



Francesco Lescai

ASSOCIATE PROFESSOR

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About me

With a background in medical biotechnology, statistical genetics and molecular biology, my area of expertise is focused on computational genomics and bioinformatics.

I had the opportunity to work in a range of diverse environments (academia, industry, government), delivering data science solutions to understand the basis of human diseases, to develop best-in-class products, or to support global standards.

I am strategy-focused and like understanding the bigger picture: for this reason, I have also built experiences in policy advisory groups at national and international level. I have led a wide range of teams, both on site and across different countries, and managed professionals with different disciplinary backgrounds, always focused on people's growth and creation of new opportunities.

Positions

Associate Professor of Bioinformatics

DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY, UNIVERSITY OF PAVIA

Pavia

January 2021 - current

- I am leading a lab of Computational Genomics, at the Department of Biology and Biotechnology. My lab is focused on developing methods and open-source bioinformatics pipelines to unmask and better understand patterns of genomic variation associated with complex phenotypes.

Member

REGIONAL FORUM FOR RESEARCH AND INNOVATION REGIONAL GOVERNMENT

Regione Lombardia, Italy

November 2017 - current

- Expert member contributing on the topics of Genomics, large scale data analysis and computing, population-scale screening and how the concept of "responsible research and innovation" applies to public policies on these subjects, particularly when involving industry.

Section Leader, Head of Bioinformatics

MEDICINES AND HEALTHCARE PRODUCTS REGULATORY AGENCY, NIBSC

London

August 2019 - December 2020

- I led the bioinformatics team responsible for the analysis of the Institute's next generation sequencing data. This includes support and coordination of genomics and statistical analysis projects, in a wide range of areas spanning from Human genetics to immunology, microbiology and metagenomics. I contribute to the planning and development of biocomputing facilities, both on premises and on the cloud, and I represent the institute externally with the relevant stakeholders.

Senior Scientist, Biomedical Genomics

QIAGEN, QIAGEN BIOINFORMATICS

Aarhus

November 2017 - July 2019

- I have been part of the Global Product Management team for the CLC Genomics Workbench and Genomics Server; I have been responsible for the development of scientific content related to QIAGEN bioinformatics portfolio in the biomedical sector, and for leading scientific collaborations with other institutions and key opinion leaders; I carry out or supervise benchmarking activities, analysis of a wide range of biomedical data, and promote networking initiatives with the bioinformatics and human genetics community.

External Associate Professor in Bioinformatics

AARHUS UNIVERSITY, DEPARTMENT OF BIOMEDICINE

Aarhus

January 2019 - July 2019

- I supported the Department in teaching activities in Bioinformatics and Genetics, as well as in promoting collaboration with private companies.

Associate Professor in Human Genomics & Bioinformatics

AARHUS UNIVERSITY, DEPARTMENT OF BIOMEDICINE

Aarhus

March 2013 - December 2018

- My work has been focused on large-scale data analysis of next generation sequencing in psychiatric disorders (schizophrenia, depression, bipolar disorder, autism). I have been responsible of the development of data analysis pipelines, and big data management solutions of genome sequences in large cohorts of patients and healthy individuals; my research interests lie in the connection between genomics and bioinformatics with healthcare, by understanding the role of insertions deletions in genome variability, developing new methods to find patterns of genomic variation and understand how they could characterise diseases into clusters, and more in general in understanding role of combinations of multiple variants in complex and rare diseases.

Honorary Lecturer

UNIVERSITY COLLEGE LONDON, INSTITUTE OF CHILD HEALTH

London

March 2013 - December 2014

Senior Research Associate in Genome Analysis

London

UNIVERSITY COLLEGE LONDON, INSTITUTE OF CHILD HEALTH

November 2011 - February 2013

- Next Generation Sequencing bioinformatics analysis and methods development. Leader of Bioinformatics at the Centre for Translational Genomics GOSgene. Leader of the NGS Consortium at the University High Performance Computing cluster "Legion". Research work in the development of new variant annotation packages, and setup of bioinformatic workflows to facilitate the application of NGS into diagnostics; interest in understanding the role of insertions/deletions in genome variability, and their role in complex and rare diseases. Analysis of the Autism cohorts within UK10K.

Research Associate in Genome Analysis

London

UNIVERSITY COLLEGE LONDON, DIVISION OF RESEARCH STRATEGY, UCL GENOMICS

January 2010 - October 2011

- Next Generation Sequencing bioinformatics analysis. Development of the analysis pipeline for exome sequencing, SNP and INDEL calling, annotation and statistics. As part of UCL Genomics, collaboration with several research groups to provide the expertise in statistical and bioinformatic analysis of NGS data. Collaboration with the Wellcome Trust Case Control Consortium for the analysis of one of the WTCC2 genome-wide association studies

Researcher

Milano

INSTITUTE FOR BIOMEDICAL TECHNOLOGIES, NATIONAL COUNCIL OF RESEARCH (ITB - CNR)

January 2008 - December 2009

- High Throughput SNP genotyping and statistical genetics methodologies. Development of automated analysis functions specifically designed for these data sets. Studies on immuno-genetics of aging, with particular reference to the regulation of cytokine gene expression in inflammatory and stress response. Involved as a post-doc in the GEHA project, for the analysis of chromosome 11 and in the whole genome ASP analysis of a large dataset of old sib-pairs. Involved in the European project MARKAGE (FP7), on the identification of effective biomarkers for the ageing process, with responsibilities on the high throughput analysis of the DNA methylation status.

Genotyping Specialist

Bologna

CENTRE FOR ADVANCED BIOMEDICAL RESEARCH CRBA, SANT'ORSOLA UNIVERSITY HOSPITAL

January 2007 - December 2009

- Specialist at the Sequenom Genotyping Platform design of genotyping and methylation analysis, supervision of the platform scientific activities

Research Fellowship

Ferrara

ERGENTECH - REGIONAL CONSORTIUM FOR INNOVATION IN GENOMICS AND BIOTECHNOLOGY

January 2006 - December 2007

- High Throughput SNP genetic analysis with advanced technologies within activities for innovation and technology transfer, in the field of genetics of human ageing.

Visiting scientist

Kiel

MUCOSAL IMMUNOLOGY RESEARCH GROUP, UWNIVERSITÄTSKLINIKUM SCHLESWIG-HOLSTEIN

September-December 2004

- SNP scanning and genotyping of a chromosomal region associated with human longevity Laboratory automation with robotics and laboratory organisation, role of inflammation in ageing and age-associated disorders.

Research Collaboration

Bologna

INTERDEPARTMENTAL CENTRE ON BIOCOMPLEXITY, UNIVERSITY OF BOLOGNA

January 2002 - December 2005

- Bioinformatics research on biology, genetics and functional genomics of interleukin-6 and its role in ageing and Alzheimer's Disease.

Scientific Advisor

Bologna

FOUNDATION MARINO GOLINELLI

January 2001 - December 2009

- Scientific advisor for all activities related to biotechnology and public engagement. Supervised and coordinated the scientific content for major products like a portal of games to teach biotechnology and ethics to children, and for the realisation of a cartoon storyline to be proposed to a major TV network

Research Fellowship

Bologna - Paris

EUROPEAN FP5 PROJECT PROTEOMAGE

July 2000 - December 2001

- Genotyping activities within on proteomics in ageing

Grants

Project SMART-map (Grant Agreement number 710500/2016)

COORDINATOR

2016-2018

- The project was established to design tools to facilitate industrial innovation in line with the RRI framework, in the areas of precision medicine, synthetic biology and 3D printing in the biomedical sector. Total budget: 1,515,636.25 euros

Faculty Grant for Internationalisation

RECIPIENT

2017-2018

- Grant given to selected faculty members, in order to attract additional funding and international collaborations

European FP6 project BIOPOP (contract no.FP6-FOOD-0007086)

COORDINATOR

2004-2006

- The project was focused on the development of innovative formats to train young scientists and engage the public on societal implications of biotechnology.

European Commission Youth in Action grant - YEBA (contract no. YT7-SOAE7-2009-8941)

COORDINATOR

2005

- The project as focused on the development of networking and training activities to facilitate new skills for careers of young scientists in Europe.

European FP6 and FP7 projects: GEHA (Genetics of Healthy Ageing, contract no. LSHM-CT-2004-503270), MARKAGE (contract no. HEALTH-2007-200880) and MYOAGE (contract no. HEALTH-2007-223576)

SCIENTIST AND CONTRIBUTOR

2004-2009

- Projects coordinated by Claudio Franceschi in Bologna, and focused on different aspects of genetics and epigenetics of Human ageing

OTHER EXPERIENCES IN GRANT WRITING AND ADMINISTRATION

Wrote and participated in the panel interview for the regional Ministry of health grant on Identification of biomarkers of inflammation in the metabolic syndrome and associated diseases (Region Emilia-Romagna, Italy, Project 2009-1111).

Wrote as Scientific Coordinator the proposal submitted to the Italian Ministry of Health for the Young Investigator Program on Development of a new clinical evaluation toolset for the Metabolic Syndrome (sub-groups discovery) by the identification of individual immuno-genetics (inflammatory) profiles from the University of Bologna Hospital (proposal no. 684200).

Wrote the successful applications for University bids to buy several liquid handlers, and the Sequenom platform of the Hospital in Bologna.

Teaching

Immunopathology and Immunogenetics

MSC DEGREE IN MEDICAL BIOTECHNOLOGY, UNIVERSITY OF BOLOGNA

Bologna

2002 - 2009

Genetic Data Analysis

MASTER IN BIOINFORMATICS, UNIVERSITY OF BOLOGNA

Bologna

2008 - 2009

Introduction to next generation sequencing, I2B - Introduction to Bioinformatics course

UCL AND BIRKBECK COLLEGE

London

2012

GWAS and NGS Data Analysis with R

MSC IN CELL AND GENE THERAPY - MODULE 7 APPLIED GENOMICS, UCL

London

2011 - 2012

Downstream to NGS from calling the variants to whole genome association mapping

NGS WORKSHOP, AARHUS UNIVERSITY

Aarhus

2013 - 2014

Medical Genetics

MEDICINE, AARHUS UNIVERSITY

Aarhus

2014 - 2017

Bioinformatics in Pharmacology

M.Sc. IN MOLECULAR MEDICINE, AARHUS UNIVERSITY

Aarhus

2014 - 2017

Course Leader - Exome Sequencing Analysis in Medical Contexts

GRADUATE SCHOOL OF HEALTH, AARHUS UNIVERSITY

Aarhus

2014 - 2017

SEMINARS

Strong record as invited speaker at several national and international meetings, scientific congresses, institutions.

In London, speaker at the Virtual Bioinformatics Laboratory (PLINK tutorial on the analysis of GWAS datasets), at the London BioGeeks network (Exome analysis) and NGS meetings (Exome analysis experiences).

Organiser, as UCL member, of the London BioGeeks meetings from March 2011 to February 2013

Students Supervision

Since 2003, supervisor of 2 MSc thesis in Biotechnology, 3 BSc thesis in Biotechnology, 2 BSc thesis in Medicine, 1 PhD thesis in Experimental Pathology and 1 PhD thesis in Neuroscience.

In 2009 member of the Thesis Defence Assessment Committee of the School in Biotechnology in Bologna.

Professional Organisations and Scientific Societies

President

ANBI - ASSOCIATION OF THE ITALIAN BIOTECHNOLOGISTS

Bologna

2001 - 2007

Chairman

YOUNG EUROPEAN BIOTECH NETWORK

London

2007-2009

President, Collegio dei Probiviri

ANBI - ASSOCIATION OF THE ITALIAN BIOTECHNOLOGISTS

Bologna

2009 - 2018

Executive Board Member

EFB - EUROPEAN FEDERATION OF BIOTECHNOLOGY

Barcelona

2007 - 2018

Chairman, Task Force on Education, Mobility and Professional Qualifications

EUROPEAN FEDERATION OF BIOTECHNOLOGY

Barcelona

2011 - 2018

Member of the Committee for ISO/TC276 Biotechnology and Data Analysis in Genomics

BRITISH STANDARDS INSTITUTE (BSI)

London

2019 - 2020

Institutional Roles

Member, Committee for Biotechnology and Biosafety - Expert Group on Education

PRESIDENCY OF THE COUNCIL OF MINISTERS

Rome.

2005 - 2007

Expert and Delegate

EUROPEAN COMMISSION DELEGATION ON EU-RUSSIA SYMPOSIUM ON FOOD, AGRICULTURE AND BIOTECHNOLOGY

St. Petersburg.

2006

Member of the Advisory Committee on Skills for Bioeconomy 2020

EUROPEAN COMMISSION, DG RESEARCH AND INNOVATION

Brussels.

2011

Leader Next Generation Sequencing Consortium

UNIVERSITY COLLEGE LONDON, COMPUTER CLUSTER LEGION

London.

2012 - 2013

Elected member of the Academic Board

UNIVERSITY COLLEGE LONDON

London

2012 - 2013

Expert and Rapporteur, Expert Group on Revision of the Bioeconomy Strategy

EUROPEAN COMMISSION

Brussels

2016 - 2017

Member of the Forum for Research and Innovation

ADVISORY EXPERT BOARD TO THE REGIONAL GOVERNMENT

Regione Lombardia, Italy

2018 - current

Reviewing and Project evaluation

European Commission FP7 Marie Curie Grants Initial Training Networks (expert no. EX2006C135989)

EVALUATOR

2008-2009

Journal of Alzheimers Disease (Ingenta)

ASSOCIATE EDITOR

2010-2014

New Biotechnology Journal (Elsevier)

EDITORIAL BOARD MEMBER

2008-current

Journal Translational Biomedicine (IMedPub)

EDITORIAL BOARD MEMBER

2012-current

Frontiers in Genetics (EPFL)

REVIEWER AND EDITORIAL BOARD MEMBER

2018-current

European Commission Horizon2020 Health - 1st and 2nd stage (expert no. EX2006C135989)

EVALUATOR

2014-2016

Conferences

International Ocular Surface Society X International Meeting	<i>Florence</i>
CORNEAL STEM CELL TRANSPLANTS: THE POSSIBLE PREDICTIVE ROLE OF GENOTYPING FOR INFLAMMATORY CYTOKINES	2002
• Lescai F., Bartolozzi M., Conti L., Rossi M., Mazzi M., Ramazzotti G., Franceschi C., Sarnicola V.	
3rd Congress on Vaccination in the Elderly	<i>Rome</i>
IMMUNOLOGICAL ASPECTS IN THE AGEING POPULATION	2002
• Lescai et al.	
4th European Congress on The Ageing Society	<i>Rome</i>
AGEING PROCESS: THE INTERPLAY BETWEEN GENETICS AND ENVIRONMENT	2002
• Lescai et al.	
Italian Interdisciplinary Network on Alzheimers Disease X Annual Meeting	<i>Rome</i>
APOE PROMOTER POLYMORPHISMS IN ALZHEIMERS DISEASE: A CASE-CONTROL STUDY	2006
• Chiamenti AM, Lescai F, Codemo A, Basso C, Polesello G, Bertocco S, Ruaro C, Del Grosso, Destrieri N, Corti MC, Siviero P, Crepaldi G, Franceschi C and Gabelli C.	
European Congress on Biotechnology	<i>Barcelona</i>
THE ROLE OF PHENOCOPY IN THE ANALYSIS OF COMPLEX TRAITS	2009
• Lescai F and Franceschi C	
European Conference on Human Genetics - poster award	<i>Amsterdam</i>
VARIANT CALLING EXPERIENCE FROM 150 HUMAN DISEASE EXOME SEQUENCES	2011
• Lescai F et al.	
European Conference on Human Genetics - poster award	<i>Paris</i>
COMPARISON AND VALIDATION OF LOSS OF FUNCTION VARIANTS CALLED BY DIFFERENT GATK METHODS	2013
• Lescai F et al.	
European Congress of Human Genetics	<i>Milan</i>
RARE AND DE-NOVO VARIATION IN PSYCHIATRIC DISORDERS IN THE FAROE ISLANDS	2014
• Lescai F. et al.	
World Congress of Psychiatric Genetics	<i>Copenhagen</i>
COMBINATION OF WHOLE-GENOME AND WHOLE-EXOME SEQUENCING, TO IDENTIFY RARE AND DE-NOVO VARIATION IN CASES OF SCHIZOPHRENIA AND BIPOLAR DISORDER FROM THE FAROE ISLANDS	2014
• Lescai F et al.	
Association of Molecular Pathology Europe	<i>Rotterdam</i>
QIASEQ DIGITAL SEQUENCING AND BIOMEDICAL GENOMICS WORKBENCH: APPLICATION TO LIQUID BIOPSY IN BLADDER CANCER	2018
• Lescai F. et al.	

Education

SCHOOL AND UNIVERSITY

Liceo Scientifico G. Marconi	<i>Grosseto</i>
SCIENTIFIC SCHOOL LEAVING CERTIFICATE	1990 - 1995
Faculty of Medicine, University of Bologna	<i>Bologna</i>
LAUREA IN MEDICAL BIOTECHNOLOGY	1995 - 2000
Faculty of Medicine, Department of Experimental Pathology, University of Bologna	<i>Bologna</i>
PHD IN EXPERIMENTAL PATHOLOGY	2002 - 2005
European Association of Higher Education in Biotechnology	<i>Edinburgh</i>
EUROPEAN DOCTORATE IN BIOTECHNOLOGY	2006

ADVANCED TRAINING

Medical Genetics Section of the Misericordia Hospital	<i>Grosseto</i>
STAGE ON CYTOGENETICS AND MOLECULAR BIOLOGY IN PRENATAL DIAGNOSIS	1998
Foundation for Biotechnology	<i>Turin</i>
LABORATORY COURSE TRANSGENIC MICE AND GENE TARGETING	2001

Bocconi University School of Management

ADVANCED COURSE IN ENGINEERING STRATEGIES AND MANAGEMENT TOOLS IN THE PRODUCT DEVELOPMENT PROCESSES

Milan

2003

Accelrys Ltd

BIOINFORMATICS TRAINING COURSE ON THEORETICAL AND PRACTICAL ASPECTS OF SEQUENCE ANALYSIS WITH THE GCG (WISCONSIN PACKAGE) SOFTWARE WITH UNIX AND WEB INTERFACE

Cambridge Science Park,
Cambridge

2003

European Project BioTEthics

ADVANCED COURSE IN BIOTECHNOLOGY ETHICS

Abbey de Cernay la Ville, Versailles

2003

Life Learning Centre

BIDIMENSIONAL PROTEIN ELECTROPHORESIS: AN UPDATING COURSE ON PROTEOMICS

Bologna

2004

Life Learning Centre

CONFOCAL MICROSCOPY: A THEORETICAL AND PRACTICAL COURSE ON ADVANCED METHODS IN LASER MICROSCOPY

Bologna

2005

Wellcome Trust Genome Campus

WELLCOME TRUST ADVANCED COURSE ON HUMAN GENOME ANALYSIS: GENETIC ANALYSIS OF MULTIFACTORIAL DISEASES

Hinxton, Cambridge

2006

University Campus Kiel

BALTIC SUMMER SCHOOL GENETICS IN MEDICINE WITH WET LABORATORY ON DEEP SEQUENCING TECHNOLOGIES

Kiel

2009

Isaac Newton Institute for Mathematical Sciences

STATISTICAL CHALLENGES ARISING FROM GENOME RESEQUENCING

Cambridge

2010

EMBL EBI, Genome Campus, Hinxton

NEXT GENERATION SEQUENCING WORKSHOP

Cambridge

2011

BioConductor team and University of Padua

COMPUTATIONAL STATISTICS FOR GENOME BIOLOGY

Brixen, Italy

2011

Aarhus University

TEACHERS TRAINING PROGRAMME

- This is a mandatory diploma of 5 ECTS, on methods for advanced teaching and learning theories in higher education, essential to be hired in the position of assistant, associate or full professor.

Aarhus, Denmark

2014

DataBricks

SPARK DEVELOPMENT BOOTCAMP

- This course was focused on the innovative Spark environment for distributed computing, aimed at improving big data analysis and the use of machine learning methods in high-performance computing environments.

London

2016

Pragmatic Management

PRAGMATIC MANAGEMENT CERTIFICATION - FOUNDATIONS

- This course is the first level of certification in Product Management.

London

2018

Certifications

Italian National Qualification as Associate Professor in Genetics Sector 05/I1

(VALID FROM 23/01/2014 TO 23/01/2023)

2014

Italian National Qualification as Associate Professor in Medical Genetics Sector 06/A1

(VALID FROM 31/03/2017 TO 31/03/2026)

2017

Italian National Qualification as Associate Professor in Molecular Biology (Bioinformatics) Sector 05/E2

(VALID FROM 11/09/2019 TO 11/09/2028)

2019

Awards

BioVision.Nxt Fellow Class 2007

BIOVISION

Lyon

2006

Youth Excellence Award

TOSCANA REGIONAL GOVERNMENT

Florence

2007

Italian Talents Award

MINISTRY OF YOUTH

Rome

2010

Public Engagement

Tica e Bio Games Platform

FOUNDATION MARINO GOLINELLI

Bologna

2003

- I have developed the scientific contents, and supervised the graphical and software development of the games and the web platform Tica e Bio, developed by Loop Ltd. for the Foundation Marino Golinelli. The Web Platform was addressed to a young public of 6-10 years old children, with a large number of games intended to teach them the basics of biotechnology and help them reflect on bioethics topics. The initiative received a very important prize in Italy for innovative editorial products

BIOPOP teaching formats

BIOPOP FP6 PROJECT, FRAMEWORK PROGRAMME 6

Bologna

2004 - 2005

- The whole BIOPOP project was launched to develop innovative methods to engage the public and train young scientists to do so. We developed specifically designed teaching materials to allow others to use our methods, and develop their own training programmes. The material has been released in DVDs and it is downloadable online at <http://www.biopop.eu>

3D TV Cartoon Project

TOON3D

Milano

2006

- Based on the work done on "Tica e Bio", I supervised the scientific content for the development of a TV cartoon series, The work has been done by a company in Milan called StudioDDM and lead by Mario Taddei.

Come un Parlamento

FONDAZIONE MARINO GOLINELLI

Bologna

2005 - 2008

- Come un Parlamento means Like a Parliament, and it is a format similar to other youth parliaments initiatives in Europe, developed by the Foundation Marino Golinelli to specifically address issues in bioethics. Young participants from the last two years of high schools experience first real experiments in biological laboratories related to the topic to be debated, they engage experts and philosophers and finally are asked to autonomously develop legislative proposals to regulate the area, discuss and vote them in a parliament-like setting, usually hosted by province or regional government.

I have also participated as facilitator in numerous initiatives in different countries, developed role plays to engage citizens and scientists in science & society issues, moderated debates and designed several activities at science festivals.

Other Experiences

Participant in the Life Science Discussion Platform on Stem Cells

EUROPEAN COMMISSION

Bruxelles

2001

Special Guest in the Life Science Discussion Platform on Sustainable Agriculture and Options from Life Sciences for Developing Countries

EUROPEAN COMMISSION

Bruxelles

2003

Invited Speaker at the European Convention on Life Sciences and Biotechnology

MINISTRY OF FOREIGN AFFAIRS, ITALIAN PRESIDENCY OF THE EUROPEAN UNION

Rome

2003

Speaker at the Science in Society Forum 2005

EUROPEAN COMMISSION

Bruxelles.

2005

Exhibitor at Communicating European Research 2005

EUROPEAN COMMISSION

Bruxelles.

2005

Invited speaker, Italian National Congress on Science Communication

SISSA

Forli

2005

Participant in the Forum for the review of the Professional Qualifications Directive

EUROPEAN COMMISSION, DG MARKET

Bruxelles

2011

Invited Speaker at the Stakeholders Workshop for the Common Strategic Framework, Horizon 2020

EUROPEAN COMMISSION, DG RESEARCH AND INNOVATION

Bruxelles

2011

Invited Speaker at the Conference "New Skills for a European Bioeconomy"

EUROPEAN COMMISSION, DG RESEARCH AND INNOVATION

Bruxelles.

2012

Skills

SOCIAL SKILLS

Working in multi-disciplinary teams and adapting to different situations, as well as multicultural environments.

Very good communication skills both as speaker and as developer of new methodologies

ORGANISATIONAL SKILLS

Having chaired for many years national and international professional organisations, and coordinated different European projects, I have developed and demonstrated attitude to leadership and human resource management, the ability to work in teams and setup a collaborative and stimulating working environment. I acquired, both with formal education and with experiences on the field, basic and advanced methodologies for project management (including software tools) and planning. I have demonstrated my expertise in financial management at different levels. I organised events, conferences and training workshops, and given lectures on organisation, networking and communication before different audiences (among others, at the NatureJobs Career event in Berlin).

SCIENTIFIC AND TECHNICAL SKILLS

High Throughput SNP genetic analysis, population genetics, genetic epidemiology, interaction analysis. I specialised in statistical genetics: I developed applications of high throughput genetics to candidate gene, epigenetic studies and GWAS; I worked with simulation methodologies to assess new analytical methods for complex traits. I expanded my expertise in genetics and bioinformatics by developing pipelines for the analysis of next-generation sequencing data, and in particular whole exome sequencing; I have currently the experience of more than 25,000 exomes analysed, from raw data to a rich set of annotations with the ENSEMBL API. With Perl programming skills, Python, R language programming and a general genetics and bioinformatics background I have been optimising my analyses within high-performance computing cluster environments. In the last 7 years I have also learned C++ programming and started developing R packages for annotation and workflow management of NGS data. With this genomics experience, I gained expertise in high performance computing (on different clusters with PBS, SunGrid Engine, Slurm scheduler), and started using Big Data high performance solutions like Spark. I have developed an expertise in Data Visualisation and interactive tools like Google Viz, ShinyR, Tableau, which I also teach at seminars.

COMPUTER SKILLS

Good knowledge of Microsoft Office, and OS in general, and several tools running under windows environment. Good knowledge of graphic design applications, like the Acrobat suite. Knowledge of Linux, and in particular Ubuntu distributions, unix environment and unix clusters. Knowledge of Mac and different programming applications, advanced knowledge of the R language, Perl language, Python, C++ and Ensembl API applications.