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Functional Genomics Group
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Education

2009 **Ph.D.** Computer Science, University of Manchester, UK
2005 **M.Sc.** Bioinformatics, University of Manchester, UK
2003 **B.Sc.** Biology, University of Basque Country, Spain
2002 **Invited student** Evolutionary Ecology at Canterbury Christ Church University College, UK
2002 **Erasmus student** Environmental Biology at Canterbury Christ Church University College, UK

Employment

2014-Present **Post-doc researcher** Functional Genomics Group, University of Basque Country
2011-2014 **Marie Curie Cofund fellow** Ontology Engineering Group (Computer Science);
Biological Informatics Group (CBGP), UPM, Spain
2009 **Researcher** OGO project, UM, Spain
2006 **Marie Curie EST fellow** Computational Biology group, VIB, Belgium

Research visits

2005 European Bioinformatics Institute (EBI), funded by the Network of Excellence on
Semantic Interoperability and Data Mining in Biomedicine (EU)

Funding

2011-2014 Marie Curie Cofund (EU)
2006 Marie Curie EST (EU)
2005 EPSRC (UK): Ph.D. fees
2005 - 2008 University of Manchester (UK): Ph.D. maintenance allowance
2002 Erasmus (EU)

Publications

Refereed Journal Articles

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| 2015 | Pawluczyk, M., Weiss, J., Links, M. G., Aranguren, M. E., Wilkinson, M. D., and Egea-Cortines, M. (2015). Quantitative evaluation of bias in PCR amplification and Next Generation Sequencing derived from metabarcoding samples. <i>Analytical and Bioanalytical Chemistry</i> , in press |
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- 2014 González, A. R., Callahan, A., Toledo, J. C., García, A., Aranguren, M. E., Dumontier, M., and Wilkinson, M. D. (2014a). Automatically exposing OpenLifeData via SADI semantic Web Services. *Journal of Biomedical Semantics*, 5(1):46+
- 2014 Aranguren, M. E., González, A. R., and Wilkinson, M. D. (2014). Executing SADI services in Galaxy. *Journal of Biomedical Semantics*, 5(1):42+
- 2014 José Antonio Miñarro Giménez, Mikel Egaña Aranguren, Boris Villazón Terrazas, and Jesualdo Tomás Fernández Breis (2014). Translational research combining orthologous genes and human diseases with the OGOLOD dataset. *Semantic Web Journal*, 5(2):145–149
- 2014 Mikel Egaña Aranguren, Jesualdo Tomás Fernández Breis, and Michel Dumontier (2014). Special issue on Linked Data for Health Care and the Life Sciences. *Semantic Web Journal*, 5(2):99–100
- 2013 Duque-Ramos, A., Fernández-Breis, J. T., Iniesta, M., Dumontier, M., Egaña Aranguren, M., Schulz, S., Aussenac-Gilles, N., and Stevens, R. (2013). Evaluation of the OQuaRE framework for ontology quality. *Expert Systems with Applications*, 40(7):2696–2703
- 2013 Egaña Aranguren, M., Fernández-Breis, J. T., Antezana, E., Mungall, C., Rodríguez González, A., and Wilkinson, M. D. (2013). OPPL-Galaxy, a Galaxy tool for enhancing ontology exploitation as part of bioinformatics workflows. *Journal of biomedical semantics*, 4(1):2
- 2012 Minarro-Gimenez, J., Egana-Aranguren, M., Villazon-Terrazas, B., and Fernandez-Breis, J. (2012). Publishing Orthology and Diseases Information in the Linked Open Data Cloud. *Current Bioinformatics*, 7(3):255–266
- 2011 Mironov, V., Antezana, E., Egaña, M., Blondé, W., De Baets, B., Kuiper, M., and Stevens, R. (2011). Flexibility and utility of the Cell Cycle Ontology. *Applied Ontology*, 6(3):247–261
- 2011 Miñarro-Gimenez, J., Aranguren, M., Béjar, R., Fernández-Breis, J., and Madrid, M. (2011). Semantic integration of information about orthologs and diseases: The OGO system. *Journal of biomedical informatics*, 44:1020–1031
- 2009 Antezana, E., Egaña, M., Blondé, W., Illarramendi, A., Bilbao, I., De Baets, B., Stevens, R., Mironov, V., and Kuiper, M. (2009b). The Cell Cycle Ontology: an application ontology for the representation and integrated analysis of the cell cycle process. *Genome Biol*, 10(5):R58
- 2009 Antezana, E., Blondé, W., Egaña, M., Rutherford, A., Stevens, R., De Baets, B., Mironov, V., and Kuiper, M. (2009a). BioGateway: a semantic systems biology tool for the life sciences. *BMC bioinformatics*, 10(Suppl 10):S11

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| 2008 | Egaña Aranguren, M., Wroe, C., Goble, C., and Stevens, R. (2008). In situ migration of handcrafted ontologies to reason-able forms. <i>Data & Knowledge Engineering</i> , 66(1):147–162 |
| 2008 | Aranguren, M., Antezana, E., Kuiper, M., and Stevens, R. (2008a). Ontology Design Patterns for bio-ontologies: a case study on the Cell Cycle Ontology. <i>BMC bioinformatics</i> , 9(Suppl 5):S1 |
| 2008 | Antezana, E., Egaña, M., De Baets, B., Kuiper, M., and Mironov, V. (2008b). ONTO-PERL: an API for supporting the development and analysis of bio-ontologies. <i>Bioinformatics</i> , 24(6):885 |
| 2007 | Stevens, R., Egaña Aranguren, M., Wolstencroft, K., Sattler, U., Drummond, N., Horridge, M., and Rector, A. (2007). Using OWL to model biological knowledge. <i>International Journal of Human-Computer Studies</i> , 65(7):583–594 |
| 2007 | Aranguren, M., Bechhofer, S., Lord, P., Sattler, U., and Stevens, R. (2007). Understanding and using the meaning of statements in a bio-ontology: recasting the Gene Ontology in OWL. <i>BMC bioinformatics</i> , 8(1):57 |

Book Chapters

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| 2010 | Aranguren, M., Stevens, R., Antezana, E., Fernández-Breis, J.T., Kuiper, M., and Mironov, V. (2010). Technologies and Best Practices for Building Bio-Ontologies. In <i>Knowledge-Based Bioinformatics</i> , volume Gil Alterovitz and Marco Ramoni (Eds.), pages 67–86. Wiley Online Library |
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Books

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| 2010 | Aranguren, M. (2010). <i>Role and application of ODPs in bio-ontologies</i> . Lambert Academic Publishing |
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Conference Proceedings

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| 2014 | González, A. R., Romero, M. M., Aranguren, M. E., and Wilkinson, M. D. (2014b). Nanopublishing clinical diagnoses: tracking diagnostic knowledge base content and utilization. In <i>27th International Symposium on Computer-Based Medical Systems (CBMS)</i> , pages 335–340 |
| 2013 | Iglesias, A. R., Aranguren, M. E., González, A. R., and Wilkinson, M. D. (2013). Plant Pathogen Interactions Ontology (PPIO). In Rojas, I. and Guzman, F. M. O., editors, <i>IWBBIO</i> , pages 695–702. Copicentro Editorial |

- 2011 Aranguren, M., Fernández-Breis, J., and Antezana, E. (2011). OPPL-Galaxy: enhancing ontology exploitation in galaxy with OPPL. In *Proceedings of the 4th International Workshop on Semantic Web Applications and Tools for the Life Sciences*, pages 12–19. ACM
- 2010 Miñarro-Giménez, J., Aranguren, M., García-Sánchez, F., and Fernández-Breis, J. (2010). A semantic query interface for the OGO platform. In *Information Technology in Bio-and Medical Informatics, ITBAM 2010*, pages 128–142. Springer
- 2008 Egaña, M., Rector, A., Stevens, R., and Antezana, E. (2008). Applying ontology design patterns in bio-ontologies. In Gangemi, A. and Euzenat, J., editors, *Knowledge Engineering: Practice and Patterns*, volume 5268 of *Lecture Notes in Computer Science*, pages 7–16. Springer Berlin Heidelberg

Preprints, Workshop Proceedings and other publications

- 2012 Horridge, M., Aranguren, M., Mortensen, J., Musen, M., and Noy, N. (2012). Ontology Design Pattern Language Expressivity Requirements. In *WOP (Co-located with ISWC), Boston, USA*
- 2012 Gimenez, J., Aranguren, M., and Tomas, J. (2012). NCBO-Galaxy: bridging the BioPortal web services and the Galaxy platform. In *ICBO, Graz, Austria*
- 2009 Fernandez-Breis, J., Aranguren, M., and Stevens, R. (2009). A quality evaluation framework for bio-ontologies. In *ICBO, Buffalo, USA*
- 2009 Aranguren, M., Stevens, R., and Antezana, E. (2008b). Transforming the Axiomisation of Ontologies: The Ontology Pre-Processor Language. In *OWL Experiences and Directions (OWLEd), Washington DC, USA*
- 2008 Iannone, L., Egana, M., Rector, A., and Stevens, R. (2008). Augmenting the expressivity of the ontology pre-processor language. In *OWL Experiences and Directions (OWLEd), co-located with ISWC, Karlsruhe, Germany*
- 2008 Antezana, E., Blondé, W., Egana, M., Rutherford, A., Stevens, R., De Baets, B., Mironov, V., and Kuiper, M. (2008a). Structuring the life science resourceome for semantic systems biology: lessons from the BioGateway Project. In *Proceedings of the Workshop on Semantic Web Applications and Tools for Life Sciences (SWAT4LS): November 28, 2008; Edinburgh, United Kingdom*
- 2012 Marshall, M., Boyce, R., Deus, H., Zhao, J., Willighagen, E., Samwald, M., Pichler, E., Hajagos, J., Aranguren, M., Miller, M., Prudhommeaux, E., Dumontier, M., and Stephens, S. (2012). Health Care and Life Science (HCLS) Linked Data Guide (<http://www.w3.org/2001/sw/hcls/notes/hcls-rdf-guide/>)

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| 2007 | Aranguren, M. (2007). ¿Qué puede hacer la web semántica por la biología? In <i>BioGaia 7</i> |
| 2003 | Aranguren, M. (2003). Software libre (GNU/linux) para biólogos. In <i>BioGaia 3</i> |

Invited Talks

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| 2014 | Building reasonable biomedical ontologies for a Life Sciences Semantic Web. 3S (Systems, Synthetic, and Semantic) Biology summer school. CIBIO (Centre for Integrative Biology), University of Trento, Italy |
| 2011 | Linked Data for Functional Genomics. NTNU, Trondheim, Norway |
| 2010 | Aplicación de la Web Semántica en Biología Molecular. Universidad de Deusto, Facultad de Ingeniería, Spain |
| 2008 | Aplicación de la Web Semántica en Bioinformática. UM, Facultad de Informática, Spain |
| 2004 | Métodos y resultados actuales en Bioinformática: know-how y know-what de las redes tecnocientíficas en Bioinformática. EHU, Facultad de Filosofía, Spain |

Teaching Experience

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| 2014 | Semantic biology tutorial: Use of semantic web resources for knowledge discovery. 3S (Systems, Synthetic, and Semantic) Biology summer school. CIBIO (Centre for Integrative Biology), University of Trento, Italy. English |
| 2014 | Galaxy tutorial. Erasmus mundus MSc in Marine Environment and resources, UPV-EHU. English |
| 2014 | Life Sciences Semantic Web. MSc Bioinformatics, UM. Spanish |
| 2013 | Introductory talk on bioinformatics for high school students visiting the CBGP |
| 2013 | Galaxy tutorials at CBGP |
| 2013 | Life Sciences Linked Data. MSc Bioinformatics, UM. Spanish |
| 2012 | OWL, as part of ATHENS course (UPM). English |
| 2012 | OWL, as part of ATHENS course (UPM). English |
| 2011 | Populous tutorial at SWAT4LS (London, UK), English |

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| 2011 | OWL, as part of ATHENS course (UPM). English |
| 2011 | Web Ontology Language (OWL), as part of Artificial Intelligence MSc (UPM). English |
| 2011 | OWL/Description Logics, as part of the Artificial Intelligence course (UPM). Spanish |
| 2005-2008 | OWL tutorials for biologists (University of Manchester, UK). English |

Ph.D. panels

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| 2013 | Meifania Monica Chen, “Lipoprotein Ontology: A Formal Representation of Lipoproteins”, Curtin University, Australia |
| 2012 | Jose Antonio Miñarro-Giménez, “Entorno para la gestión semántica de información biomédica en investigación traslacional”, UM, Spain |
| 2011 | Doris Mejía Ávila, “Estrategia de interoperabilidad semántica en el contexto de integración de conocimiento geográfico y ambiental. Caso de aplicación: Biodiversity Ontology”, UPM, Spain |

Service

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| 2013 | Special issue editor Semantic Web Journal, Special issue on Linked Data for Health Care and the Life Sciences |
| 2013 | Reviewer PeerJ |
| 2013 | Reviewer Data and Knowledge Engineering (DKE) |
| 2012 | Program Committee Member Managing Interoperability and complexXity in Health Systems. In conjunction with the ACM International Conference on Information and Knowledge Management |
| 2012 | Program Committee Member Joint Workshop on Semantic Technologies Applied to Biomedical Informatics and Individualized Medicine (SATBI + SWIM 2012). In conjunction with International Semantic Web Conference (ISWC) |
| 2012 | Reviewer BMC Bioinformatics |
| 2012 | Reviewer Journal of Biomedical Informatics (JBI) |
| 2012 | Reviewer Computational and Mathematical Methods in Medicine (CMMM) |

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| 2012 | Reviewer Journal of Medical Systems (JOMS) |
| 2012 | Reviewer Journal of Biomedical Semantics (JBS) |
| 2011 | Program Committee Member Managing Interoperability and compleXity in Health Systems. In conjunction with the ACM International Conference on Information and Knowledge Management |
| 2011 | Program Committee Member Knowledge Capture (K-CAP) |
| 2011 | Program Committee Member Semantic Applied Technologies on Biomedical Informatics (SATBI 2011). In conjunction with the ACM International Conference on Bioinformatics and Computational Biology |
| 2011 | Reviewer Semantic Web Journal (SWJ) |
| 2011 | Reviewer Journal of Research and Practice in Information Technology (JRPIT) |
| 2008 | Program Committee Member ONTORACT |

Collaboration with research groups in publications

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| 2015 | Computer Science. University of Saskatchewan, Canada |
| 2015 | Genetics. Technical University of Cartagena, Spain |
| 2015 | Biological Informatics Group. CBGP (UPM), Spain |
| 2014 | Biological Informatics Group. CBGP (UPM), Spain |
| 2014 | Dumontier lab. Carleton University, Canada |
| 2014 | Bio-Medical Informatics Research Group. Stanford University, USA |
| 2013 | Berkeley Bioinformatics Open-source Projects. Lawrence Berkeley National Laboratory, USA |
| 2013 | Methods and Engineering of Language, Ontology and DIscourse. Toulouse Institute of Computer Science Research, France |
| 2013 | Institute for Medical Informatics, Statistics and Documentation. Medical university of Graz, Austria |
| 2012 | Dumontier lab. Carleton University, Canada |
| 2012 | Bio-Medical Informatics Research Group. Stanford University, USA |
| 2012 | Isoco Labs. Isoco, Spain |

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| 2009 | Noray bioinformatics, Spain |
| 2009 | Tecnologías de Modelado, Procesamiento y Gestión del Conocimiento. Universidad de Murcia, Spain |
| 2008 | Semantic Systems Biology. Trondheim University, Norway |
| 2008 | KERMIT. Gent University, Belgium |
| 2005 | Information Management Group. University of Manchester, UK |
| 2005 | Bio-Health Informatics Group. University of Manchester, UK |

Technical skills

Semantic Web and Linked Data (Advanced): RDF, RDFS, SPARQL, OWL, SWRL, JSON-LD, OWL API, RDFLib, ONTO-PERL, Jena, Sesame, Stardog, Pubby, Protégé 4, TopBraid composer

Programming languages (Medium): Java, Perl, Python, Sed, Bash, JavaScript

UNIX systems (Medium): GNU/Linux (Debian, Ubuntu, CentOS, Red Hat)

Markup languages (Medium): XML, HTML 5, L^AT_EX 2_ε

Web Services (Basic): SADI framework, NCBO services

Web (Basic): Galaxy, Apache, Nginx, Tomcat, Jetty, lighttp, Solr/Lucene, Wordpress, Drupal, Markdown, Jekyll

Software development (Basic): Maven, Ant, SCons, Eclipse, Subversion, Mercurial, Git, Trac

Teaching systems (Basic): Moodle

Relational Databases (Basic): MySQL, PostgreSQL

File based data storage (Basic): HDF5, YAML, JSON

Statistical analysis (Basic): R

Cloud computing (Basic): Amazon EC2

Virtualisation (Basic): Docker