Mikel Egaña Aranguren, Ph.D.

Assistant Profesor

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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

2020/09/01 - Present	**Assistant Profesor**, Dept. of Computer Languages and Systems, UPV/EHU
2018/12/02 - 2020/08/31	**Linked Data Consultant** Eccenca GmbH Development of Linked Data solutions for the Enterprise, including project management
2018/10/01 - 2018/12/02	**Bioinformatics technician** Biocruces Bizkaia Data infrastructure development, Bioinformatics analyses
2016/01/14 - 2018/09/30	**Analyst, Torres Quevedo fellow** Eurohelp Consulting Design and development of Linked Open Data solutions
2015/04/27 - 2016/01/14	**Analyst** Eurohelp Consulting Design and development of Linked Open Data solutions

Research positions

2014/04/01 - 2015/03/31	**Post-doc researcher (80% FTE)** Genomic Resources Group, UPV/EHU Metagenomics and Life Sciences Semantic Web
2011/02/14 - 2014/02/14	**Post-doc researcher, Marie Curie Cofund fellow** Ontology Engineering Group (Computer Science); Biological Informatics Group (CBGP), UPM, Spain Ontology Engineering and Life Sciences Semantic Web
2010/12/01 - 2011/02/01	**Researcher** OGO project, UM, Spain Orthologous Genes Ontology
2006/05/01 - 2006/10/1	**Pre-doc researcher, Marie Curie EST fellow** Computational Biology group, VIB, Belgium Cell Cycle Ontology and Ontology Design Patterns

Freelance positions

2018/10/15 - 2018/12/02	**Ontology Engineering**. Cognizone, Belgium
2018/05/01 - 2018/07/31	**Public tender technical writer**. University of Murcia Project Hercules: Federated Linked Open Data for universities
2016/10/04 - 2017/02/25	**Ontology Engineering**. Intellimedis, Luxembourg

Research visits

2005/09/01 - 2005/10/01	European Bioinformatics Institute (EBI), funded by the Network of Excellence on Semantic Interoperability and Data Mining in Biomedicine (EU)

Funding obtained

2018-2020 (2 years)	**Declined** Bioinformatics Technician. Instituto de Salud Carlos III. CA18/00021
2016-2018 (3 years)	Torres Quevedo (Spain). 35% of salary at Eurohelp Consulting. PTQ-14-07198
2011-2014 (3 years)	Marie Curie Cofund (EU). UNITE 246565
2006 (5 months)	Marie Curie EST (EU). MEST-CT-2004-414632
2005 (One payment)	EPSRC (UK): Ph.D. fees
2005 - 2008 (3 years)	University of Manchester (UK): Ph.D. maintenance allowance
2002 (5 months)	Erasmus (EU)

Participation in projects

Research

2021 - 2024	SUPPORT4LS (Process Mining and Knowledge Representation technologies to Support the Learning Health System). PID2020-113723RB-C22. Agencia Estatal de Investigación, "Proyectos I+D+i 2020" - Modalidades "Retos Investigación" y "Generación de Conocimiento" (Plan Estatal de Investigación Científica y Técnica y de Innovación 2017-2020). 136.972,00 EUR. 01/09/2021 - 31/08/2024
2021 - 2022	Producción de Datos Enlazados para Open Data Euskadi. EJIE (Sociedad Informática del Gobierno Vasco), 2105015. (9.000 EUR) Knowledge transfer project (TR41652) managed by Euskoiker foundation.
2017 - 2018	SOLDAGE (Semantic Open Linked DAta GEnerator). HAZITEK, Gobierno Vasco. FAIR data generator (150.000 EUR).
2016 - 2020	REPLICATE. Renaissance of Places with Innovative Citizenship And TEchnology (Project 691735), EU. Linked Open Data in Smart Cities (http://replicate-project.eu/). (Consortium: 24.965.263,09; Eurohelp: 328.580,00 EUR).
2015 - 2017	Linking Open Domains, Plataforma para la generación de datos enlazados (LODGen) (TSI-100105-2015-0012). Ministerio de Industria, Energia y Turismo (Spain), Acción Estratégica Economía y Sociedad Digital (AEESD) 1/2015. Linked Open Data pipeline (40.182,54 EUR).
2015 - 2016	Enlazando Gipuzkoa con el Mundo (ENGIMU). Gipuzkoako Foru Aldundia, Gipuzkoa IKT: Innovación digital Empresas (Spain). Linked Open Data pipeline (40.000 EUR).

Development

2018	Servicios Directorio Linked Open Data. EJIE (Sociedad Informática del Gobierno Vasco). (70.000 EUR).
2016 - 2017	Servicios Open Linked Data. EJIE (Sociedad Informática del Gobierno Vasco). Linked Data implementation of Open Data Euskadi (90.000 EUR).

Publications

Refereed Journal Articles

2015	Aranguren, M. E. and Wilkinson, M. D. (2015). Enhanced reproducibility of SADI Web service workflows with Galaxy and Docker. *GigaScience*, 4(59)
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. *Analytical and Bioanalytical Chemistry*, 407(7):1841–1848

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

2008 Egaña Aranguren, M., Wroe, C., Goble, C., and Stevens, R. (2008). In situ migration of handcrafted ontologies to reason-able forms. *Data & Knowledge Engineering*, 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. *BMC bioinformatics*, 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. *Bioinformatics*, 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. *International Journal of Human-Computer Studies*, 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. *BMC bioinformatics*, 8(1):57

Book Chapters

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 *Knowledge-Based Bioinformatics*, volume Gil Alterovitz and Marco Ramoni (Eds.), pages 67–86. Wiley Online Library

Books

2010 Aranguren, M. (2010). *Role and application of ODPs in bio-ontologies.* Lambert Academic Publishing

Conference Proceedings

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 *27th International Symposium on Computer-Based Medical Systems (CBMS)*, 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, *IWBBIO*, 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

2015 Aranguren, M. E. (2015). Merging OpenLifeData with SADI services using Galaxy and Docker (DOI 10.1101/013615). *BioRxiv, Cold Spring Harbor Labs*

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., Prud'hommeaux, 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/)
2007	Aranguren, M. (2007). ¿Qué puede hacer la web semántica por la biología? In *BioGaia 7*
2003	Aranguren, M. (2003). Software libre (GNU/linux) para biólogos. In *BioGaia 3*

Committees and reviewer work

2023	**Program Committee Member** at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2023)
2022	**Program Committee Member** at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2022)
2020	**Program Committee Member** at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2020)
2019	**Program Committee Member** at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2019)
2018	**Program Committee Member** at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2018)
2017	**Program Committee Member** at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2017)
2017	**Chapter review** "Integrating Biological Data using Semantic Web Technology" in "Evolutionary Genomics. Computational and statistical methods", 3rd edition, Springer.
2015	**Program Committee Member** at Linked Data workshop (CAEPIA 2015)
2015	**Reviewer** for BMC Medical Informatics and Decision Making
2013	**Special issue editor** for Semantic Web Journal (SWJ): Special issue on Linked Data for Health Care and the Life Sciences
2013	**Reviewer** for PeerJ
2013	**Reviewer** for Data and Knowledge Engineering (DKE)

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

Invited Talks

2016	Los Datos Enlazados y la Web Semántica. Tikitalka, VE Interactive, Spain
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

2022	FAIR data. MSc Bioinformatics, UM. Spanish
2022	Information Security (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish and Basque
2022	Analysis and Design of Information Systems (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish
2021	FAIR data. MSc Bioinformatics, UM. Spanish
2021	Information Security (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish and Basque
2021	Analysis and Design of Information Systems (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish
2021	Project Management (3 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish and Basque
2020	FAIR data. MSc Bioinformatics, UM. Spanish
2020	Information Security (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish
2020	Analysis and Design of Information Systems (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish
2017	Life Sciences Semantic Web. MSc Bioinformatics, UM. Spanish
2016	Life Sciences Semantic Web. MSc Bioinformatics, UM. Spanish
2016	Linked Open Data tutorial. EJIE. Spanish
2015	Linked Open Data tutorial. IZFE (Informatika Zerbitzuen Foru Elkartea, Gipuzkoa). Spanish
2015	Life Sciences Semantic Web. MSc Bioinformatics, UM. Spanish

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. Spanish
2013	Galaxy tutorials at CBGP. English and spanish
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
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

2016	Alejandro Rodríguez Iglesias, "FAIR approaches applied to unraveling plant-pathogen interactions data and RNA processing evolution", UPM, Spain
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

Student supervision

2022	Maialen Ruiz. "Hezkuntzako ordezkapenak aukeratzeko mapa bidezko aplikazioa". Final Degree Project, Bachelor's Degree in Computer Engineering in Management and Information Systems, UPV/EHU, Spain
2022	Jon Ander Asua. "Grafo batean balizko ustelkeriaren datuak irudikatzeko framework generikoa". Final Degree Project, Bachelor's Degree in Computer Engineering in Management and Information Systems, UPV/EHU, Spain
2022	Kerman San Juan Malax-Echevarria. Internship at Price Waterhouse Coopers, Bachelor's Degree in Computer Engineering in Management and Information Systems, UPV/EHU, Spain
2017	Denis Mishel Uchuari. Internship at Eurohelp, Bachelor's Degree in Computer Engineering in Management and Information Systems, UPV/EHU, Spain
2015	Salvador Alonso Martínez. "Imagen Docker para pipelines de Metagenómica", Bioinformatics MSc project, UM, Spain

Certifications and courses

2023	Neo4J Certified Professional. Issued by Neo4J
2023	Semantic Integration Training. Issued by Semantic Web Company
2023	Knowledge Engineering Training. Issued by Semantic Web Company
2019	Docker Essentials: A Developer Introduction. Issued by Cognitive Class
2017	Predictive modelling. 20 hours course at Tecnalia
2003	UNIX. 24 hours course at UPV/EHU
2002	XML. 16 hours course at University of Deusto

Technical expertise

Semantic Web stack: RDF (JSON-LD, TTL), SPARQL, OWL, SHACL

Ontologies: SKOS, DCAT, VoID, Data Cube, WGS84, Open Biomedical Ontologies, Schema, European Legislation Identifier, and more

Ontology editors: Protégé

Databases: GraphDB, Stardog, Virtuoso, Blazegraph, RDFox, Neo4j, MongoDB, MariaDB

Linked Data: Pubby, Trifid, Pool Party (Semantic Web Company), Corporate Memory (Eccenca GmbH)

Libraries: OWL API, RDFLib, Jena, RDF4J

Programming: Java, Python, Bash

Version control: Git (GitHub, GitLab)

Open Data: CKAN, Open Refine

Project management: Jira, Confluence, GitHub projects, Kanban

Cloud computing: Google Cloud, Azure

DevOps: Docker, Docker compose, Ansible, Bamboo, Jenkins, Travis

Last updated: March 12, 2023