. **A. Genovesio** and J.-C. Olivo Marin. Interacting multiple model based method to track multiple target in videomicroscopy. Electronic proceedings of RFIA (Reconnaissance des Formes et Intelligence Artificielle), January 2004. Toulouse, France.
43. **A. Genovesio**, Z. Belhassine and J.-C. Olivo-Marin. Adaptive gating in Gaussian Bayesian multi-target tracking. Proceedings of ICIP (IEEE International Conference on Image Processing), Vol. 1, pages 147-150. October 2004. Singapore, Republic of Singapore.
44. **A. Genovesio** and J.-C. Olivo-Marin. Tracking fluorescent spots in biological video microscopy. Proceedings of SPIE - Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing X, Vol. 4964, pages 98-105, January 2003. San Jose, CA, USA.
45. **A. Genovesio** and J.-C. Olivo Marin. Tracking de cibles mouvantes multiples en videmicroscopie. Proceedings of ICISP (IAPR - International Conference on Image and Signal Processing), pages 725-728, June 2003. Agadir, Marocco.
46. **A. Genovesio**, B. Zhang and J.-C. Olivo-Marin. Tracking of multiple fluorescent biological objects in three dimensional video microscopy. Proceedings of ICIP (IEEE International Conference on Image Processing), Vol. 1, pages 1105-1108, September 2003. Barcelona, Spain.

INVITED TALK & CONFERENCE POSTERS

- **Genovesio**, High-Content Cellular Microarrays for Genome-Wide RNAi Screens. Invited Talk to RNAi summit, San Francisco CA, USA, Invited Speaker, June 2009
- **A. Genovesio** & Neil Emans, High content cellular RNAi arrays. Invited Talk to CHI's Beyond Genome, San Francisco CA, USA, Invited Speaker, June 2008
- **A. Genovesio** & Neil Emans, Phenotype directed identification of host factors involved in HIV infection. Invited Talk to RNAi Global meeting, Boston MA, USA, Invited Speaker, April 2008
- JP Carralot, CB Lee, TC Kim, A. Boese, B. Lenseigne, **A. Genovesio**, P Sommer, T Christophe and P Brodin. Development of an automated siRNA screening of host macrophages genes involved in Mycobacterium tuberculosis infection, Poster to RNAi Europe, Barcelona, Spain, September 2007
- P. Brodin, T. Christophe, B. Lenseigne, HK Jeon, JP Carralot, HS Jeong, **A Genovesio**, R Brosch and ST Cole, Imaging of Mycobacterium tuberculosis for rapid bacterial quantification: Application to

High Throughput and High Content Screening of drugs within Host Macrophages, Poster to Keystones Symposium, Vancouver, Canada, March 2006

- **A. Genovesio**, G. Cabal, O. Gadal, F. Feuerbach, U. Nehrass and J.-C. Olivo-Marin. A Computerize method for the three-dimensional detection and localization of chromosomal loci in living cells. Poster to ELMI 2004 (European Light Microscopy Initiative), May 2004, Gothenburg, Sweden.
- **A. Genovesio** and J.-C. Olivo-Marin. Multitarget tracking applications in microbiology. Invited Talk to ELSO (European Life Scientist Organization), September 2004. Nice, France.
- R. Amino, **A. Genovesio**, S. Celli, P. Roux, J.-C. Olivo-Marin, S. L Shorte, R. Menard and F. Frischknecht. From skin to liver: In vivo imaging of plasmodium sporozoites. Poster to Molecular Parasitology Meeting XV, September 2004, Woods Hole, MA, USA.
- E. Mairey, E. Donnadieu, **A. Genovesio**, J.-C. Olivo-Marin, X. Nassif and G. Dumenil. Bacterial adhesion under flow - a real time adhesion assay. Poster to 14th international Pathogenic Neisseria conference, September 2004. Milwaukee, WI, USA.
- **A. Genovesio**, Bo Zhang, Vannary Meas-Yedid, Christophe Zimmer and Jean-Christophe Olivo-Marin. Tracking and motion analysis in dynamic imaging: movie crunching. Poster to ELMI 2003 (European Light Microscopy Initiative), June 2003. Barcelona, Spain.

LECTURES - TEACHING

- Institut Pasteur (France - 2009, 2005)
- Hong Kong University (China - 2009)
- Yonsei University (Korea - 2007)
- Paris 6 (France - 2005)
- Ecole Normale Supérieure Cachan (France - 2004)
- Paris 5 (France - 2004)