Curriculum Vitae

Luis Garreta

Bioinformatics and Biocomputation Research Group
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Research Interests

- Bioinformatics & Computational Biology, Machine Learning, Distributed Computing.

Education

- **Ph.D. Candidate in Engineering emphasis in Computer Science,** Universidad del Valle, Cali-Colombia, expected graduation 2012
  Thesis: "A computing framework to analyze initial and derived intermediate conformations of a globular protein"
  Advisor: Professor Irene Tischer
- **M.S. in Engineering, emphasis in Computer Science (2006)**, Universidad del Valle, Cali-Colombia
  Thesis: "Bayesian Models of Mixture of Experts for Eukaryotic Gene prediction"
  Advisor: Professor Irene Tischer
- **B.S. in Computer Science (2001),** Pontificia Universidad Javeriana, Cali-Colombia
  Thesis: "Object-oriented architecture for modeling magic lens filters as display elements within graphical user interfaces" (Laureate Thesis Award)
  Advisor: Professor Andrés A. Navarro
- **A.S. in Electronics Technology (2001),** Universidad del Valle, Cali-Colombia
  Thesis: "Code Generation in Z-80 assembler from a low C language compiler"
  Advisor: Professor William Giraldo

Honours & Awards

- **Santander Entrepreneurship Award, Science and Innovation - Colombia (2008).** M. Almanza, P. Vélez, N. Díaz, L. Garreta, C. Téllez, E. Caldón and P. Moreno. Exon Prediction Model that integrates fractal characteristics of DNA in a machine learning technique of data mining as potential biotechnological use service.
- **COLCIENCIAS Scholarship: Enhancement of Colombian Scientific Community through National Doctorate Programs (2007)**. Doctoral Scholarship
- **Best undergraduate project in Systems Engineering at the Valle del Cauca (2002).** Asociación de Ingenieros del Valle, Cali-Colombia.
- **Honour distinction for excellence in graduation work (2001)**. Laureate Thesis Award. Highest honour awarded for outstanding research work. B.S. in Computer Science. Pontificia Universidad Javeriana, Cali-Colombia.

Academic Experience

- **Research Assistant 2007 – Present**

  School of Computer Science, Universidad del Valle, Cali-Colombia.
  Working on the development of models and algorithms for gene analysis, prediction and gene or genome comparison based on informatics methodologies.
  Recent developments: Graphic interfaces for gene prediction, able to make training and prediction easier for the end user. User directed feedback which allows to control and improve the training process. Comparison of different gene predictions and their optimization by Bayesian mixtures.

- **Researcher and Lecturer, 2002-2006.**

  System Department, University of Cauca, Popayán-Colombia
  Research projects: Multifractal analysis of diverse genomes (2004-2006)
  Courses taught (Undergrad): Structures of Programming Languages (2004-2006), Object-Oriented Programming (2002-2003), Data Structures (2002-2003), Introduction to Programing (2005-2006)

Publications and Conferences

- Pedro A. Moreno, Patricia E. Vélez, Ember Martínez, Luis Garreta, Néstor Díaz, Siler Amador, José M. Gutiérrez, Irene Tischer, Ashwin K. Naik, Fabián Tobar, Felipe García (2011). The human genome: a multifractal analysis. BMC Genomics 12:506.
  URL: http://www.ncbi.nlm.nih.gov/pubmed/21999602

- Garreta, L. and Tischer, I. (2011). Evaluation of structural and energetic protein properties on the villin folding simulation. Computing Congress (CCC), 2011 6th Colombian, vol., no., pp.1-6, 4-6 May 2011 doi: 10.1109/COLOMCC.2011.5936303
  URL: http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5936303&isnumber=5936275

- Patricia E. Vélez, Luis Garreta, Ember Martínez, Néstor Díaz, Siler Amador, José M. Gutiérrez, and Irene Tischer, Pedro A. Moreno. (2010). The Caenorhabditis elegans genome: a multifractal analysis. Genet and Mol Res 9:949-965.
  URL: http://www.ncbi.nlm.nih.gov/pubmed/20506082

- Siler Amador, Oscar Caicedo, Luis Garreta and Dougglas Carmona (2010). Probabilistic analysis using the Bayes theorem to predict the tendency to choose passwords of users. Revista Generación Digital 9:77-81.
  URL: http://revistas.sanmartinbaq.net/index.php/gd/article/view/31

- Sandra Roa and Luis Garreta (2008). API Transparente. Avances En Sistemas E Informática 5:155-158.
  URL: http://www.revistas.unal.edu.co/index.php/avances/article/view/10036

Technical Skills

- Programming: Python, Java, C/C++, R, UNIX shell scripting, Mozart, Scheme, Prolog.

- Operating Systems: UNIX (GNU/Linux, Solaris), Microsoft Windows.