

Luis Da Costa

[Work]

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- RESEARCH ◇ I am interested in the understanding of complex systems, and in the study of (natural and artificial) evolution and learning. Currently, as a post-doctoral researcher at the TAO team (tao.lri.fr, Paris, France) I am developing a library and graphic tool (**GUIDE**, <http://guide.gforge.inria.fr>) allowing the easy development and generation of evolutionary algorithms based on a high-level description of a problem to solve. This tool is actively used on the framework of the Evotest European Project (evotest.itl.upv.es) as part of a software-testing environment using evolutionary techniques. I am also working on the automatic parameter tuning for evolutionary algorithms.
- EDUCATION ◇ **École de Technologie Supérieure**, Montreal, QC (Canada).
Ph.D. (December 2006). Research supervisor: Dr. Jacques-André Landry.
Research project: *3D Model reconstruction using incomplete 2D information: an application to the study of natural plants and trees* (in French)
- ◇ **University Simon Bolivar**, Caracas, Venezuela
M.Sc. in Computer Sciences (1998).
Research Project: *Action selection: a connectionist study* (in Spanish)
- ◇ **University Simon Bolivar**, Caracas, Venezuela.
B.Eng. (Informatics), (1994).
Project: *Study of the movement of an ant colony using neural networks* (in Spanish)
- PUBLICATIONS Chion, Clément, Landry, J.A. and Da Costa, Luis. 2008. **A Genetic Programming**
IN JOURNALS **Based Method for Hyperspectral Data Information Extraction: Agricultural**
AND BOOK **Applications**. *IEEE Transactions on Geoscience and Remote Sensing* Volume 46, Issue
CHAPTERS 8 (August). Pages: 2446–2457.
- Landry, J.A.; Da Costa, Luis and Bernier, T. 2006. **Discriminant Feature Selection**
by Genetic Programming: Towards a Domain Independent Multi-Class Ob-
ject Detection System. *Journal of Systemics, Cybernetics and Informatics*, 3(1).
- PUBLICATIONS A. Fialho, Da Costa, Luis, M. Schoenauer and M. Sebag 2008. **Extreme Value Based**
IN LECTURE **Adaptive Operator Selection**. In *Parallel Problem Solving from Nature– PPSN X*,
NOTES volume 5199/2008, pages 175–184. Springer Berlin / Heidelberg, 2008.
- Da Costa, Luis, Landry, J.A. and Levasseur, Yan. 2007. **Treating Noisy Data Sets**
with Relaxed Genetic Programming. In N. Monmarché et al. (Eds.): *EA 2007*,
LNCS 4926, pp. 1–12, 2008. Springer-Verlag Berlin Heidelberg
- Da Costa, Luis; Landry, J.A. 2003. **On the Applicability of L-Systems and It-**
erated Functions Systems for Grammatical Synthesis of 3D Models. *Lecture*
Notes in Artificial Intelligence 2671: 614-615 2003. Presented at AI'2003 (The Canadian
Conference on Artificial Intelligence), Dalhousie University, Halifax, Canada.
- PUBLICATIONS Da Costa, Luis and M. Schoenauer 2009. **Bringing Evolutionary Computation to**
AND **Industrial Applications with GUIDE**. *Proceedings of GECCO'09* (Montreal, Canada)
PRESENTATIONS (to appear).
IN PEER-
REVIEWED
CONFERENCES

A. Fialho, Da Costa, Luis, M. Schoenauer and M. Sebag 2009. **Dynamic Multi-Armed Bandits and Extreme Value-based Rewards for Adaptive Operator Selection in Evolutionary Algorithms**. LION'09: Electronic Proceedings of the 3rd International Conference on Learning and Intelligent OptimizatioN (to appear).

Da Costa, Luis, A. Fialho, M. Schoenauer and M. Sebag 2008. **Adaptive Operator selection with dynamic multi-armed bandits**. Proceedings of GECCO 2008 (Atlanta, Georgia, USA), pp. 913–921.

Da Costa, Luis and M. Schoenauer 2007. **GUIDE, a Graphical User Interface for Evolutionary Algorithms Design**. GECCO Workshop on Open-Source Software for Applied Genetic and Evolutionary Computation (SoftGEC), J. H. Moore (editor)

Da Costa, Luis and Landry, J.A. 2006. **Relaxed Genetic Programming**. GECCO 2006, eds. M. Keijzer et al. (Seattle, WA, USA. July 8th-12th), pp. 937-938.

Chion, Clément; Da Costa, Luis and Landry, J.A. 2006. **Genetic Programming for Agricultural Purposes**. GECCO 2006, eds. M. Keijzer et al. (Seattle, WA, USA. July 8th-12th), pp. 784-789.

Da Costa, Luis and Landry, J.A. 2005. **Generating Grammatical Plant Models with Genetic Algorithms**. International Conference on Adaptive and Natural Computing Algorithms. Coimbra, Portugal. March 21-23. SpringerWien, New York. 230-234.

Da Costa, Luis; Landry, J.A. 2004. **Synthesis of Fractal Models for Plants and Trees: First Results**. Fractal 2004 : Complexity and Fractals in Nature. Vancouver, Canada. April 4-7, 2004.

Da Costa, Luis; Landry, J.A. 2004. **A Convivial Visualization Environment for LSystems**. Fractal 2004 : Complexity and Fractals in Nature. Vancouver, Canada. April 4-7, 2004.

Bernier, T.; Landry, J.A.; Da Costa, Luis. 2003. **Interactive description and classification of biological/irregular objects**. Première journée d'échanges et de diffusion technologiques : Instrumentation et technologies pour le contrôle et l'inspection dans les procédés agroalimentaires et biotechnologiques. Montréal, Canada. May 2003.

OTHER PUBLICATIONS AND/OR PRESENTATIONS Da Costa, L. and Terhesiu, D. 2005. **A simple model for the diffusion of ideas**. Research Project for the *Complex Systems Summer School*, SFI (Santa Fe, New Mexico)

Anastadiasis, A.D., Da Costa, L., González, C.P., Honey, C., Széliga, M.I. and Terhesiu, D. 2005. **Measures of Structural Complexity in Networks**. Research Project for the *Complex Systems Summer School*, SFI (Santa Fe, New Mexico)

SCHOOLS ATTENDED
 ◇ **Complex Systems Summer School**, Santa Fe Institute (Santa Fe, New Mexico), 2005
 ◇ **The mathematics of bioinformatics**. U. of Montreal, 2003
 ◇ **I Venezuelan School of Artificial Intelligence** Caracas, Venezuela (1995)

WORK EXPERIENCE
 ◇ **Post-Doctoral Researcher** at the TAO Team (tao.lri.fr), INRIA-Futurs (Paris, France) (Since May 2007) I work on the EvoTest European project (evotest.iti.upv.es), whose aim is to develop an evolutionary test case generator for software programs. My research is focused on two points: *how to bring the power of evolutionary computation to the whole research community?* and *how to automatic tune the parameters for evolutionary algorithms?*
 ◇ **Invited Researcher** at the LIVIA (www.livia.etsmtl.ca) (Montreal, Canada) (January 2007 – May 2007). Research on specific problems and models related with Genetic Programming.
 ◇ **Teaching assistant** for the graduate seminar in Complex Systems at the U. of Montreal (www.geog.umontreal.ca/syscomplex/cours/geo6341/geo6341.html) (Montreal, Canada) (Fall 2005). I lead group discussions (including selection of appropriate topics and articles), conducted evaluation of term projects, and created and maintained the Web content for the seminar.

- ◇ **Research assistant** at the LIVIA (www.livia.etsmtl.ca) (January 2002 – May 2005), initially working on a probabilistic detection system (Spring 2002) and then on Web site design for undergraduate courses.
- ◇ **Project Manager**, Kynesoft Sistemas (www.kynesoft.com) (Caracas, Venezuela) (June 2000 – September 2001). As the leader of the software engineering team, I lead the design and implementation of an online transactional system for a Venezuelan bank. I was also responsible for a line of functional prototypes for Schlumberger (and their line of Java Smart Cards).
- ◇ **Software Project Manager** at Eurobanco Bank (www.eurobanco.com) (Caracas, Venezuela) (January 1999–June 2000) I worked on the design of the network architecture for the bank's electronic platform, and on the design and implementation of the online transactional system of the bank.
- ◇ **Research Assistant** at the Artificial Intelligence Lab. (University Simon Bolivar) (Caracas, Venezuela) (www.gai.usb.ve) 1994 – 1998

LANGUAGES ◇ Fluent in English, French and Spanish.

References available upon request.