

# Roger Pique-Regi

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CONTACT INFORMATION	Address: 3740 McClintock Av., EEB 434 Los Angeles, CA, USA 90089-2564 Office Phone: 1-213-740-4679 Cell Phone: 1-213-291-4456 E-mail: <a href="mailto:rpique@gmail.com">rpique@gmail.com</a> Web-page: <a href="http://biron.usc.edu/~pique-regi/">http://biron.usc.edu/~pique-regi/</a>
RESEARCH INTEREST	Bioinformatics, statistics and signal processing applied to the study and analysis of genomes and microarray data.
EDUCATION	<b>University of Southern California, Los Angeles, CA</b> Ph.D. Electrical Engineering (GPA: 4.0/4.0) 2003 - present <ul style="list-style-type: none"><li>Advisor: Prof. Antonio Ortega</li><li>Thesis: <i>Sparse Representation Models and Applications to Bioinformatics</i></li></ul> <b>Technical University of Catalonia, Barcelona, Spain</b> Telecommunications Engineering (emphasis in Signal Processing) 1998 - 2002 <ul style="list-style-type: none"><li>Advisor: Prof. Lluís Torres</li><li>Master's Thesis: <i>"Efficient face coding in videosequences combining adaptive Principal Component Analysis and a Hybrid Codec Approach"</i></li></ul>
PROFESSIONAL EXPERIENCE	<b>Childrens Hospital Los Angeles, Keck School of Medicine, University of Southern California, Los Angeles, CA</b> Research Assistant 2005 - Present <ul style="list-style-type: none"><li>Advisor: Shahab Asgharzadeh (PhD, MD)</li><li>Applying signal processing and machine learning techniques for developing molecular classifiers for the prognosis and risk stratification of cancer tumors.</li></ul> <b>Department of Preventive Medicine University of Southern California, Los Angeles, CA</b> Research Assistant May – Aug , 2006 <ul style="list-style-type: none"><li>Advisor: Prof. Duncan C. Thomas</li><li>Bayesian hierarchical modeling of means and covariances of gene expression data within families.</li></ul> <b>Technical University of Catalonia, Barcelona, Spain</b> Research Assistant 2002 – 2003 <ul style="list-style-type: none"><li>Advisor: Prof. Lluís Torres</li><li>Developing novel hybrid video coding algorithms using metadata information. This work was part of the European Union project MASCOT</li></ul>
TEACHING EXPERIENCE	<b>University of Southern California, Los Angeles, CA</b> Teaching Assistant May – Aug, 2005 <ul style="list-style-type: none"><li><i>Digital Signal Processing (EE483)</i></li></ul>
HONORS	<ul style="list-style-type: none"><li>Best Journal paper Award finalist Department Of Electrical Engineering USC 2008</li><li>Best Paper Award finalist at ICASSP 2007</li><li>"La Caixa" Fellowship for graduate studies (2003-2005) in United States (one of the most prestigious fellowship programs in Spain).</li><li>Ranking 1<sup>st</sup> (highest GPA) for the last 2 years of telecommunications engineering degree at Technical University of Catalonia, Spain.</li></ul>
TALKS	<ul style="list-style-type: none"><li><b>Pique-Regi R</b>, Ortega A, Asgharzadeh S: " Bayesian detection of recurrent copy number variation across multiple array samples ", Human Genome Variation Meeting , October 2008, Toronto, Canada.</li><li><b>Roger Pique-Regi</b>: "Sparse representations and application to genome copy number alteration detection from microarray data ", Human Genetics Department Seminar, University of Chicago, October 2008</li><li><b>Pique-Regi R.</b>, Asgharzadeh S: "Bayesian Detection of Genome Copy Number Alterations from Microarray Analysis of Neuroblastoma Cell Lines", Advances in Neuroblastoma Research, ANR 2008, Chiba Japan.</li><li><b>Pique-Regi R.</b>: "Bayesian detection of genome copy number alterations from microarray</li></ul>

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- data in cancer cells ", AACR annual meeting , April 2008, San Diego, California.
- **Roger Pique-Regi** , " Bayesian Detection of Copy Number Alterations", Biostatistics Seminar, Keck School of Medicine -- Preventive Medicine, University of Southern California, Los Angeles, February 2008.
- Asgharzadeh S., **Pique-Regi R.**, Tu Y., Sposto R., Shimada H., Ortega A, Seeger RC: "Prognostic significance of genomic alterations of metastatic neuroblastomas ", AACR meeting on Molecular Diagnostics in Cancer Therapeutic Development , September 17-20, 2007, Atlanta, Georgia
- **Roger Pique-Regi**, "Improved feature selection for LDA in microarrays", Biostatistics Seminar, Keck School of Medicine -- Preventive Medicine, University of Southern California, Los Angeles, 2005.

### PUBLICATIONS

#### Journal Papers:

- **Pique-Regi R**, Ortega A, Asgharzadeh S: " Detection of discriminant copy number alterations for case and control association studies ", *manuscript in preparation*.
- **Pique-Regi R**, Gonzalez JR: "R-Gada: a package for fast and parallel detection of copy number on multiple samples and visualization ", In preparation for *Bioinformatics Application Note*
- **Pique-Regi Ortega A**, Asgharzadeh S: "Joint estimation of copy number variation and reference intensities on multiple DNA arrays using GADA", Submitted to *Bioinformatics* , October 2008,
- **Roger Pique-Regi**, Monso-Varona J,Ortega A, Seeger RC, Triche TJ, Asgharzadeh S: "Sparse representation and Bayesian detection of the genome copy number alterations from microarray data", *Bioinformatics* , Feb 2008.
- Asgharzadeh S, **Pique-Regi R**, Sposto R, Wang H, Yang Y, Shimada H, Matthay K, Buckley J, Ortega A, Seeger RC. - " Prognostic significance of gene expression profiles of metastatic neuroblastomas lacking MYCN gene amplification. " - J Natl Cancer Inst 2006 Sep 6;98(17):1193-203

#### Conference Papers (peer reviewed):

- Sheng L, **Pique-Regi R**, Asgharzadeh S, Ortega A: " Microarray Classification using Block Diagonal Linear Discriminant Analysis with Embedded Feature Selection ", Submitted to *ICASSP 2009*
- Shrir L, **Pique-Regi R**, Siegmund K, Morrison J, Schumacher F, Marjoram P: " Copy Number Variation in the Framingham Heart Study ", *Genetic Analysis Workshop 16*, Sept. 2008
- **Pique-Regi R**, Monso-Varona J,Ortega A, Asgharzadeh S: " Bayesian Detection of Recurrent Copy Number Alterations across Multiple Array Samples ", *Gensips 2008*
- **Roger Pique-Regi**, John Morrison, Duncan C Thomas: " Bayesian hierarchical modelling of means and covariances of gene expression data within families " *BMC Proceedings* , 2007. 1(Suppl 1): p. S111.
- **Pique-Regi R**, Tsau ES,Ortega A, Seeger RC, Asgharzadeh S: "Wavelet footprints and sparse Bayesian learning for DNA copy number change analysis ", in International Conference on Acoustics Speech and Signal Processing (ICASSP), Hawaii 2007,
- **Roger Pique-Regi**, Antonio Ortega: "Block Diagonal Linear Discriminant Analysis with Sequential Embedded Feature Selection ", in International Conference on Acoustics Speech and Signal Processing (ICASSP), Toulouse, France, 2006
- **Roger Pique-Regi**, Antonio Ortega, Shahab Asgharzadeh: " Sequential Diagonal Linear Discriminant Analysis (SeqDLDA) for Microarray Classification and Gene Identification", *CSB 2005*: 112-116
- **Roger Pique** , Luis Torres, "Efficient face coding in videosequences combining adaptative Principal Component Analysis and a Hybrid Codec Approach", in International Conference on Acoustics Speech and Signal Processing (ICASSP), Hong Kong, China, 2003.

### PROFESSIONAL MEMBERSHIP

- Student member, Institute of Electrical and Electronic Engineers (IEEE)
- Student member, American Association for the Advancement of Science (AAAS)
- Member of Phi Kappa Phi

### PROFESSIONAL SERVICE

#### Reviewer for:

- EURASIP Journal on Advances in Signal Processing
- IEEE ICIP, ICASSP

## Roger Pique-Regi

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- TECHNICAL SKILLS
- BIOINFORMATICS (Oxford Journals)
  - Strong experience with C, C++, MATLAB and R
  - Experience with HTML, PHP, SQL and Perl
  - Windows/Linux (experience in setting up a cluster for parallel computing)
- LANGUAGES
- Spanish, Catalan, English