

Giovanni M. Dall'Olio, PhD

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Summary

Bioinformatician and data scientist with great international experience. Background in human population genetics and cancer, ability for analyzing complex datasets, and passion for developing novel methods to solve difficult data analysis problems.

Research and Work Experience

Research Associate

King's College University, London, UK

Principal Investigator: Francesca Ciccarelli, PhD

Feb. 2014 –
Present

- Integrated complex sources of gene expression, involvement in pathways, and duplication status for the study of cancer genes.
 - Improved data visualization and optimized database performances for the website Network of Cancer Genes.
 - Increased performances of the team by introducing new programming practices and novel data analysis approaches.
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Consultancy activity

- Remote consulting for Biostar Genomics LLC, making use of cloud computing and offering tailored support for data analysis tasks.
 - Member of ecSeq's experts network, a Leipzig-based start-up providing bioinformatics consulting and training.
 - Programmer and member of creative team for Mind Torch, a start-up matching students and young researchers with potential mentors.
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2015 –
Present

Research Assistant

Universitat Pompeu Fabra, Barcelona, Spain

Principal Investigator: Ferran Casals, PhD

Oct. 2013 –
Jan. 2014

- Implemented a Next Generation Sequencing pipeline on sequencing data. Used principal component analysis for identification of genetic diversification.
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PhD in Biomedicine

Universitat Pompeu Fabra, Barcelona, Spain

Principal Investigators: Prof. Jaume Bertranpetit and Prof. Hafid Laayouni

Oct. 2008 –
Oct. 2013

- Developed a novel pathway-based approach for the identification of genes under genetic selection in human populations.
 - Integrated several tests for detecting genetic differentiation from sequencing data, and created a web resource for presenting the results.
 - Organized internal workshops on data analysis and programming.
 - Research stay at Prof. Wagner's group at the University of Zurich, for the development of a novel method to quantifying genetic differentiation.
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Master student

Institut Hospital del Mar d'Investigacions Mèdiques (IMIM), Barcelona, Spain

Jan. 2007 –
Dec. 2007

Principal Investigator: Eduardo Eyras, PhD

- Characterization of alternative splicing in *C. neoformans* from Expressed Sequence Tags (EST) data
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Programming Skills

- R**
- More than 5 years of experience programming in R.
 - Experience in handling data (dplyr, tidyr), plotting (ggplot2, lattice), machine learning (randomForest, glm), handling genomic data (GRanges).
 - Contributions to open source libraries such as clusterProfiler (ontology analysis) and hierarchicalBoosting (machine learning / detection of genetic selection). Organized workshops for teaching R to beginners.
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- Python**
- More than 8 years of experience programming in Python.
 - Experience in handling scientific data (scipy, numpy, h5py), graphs (networkx, igraph), machine learning (scikit-learn), and web development (django, sqlalchemy/elixir).
 - Co-organizer of the Barcelona Python Meetup group from 2008 to 2013. Reviewer for “Python and Bioinformatics” from Packt Publishing group.
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- Unix**
- More than 8 years of experience.
 - Experience in handling data (sed, gawk, parallel) and defining workflows (make).
 - Presented courses on command line usage at international workshops.
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- Perl**
- Fluent. Experience in refactoring huge perl scripts.
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- Web**
- Experience with PHP, MySQL, django (python), googlechart (javascript).
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- Code sharing**
- Experience with git, hg and cvs. Contributions to open source projects in github and bitbucket. Experience with cloud computing on amazon EC2.
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- Other**
- **C, Matlab, Octave, Ruby.** Basic knowledge.
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Teaching and Courses Organization Experience

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| Programming for Evolutionary Biology Workshop. Introduction to Unix systems for Biologists.
University of Leipzig, Germany | Editions
2012-2015 |
| Programming for Evolutionary Biology conference. Organization of programming workshops on R and command line usage.
CiBIO, Vila do Conde, Portugal | First edition
2015 |
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Education

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| PhD in Biomedicine. Universitat Pompeu Fabra (UPF), Barcelona, Spain | 2008 – 2013 |
| Msc in Bioinformatics (Honors). University of Bologna, Bologna, Italy | 2005 – 2007 |
| Bachelor's Degree in Biotechnology. University of Bologna, Bologna, Italy | 2002 – 2005 |
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Languages

Italian	Native language
English	Very fluent. Complete professional competence.
Spanish	Very fluent. Complete professional competence.

Other Interests

- Blogging about **Bioinformatics** topics. Since 2006, I keep a personal blog about bioinformatics-related topics (<http://bioinfoblog.it>). The blog gets an average of ~30-40 visits per day.
 - Volleyball. Played as team captain in small amateur tournaments. Never won anything important, but enjoyed playing in a team.
 - Reading books. Committed to read at least one book every month since 2006.
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Publications

1. **Dall'Olio GM**, Vahdati AR, Bertranpetit J, Wagner A, Laayouni H. **VCF2Networks: applying genotype networks to single-nucleotide variants data**. *Bioinformatics*. 2015.
 2. **Dall'Olio GM**, Bertranpetit J, Wagner A, Laayouni H. **Human genome variation and the concept of genotype networks**. *PLoS One*. 2014
 3. Pybus M,* **Dall'Olio GM***, Luisi P*, Uzkudun M*, Carreño-Torres A, Pavlidis P, Laayouni H, Bertranpetit J, Engelken J. **1000 Genomes Selection Browser 1.0: a genome browser dedicated to signatures of natural selection in modern humans**. *Nuc. Ac. Res*. 2014.
 4. **Dall'Olio GM**, Laayouni H, Luisi P, Sikora M, Montanucci L, Bertranpetit J. **Distribution of Events of Positive Selection and Population Differentiation in a metabolic pathway: the case of Asparagine N-Glycosylation**. *BMC Evolutionary Biology*, 2012.
 5. Luisi P, Alvarez-Ponce D, **Dall'Olio GM**, Sikora M, Bertranpetit J, Laayouni H. **Network-level and population genetics analysis of the insulin/TOR signal transduction pathway across human populations**. *Molecular Biology and Evolution*, 2011.
 6. Parnell LD, Lindenbaum P, Shameer K, **Dall'Olio GM**, Swan DC, et al. **BioStar: An Online Question & Answer Resource for the Bioinformatics Community**. *PLoS Computational Biology*, 2011.
 7. **Dall'Olio GM**, Marino J, Schubert M, Keys KL, Stefan MI, Gillespie CS, et al. **Ten Simple Rules for Getting Help from Online Scientific Communities**. *PLoS Computational Biology*, 2011
 8. **Dall'Olio GM**, Jassal B, Montanucci L, Gagneux P, Bertranpetit J, Laayouni H. **The annotation of the Asparagine N-linked Glycosylation pathway in the Reactome Database**. *Glycobiology*, 2011.
 9. Laayouni H, Montanucci L, Sikora M, Melé M, **Dall'Olio GM**, Lorente-Galdos B, et al. **Similarity in recombination rate estimates highly correlates with genetic differentiation in humans**. *PLoS one*, 2011.
 10. Montanucci L, Laayouni H, **Dall'Olio GM**, Bertranpetit J. **Molecular evolution and network-level analysis of the N-Glycosylation metabolic pathway across primates**. *Molecular biology and evolution*, 2011.
 11. **Dall'Olio, GM**, Bertranpetit J, Laayouni H. **The annotation and the usage of scientific databases could be improved with public issue tracker software**. *Database: the journal of biological databases and curation*, 2010.
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