

Mikel Egaña Aranguren, Ph.D.

Assistant Profesor

Office P3I16

Department of Computer Languages and Systems

School of Engineering

University of Basque Country (UPV/EHU)

48013 Bilbao, Spain

@: mikel.egana@ehu.eus

www: <https://mikel-egana-aranguren.github.io>

Phone: +34 94 601 4464

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. Production of Linked Data for Open Data Euskadi (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: 24M EUR; Eurohelp: 300.000 EUR).
- 2015 - 2017 Linking Open Domains, Plataforma para la generación de datos enlazados (LODGen) (TSI-100105-2015-0012). Ministerio de Industria, Energía y Turismo (Spain), Acción Estratégica Economía y Sociedad Digital (AEESD) 1/2015. Linked Open Data pipeline (40.000 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. <i>GigaScience</i> , 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. <i>Analytical and Bioanalytical Chemistry</i> , 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. <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

- | | |
|------|---|
| 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 |
|------|---|

Books

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

- 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 <i>BioGaia</i> 7 |
| 2003 | Aranguren, M. (2003). Software libre (GNU/linux) para biólogos. In <i>BioGaia</i> 3 |

Committees and reviewer work

- | | |
|------|--|
| 2017 | Chapter review “Integrating Biological Data using Semantic Web Technology” in “Evolutionary Genomics. Computational and statistical methods”, 3rd edition, Springer. |
| 2017 | Program Committee Member at Semantic Web Solutions for Large-Scale Biomedical Data Analytics (SeWeBMeDA 2017) |
| 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

2021	FAIR data. MSc Bioinformatics, UM. Spanish
2021	Information Security (6 ECTS). Degree in Computer Engineering of Management and Information Systems, UPV/EHU. Spanish
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 Elkarte, 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

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