

MARCOS MARTÍNEZ-ROMERO

Curriculum Vitae

(Updated April 2019)

PERSONAL INFORMATION

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SUMMARY

I am a research software engineer at the Stanford Center for Biomedical Informatics Research (BMIR), Stanford University. My work focuses on developing methods and systems for acquiring, presenting, and processing biomedical knowledge. As a research software engineer, postdoctoral research fellow, and software developer, I have completed various scientific and software engineering tasks, typically involving broad responsibility and leadership. I am used to contributing to all phases of software projects, both independently and in collaboration with other team members, including proposing, analyzing, designing, implementing, testing, and maintaining core capabilities of complex systems. Some of my achievements include the development of BioPortal's Ontology Recommender, which is the most widely used ontology recommendation system, and the development of novel methods to facilitate the creation of standardized metadata in the context of the CEDAR project.

EDUCATION

- 2011 **Ph.D. Computer Science (Information and Communication Technology)**
University of A Coruña, Spain.
Thesis: "A multi-criteria approach for biomedical ontology selection using collaborative knowledge" (supervisors: Prof. Alejandro Pazos and Dr. José M. Vázquez-Naya).
Qualification: Distinction Cum Laude (highest qualification).
- 2008 **Diploma of Advanced Studies in Computer Science and Artificial Intelligence (equivalent to M.Sc.).** University of A Coruña, Spain.
Thesis: "Ontology-based information integration in biomedical information systems".
Qualification: Outstanding (10/10).
- 2006 **Combined B.Sc./M.Sc. in Computer Science (5-year degree).** University of A Coruña, Spain.
Thesis: "Review on ontology alignment and development of an ontology alignment system for the biomedical domain".
Qualification: Outstanding (9.5/10).

APPOINTMENTS AND EMPLOYMENT HISTORY

- 04/2015 – present* **Research Software Engineer**, Stanford Center for Biomedical Informatics Research (BMIR), Stanford University, California, USA.
Supervisor: John Graybeal.
Project: Center for Expanded Data Annotation and Retrieval (CEDAR).
Duties: Conceive, build, and maintain a software infrastructure for the centralized storage and retrieval of metadata models for laboratory experiments. Particularly, to develop and implement an architecture for a Web application that is driven by complex knowledge structures and supports user contribution, search and query, user profiles and user-customized views. More details about the project are available at www.metadatacenter.org.
- 10/2013 – 04/2015* **Visiting Scholar**, Stanford Center for Biomedical Informatics Research (BMIR), Stanford University, CA, USA.
Supervisor: Prof. Mark A. Musen, MD, PhD.
Duties: Design a new approach for biomedical ontology recommendation that addresses the main drawbacks of the original NCBO Ontology Recommender. Designed and implemented the Ontology Recommender 2.0, which replaced the original system and can be considered the most popular and commonly used ontology recommendation system. The Ontology Recommender 2.0 is available in BioPortal at <http://biportal.bioontology.org/recommender>.
Reference publication: <https://doi.org/10.1186/s13326-017-0128-y>.
- 07/2014-04/2015* **Postdoctoral Research Fellow**, Department of Information and Communication Technologies, University of A Coruña, Spain.
Supervisor: Prof. Alejandro Pazos, MD, PhD.
Duties: Perform research in the field of ontology evaluation and recommendation. Conceived a new ontology recommendation approach based on novel ontology evaluation methods and developed a prototype of ontology recommendation system called BioSS.
Reference publication: <https://doi.org/10.1016/j.cmpb.2014.01.020>.
- 01/2011-12/2013* **Research Software Engineer**, Univ. Hospital Complex of Vigo (CHUVI), Spain
Supervisor: Gerardo Baños, MD, PhD.
Duties: Lead the design and development of an ontology based expert system for decision support at Cardiac Intensive Care Units (CICUs). Develop an API to interact with Alaris drug infusion pumps and with Philips IntelliVue patient monitors. Develop and ontology and SWRL rules encoding the CICU decision protocol. Evaluate the system at the CICU of the Meixoeiro Hospital.
Reference publication: <http://dx.doi.org/10.1155/2013/650671>.
- 09/2011-10/2013* **Researcher and Lecturer** (part time), Faculty of Computer Science, University of A Coruña, Spain.
Duties: Teach C.S. courses (see “Teaching Experience” section), supervision of final degree projects, research in biomedical informatics, dissemination of research in journals and conferences, collaboration in research projects.
- 01/2009-12/2010* **Ph.D. Fellowship**, Department of Information and Communication Technologies, University of A Coruña, Spain.
Supervisor: Prof. Alejandro Pazos, MD, PhD.
Duties: Work towards completion of the Ph.D. program in a timely manner. Discover and pursue a unique topic of scholarly research. Assist in teaching (see “Teaching Experience” section) and research activities.

05/2006-12/2008

Software Engineer (several short contracts), Department of Information and Communication Technologies, University of A Coruña, Spain.

Supervisor: Prof. Alejandro Pazos, MD, PhD.

Duties: Perform programming tasks to support biomedical informatics research, including the development of an information system to conduct multi-center epidemiological studies on cancer.

PUBLICATIONS

Journal Articles

1. Martínez-Romero, M., O'Connor, M. J., Egyedi, A. L., Willrett, D., Hardi, J., Graybeal, J., & Musen, M. A. (2019). **Using association rule mining and ontologies to generate metadata recommendations from multiple biomedical databases**. Database (in press). Available at <https://arxiv.org/abs/1903.09270>.
2. Bukhari, S. A. C., O'Connor, M. J., Martínez-Romero, M., Egyedi, A. L., Willrett, D., Graybeal, J., Musen, M. A., Rubelt, F., Cheung, K. H., Kleinstein, S. H. (2018) **The CAIRR pipeline for submitting standards-compliant B and T cell receptor repertoire sequencing studies to the NCBI**. *Frontiers in Immunology*, 2018(9), 1877 (JCR 5.511).
3. Bukhari, S. A. C., Martínez-Romero, M., O'Connor, M. J., Egyedi, A. L., Willrett, D., Graybeal, J., Musen, M. A., Cheung, K. H., Kleinstein, S. H. (2018) **CEDAR OnDemand: a browser extension to generate ontology-based scientific metadata**. *BMC Bioinformatics*, 19(1), 268 (JCR 2.213).
4. Martínez-Romero, M., Jonquet, C., O'Connor, M. J., Graybeal, J., Pazos, A., Musen, M. A. (2017). **NCBO Ontology Recommender 2.0: An Enhanced Approach for Biomedical Ontology Recommendation**. *Journal of Biomedical Semantics*, 8(21), 1-22 (JCR 1.845).
5. Rodríguez-González, A., Martínez-Romero, M., Costumero, R., Wilkinson, M. D., Menasalvas-Ruiz, E. **Extracting diagnostic knowledge from MedLine Plus: a comparison between MetaMap and cTAKES approaches**. *Current Bioinformatics*, PACBB 2015 Special Issue, 2016 (JCR 0.777).
6. Munteanu, C. R., Aguiar-Pulido, V., Freire, A., Martínez-Romero, M., Porto-Pazos, A., Pereira, J., Dorado, J. (2015) **Graph-based Processing of Macromolecular Information**. *Current Bioinformatics*, 2015, 10(5), 606-631 (JCR 0.921).
7. Musen, M. A., Bean, C. A., Cheung, K. H., Dumontier, M., Durante, K. A., Gevaert, O., Gonzalez-Beltran, A., Khatri, P., Kleinstein, S. H., O'Connor, M. J., Pouliot, Y., Rocca-Serra, P., Sansone, S. A., Wiser, J. A., the CEDAR Team (2015). I participated as part of the CEDAR team. **The Center for Expanded Data Annotation and Retrieval**. *Journal of the American Medical Informatics Association (JAMIA)*, (650), 1-6 (JCR 3.504).
8. Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, J., and Pazos, A. (2014) **BiOSS: A system for biomedical ontology selection**. *Computer Methods and Programs in Biomedicine*, 114(1), 125-140 (JCR 1.555; 21/100; Q1). This paper has been selected as Editor's choice - April 2014.
9. Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, J., Pereira, M., Pazos, A., & Baños, G. (2013). **The iOSC3 System: Using Ontologies and SWRL Rules for Intelligent Supervision and Care of Patients with Acute Cardiac Disorders**. *Computational and Mathematical Methods in Medicine* 2013 (Special Issue on Methods and Models for Diagnosis and Prognosis in Medical Systems), 1-13 (JCR 0.684; 40/47; Q4).
10. Gómez Pérez, A., Martínez-Romero, M., Rodríguez-González, A., Vázquez, G. and Vázquez-Naya, J. M. (2013). **Ontologies in Medicinal Chemistry: Current Status and Future Challenges**. *Current Topics in Medicinal Chemistry* (Special Issue on Artificial Intelligence Techniques in Medicinal Chemistry), 13, 576-590 (JCR 4.174; 5/59; Q1).
11. Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, J., Pereira, M., Pazos, A., & Baños, G. (2013). **Developing a System for Advanced Monitoring and Intelligent Drug Administration in Critical Care Units using Ontologies**. *Innovation in Knowledge-Based and Intelligent Engineering Systems* (KES Journal), 17(1)

12. Maestro, F. J., Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, J., & Pazos, A. (2013). **Ethical and legal issues in the clinical practice of primary health care**. *Frontiers in Bioscience*, E5, 435-445.
13. Nóvoa, F. J., Ezquerro, N., Traba, L., Villar, M., Pereira, J., Vázquez-Rodríguez, J. M., Vázquez, N., Martínez-Romero, M., & Mato, V. (2011). **Extraction of Quantitative Anatomical Information from Coronary Angiographies**. *Current Bioinformatics*, 6(2), 233-250 (JCR 1.688; 21/29; Q3).
14. Martínez-Romero, M., Vázquez-Naya, J., Rabuñal, R., Pita-Fernández, S., Macenlle, R., Castro-Alvarino, J., et al. (2010). **Artificial Intelligence Techniques for Colorectal Cancer Drug Metabolism: Ontologies and Complex Networks**. *Current Drug Metabolism*, 11(4), 347-368 (JCR 3.989; 39/236; Q1).
15. Vázquez-Naya, J. M., Martínez-Romero, M., Porto-Pazos, A. B., Nóvoa, F., Valladares-Ayerbes, et al. (2010). **Ontologies of Drug Discovery and Design for Neurology, Cardiology and Oncology**. *Current Pharmaceutical Design*, 16, 2724-2736 (JCR 4.414; 29/236; Q1).
16. Torres, A., Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, M., González, A., & Pereira, J. (2010). **Development of a Knowledge Based System for an Intensive Care Environment using Ontologies**. *Journal of Information Technology Research (Special Issue on "Medical Diagnosis Systems")*, 4(1), 21-33.
17. Martínez-Romero, M., Vázquez, J. M., López, M. G., Arnal, F. M., González-Conde, B., Pereira, J., et al. (2008). **Semantic Data Integration in a System for Cancer Studies**. *Acta Informatica Medica*, 16(2), 64-67.

Conference Articles

1. Egyedi, A. L., O'Connor, M. J., Martínez-Romero, M., Willrett, D., Hardi, J., Graybeal, J., Musen, M. A. (2017). **Using semantic technologies to enhance metadata submissions to public repositories in biomedicine**. *Proceedings of the 11th International Semantic Web Applications and Tools for Health Care and Life Sciences Conference (SWAT4HCLS 2018)*, Antwerp, Belgium, December 3-6, 2018 (in press).
2. Egyedi, A. L., O'Connor, M. J., Martínez-Romero, M., Willrett, D., Hardi, J., Graybeal, J., Musen, M. A. (2017). **Embracing Semantic Technology for Better Metadata Authoring in Biomedicine**. *Proceedings of the 10th International Semantic Web Applications and Tools for Health Care and Life Sciences Conference (SWAT4HCLS 2017)*, Rome, Italy, December 4-7, 2017.
3. Gonçalves, R. S., O'Connor, M. J., Martínez-Romero, M., Graybeal, J., Musen, M. A. (2017). **Metadata in the BioSample Online Repository are Impaired by Numerous Anomalies**. *1st International Workshop SemSci 2017 (Enabling Open Semantic Science)*, co-located with ISWC 2017. October 21, 2017. Vienna, Austria.
4. Martínez-Romero, M., O'Connor, M. J., Shankar, R., Panahiazar, M., Willrett, D., Egyedi, A. L., Gevaert, O., Graybeal, J., Musen, M. A. (2017). **Fast and Accurate Metadata Authoring Using Ontology-Based Recommendations**. *Proceedings of the AMIA 2017 Annual Symposium (AMIA 2017)*, Washington DC, USA, November 4-8, 2017.
5. Gonçalves, R. S., O'Connor, M. J., Martínez-Romero, M., Egyedi, A. L., Willrett, D., Graybeal, J., Musen, M. A. (2017). **The CEDAR Workbench: An Ontology-Assisted Environment for Authoring Metadata that Describe Scientific Experiments**. *Proceedings of the 16th International Semantic Web Conference (ISWC 2017)*, Vienna, Austria, October 21-25, 2017.
6. Martínez-Romero, M., O'Connor, M. J., Dorf, M., Vendetti, J., Willrett, D., Egyedi, A. L., Graybeal, J., Musen, M. A. (2017). **Supporting ontology-based standardization of biomedical metadata in the CEDAR Workbench**. *Proceedings of the 8th International Conference on Biomedical Ontology 2017 (ICBO 2017)*, Newcastle upon Tyne, UK, September 13-15, 2017.
7. Martin J O'Connor, Marcos Martínez-Romero, Attila L Egyedi, Debra Willrett, John Graybeal, Mark A Musen. **An Open Repository Model for Acquiring Knowledge About Scientific Experiments**. *Proceedings of the 20th International Conference on Knowledge Engineering and Knowledge Management (EKAW 2016)*, Bologna, Italy, November 19-23, 2016. *Lecture Notes in Computer Science*, Vol. 10024 2016.

8. Rodríguez-González, A., Martínez-Romero, M., Costumero, R., Wilkinson, M., Menasalvas-Ruiz E. (2015). **Diagnostic Knowledge Extraction from MedlinePlus: An Application for Infectious Diseases**. Proceedings of the 9th International Conference on Practical Applications of Computational Biology & Bioinformatics (PACBB 2015). Advances in Intelligent Systems and Computing, Volume 375, 2015, pp 79-87. This paper received the Scientific Quality Award at the PACBB 2015 Conference.
9. Rodríguez, A., Martínez-Romero, M., Egaña, M., Wilkinson, M. (2014). **Nanopublishing clinical diagnoses: tracking diagnostic knowledge base content and utilization**. Proceedings of the 2014 IEEE 27th International Symposium on Computer-Based Medical Systems (CBMS 2014), New York, USA, 335-340.
10. Martínez-Romero, M., Vázquez-Naya, J. M., Nóvoa, F. J., Vázquez, G., & Pereira, J. (2013). **A genetic algorithms-based approach for optimizing similarity aggregation in ontology matching**, presented at the International Work Conference on Artificial Neural Networks 2013 (IWANN 2013), Tenerife, Spain, 2013. Lecture Notes in Computer Science 7902, 435-444.
11. Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, J., Pazos, A., Pereira, M., & Baños, G. (2012). **An Ontology-based Expert System for Decision Support in Cardiac Intensive Care Environments**, presented at the 16th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2012), San Sebastián, Spain.
12. Martínez-Romero, M., Vázquez-Naya, J. M., Munteanu, C. R., Pereira, J., & Pazos, A. (2010). **An Approach for the Automatic Recommendation of Ontologies Using Collaborative Knowledge**. 14th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2010). Cardiff, Wales, UK. Lecture Notes in Artificial Intelligence, 6277, 74-81.
13. [In Spanish] Orozco, K., Barreiro, A., Mato, V., Nóvoa, F., Vázquez-Naya, J. M., Martínez-Romero, M., Servia, F., Pereira, J., Pazos, A. (2009) **Experiencia en el desarrollo de un sistema de acceso al HIS y al PACS en el IMQ San Rafael de A Coruña**. Paper presented at the XII National Conference on Health Informatics (INFORSALUD 2009), Madrid, Spain. Proceedings: pages 218-224.
14. Martínez-Romero, M., Vázquez, J. M., López, M. G., Arnal, F. M., González-Conde, B., Pereira, J., et al. (2008). **Semantic Integration of Data in an Information System for Multicenter Epidemiological Studies on Cancer**. Paper presented at the 21st International Congress of the European Federation for Medical Informatics (MIE2008), Gothenburg, Sweden.
15. Martínez-Romero, M., Vázquez, J. M., Pereira, J., & Pazos, A. (2008). **Annotation of Colorectal Cancer Data Using the UMLS Metathesaurus**. 12th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2008). Zagreb, Croatia. Lecture Notes in Artificial Intelligence, 5178(2), 58-65.
16. Vázquez, J. M., Martínez-Romero, M., López, M. G., González-Conde, B., Arnal, F. M., Pereira, J., et al. (2008). **An Ontology-Based Information System for Multicenter Epidemiologic Studies on Cancer**. Paper presented at the 1st IEEE International Conference on Health Informatics (HEALTHINF 2008), Funchal, Madeira, Portugal.
17. Vázquez, J. M., Martínez-Romero, M., López, M. G., González-Conde, B., Arnal, F. M., Pereira, J., et al. (2007). **Development of an Information System for Multicenter Epidemiologic Studies on Cancer**. Paper presented at the 6th International Special Topic Conference on Information Technology Applications in Biomedicine (ITAB2007), Tokyo, Japan.

Book Chapters

1. [In Spanish] Mato, A., Pazos, A., Pereira, J., Munteanu, C. R., Pedreira, N., Martínez-Romero, M., Vázquez-Naya, J. M., Amigo, J. (2015). **Herramientas Bioinformáticas para la Investigación en Cáncer Colorrectal**. Book: "Abordaje Multidisciplinar de Cáncer Colorrectal" (ISBN: 978-84-8408-795-3, section 5, pp. 515-532).
2. [In Spanish] Novoa, F. J., Traba, L., Martínez-Romero, M. (2013) **Sistema de Información basado en Imagen en un Servicio de Hemodinámica**. Book: "Líneas estratégicas de las Tecnologías de la Información y las Comunicaciones en Salud" (ISBN-10: 84-15413-18-1, ISBN-13: 978-84-15413-18-9, pp. 43-66).

3. [In Spanish] Martínez-Romero, M., Vázquez-Naya, J. M., Porto, A., Pazos, A. (2013) **El blog como un recurso de innovación educativa en la enseñanza universitaria**. Book “Actuaciones y Experiencias de Innovación Educativa en la Docencia de la Radiología y Medicina Física de la Universidad Española” (ISBN: 978-1-291-38912-8, pp. 137-151).
4. [In Spanish] Martínez-Romero, M., Vázquez, J. M., Pereira, J., Pereira, M., Porto, A., Baños, G. (2012). **Nuevas Técnicas de Gestión del Conocimiento en Salud. Un Sistema para la Administración Inteligente de Fármacos en Unidades de Cuidados Intensivos**. Book: “Tecnologías NBIC en Salud: El papel protagonista de la Nanociencia. Aplicación de especial interés al Cáncer Colorrectal” (ISBN: 978-84-15413-15-8, pp. 51-59).
5. Martínez-Romero, M., Vázquez-Naya, J. M., Munteanu, C. R., Pereira, J., & Pazos, A. (2011). **A Multi-criteria Approach for Automatic Ontology Recommendation using Collective Knowledge**. Recommender Systems for the Social Web. Intelligent Systems Reference Library (Vol. 32, 89-103). Springer-Verlag.
6. [In Spanish] Martínez-Romero, M., Vázquez-Naya, J., Traba, L., Novoa, F. J. (2011) **Contenidos multimedia para la docencia con PowerPoint**. Book “Innovación docente en Radiología y Medicina Física en las Universidades Españolas” (ISBN: 978-1-4709-6422-1, pp. 235-247).
7. [In Spanish] Groba, B., Pousada, T., Canosa, N., Mato, V., Martínez-Romero, M. (2011) **La plataforma de teleformación Moodle**. Book “Innovación docente en Radiología y Medicina Física en las Universidades Españolas” (ISBN: 978-1-4709-6422-1, pp. 221-233).
8. Vázquez, J. M., Martínez-Romero, M., Pereira, J., & Munteanu, C. R. (2010). **Improving Ontology Alignment through Genetic Algorithms**. Soft Computing Methods for Practical Environmental Solutions: Techniques and Studies (pp. 240-258). New York.
9. [In Spanish] Vázquez, J. M., Martín, F., Martínez-Romero, M., Novoa, F. J. (2010). **Aplicaciones médicas de las nanotecnologías en relación con las otras tecnologías NBIC**. Book: “Nuevas Fronteras Tecnológicas. Redes NANOROADMAP e IBERO-NBIC” (ISBN: 978-84-96023-82-6, Vol. 1(10), pp. 190-209).
10. Martínez-Romero, M., Vázquez, J. M., Pereira, J., & Ezquerra, N. (2009). **Ontology Alignment Techniques**. Encyclopedia of Artificial Intelligence (Vol. 3, pp. 1290-1295).
11. Vázquez, J. M., Martínez-Romero, M., Pereira, J., & Pazos, A. (2009). **Ontology Alignment Overview**. Encyclopedia of Artificial Intelligence (Vol. 3, pp. 1283-1289).
12. [In Spanish] Ezquerra, N., Novoa, F. J., Porto, A., Martínez-Romero, M. (2008) **Interacción hombre-máquina y usabilidad. Diseño centrado en el usuario**. Book: “Tecnologías de la Información y las Comunicaciones en la autonomía personal, dependencia y accesibilidad” (ISBN 978-84-9749-322-2, Vol. 1, pp. 179-185).

Conference and Workshop Presentations

1. Mark A. Musen, Martin J. O'Connor, Marcos Martínez-Romero, Attila L. Egyedi, Josef Hardi, Debra Willrett, and John Graybeal. **CEDAR: Accelerating the Submission of High-Quality Metadata**. Demo presented at the AMIA 2019 Informatics Summit. Mar 25-28, San Francisco, California, USA.
2. Mark A. Musen, John Graybeal, Martin J. O'Connor, Marcos Martínez-Romero, Attila L. Egyedi, Debra Willrett, S. Ahmad Chan Bukhari, Steven H. Kleinsteinst, Kei-Hoi Cheung, Elizabeth Thomson, Alejandra Gonzalez-Beltran, Phillipe Rocca-Serra, and Susanna-Assunta Sansone. **CEDAR: Web-Based Tools for Accelerating the Creation of Standardized Metadata**. Poster presented at the 11th Plenary Meeting. Mar 21-23, Berlin, Germany.
3. John Graybeal, Marcos Martínez-Romero, Matthew Horridge, Mark Musen. Open Source Solutions for Semantic Knowledge Management. Poster presented at the 1st U.S. Semantic Technologies Symposium 2018. Mar 1-2, 2018. Dayton, Ohio, USA.
4. Syed Ahmad Chan Bukhari, Martin J. O'Connor, Marcos Martínez-Romero, Attila L. Egyedi, Debra Willrett, John Graybeal, Mark A. Musen, Florian Rubelt, Steven H. Kleinsteinst, Kei-Hoi Cheung (2017). **CAIRR: A pipeline to submit AIRR-seq data to the NCBI through the CEDAR-workbench**. Demo presented at the 2017 Adaptive Immune Receptor Repertoire (AIRR) Community Meeting. Dec 3-6, 2017. Washington DC, USA.

5. John Graybeal, Martin J. O'Connor, Syed Ahmad Chan Bukhari, Marcos Martínez-Romero, Attila L. Egyedi, Debra Willrett, Steven H. Kleinstein, Kei-Hoi Cheung, Mark A. Musen (2017). **CEDAR Technologies for AIRR Submissions**. Poster presented at the 2017 Adaptive Immune Receptor Repertoire (AIRR) Community Meeting. Dec 3-6, 2017. Washington DC, USA.
6. Debra Willrett, Martin J. O'Connor, Marcos Martínez-Romero, Attila L. Egyedi, Ravi D. Shankar, Purvesh Khatri, Olivier Gevaert, John Graybeal, Syed Ahmad Chan Bukhari, Kei-Hoi Cheung, Steven H. Kleinstein, John Campbell, Jeffrey A. Wiser, Kim A. Durante, Alejandra Gonzalez-Beltran, Philippe Rocca-Serra, Susanna-Assunta Sansone, Mark A. Musen (2017). **Finding and Reusing Biomedical Datasets using CEDAR Metadata Repository and Tools**. Poster presented at the Big Data in Biomedicine Conference. May 24-25, 2017. Stanford University, Stanford, California, USA.
7. Marcos Martínez-Romero, Martin J. O'Connor, Ravi D. Shankar, Maryam Panahiazar, Debra Willrett, Attila L. Egyedi, John Graybeal, Mark A. Musen (2017). **CEDAR's predictive data entry: easier and faster creation of high-quality metadata**. Poster presented at the Biocuration 2017 Conference. Winner of one of the Best Poster Awards. March 26-29, 2017. Stanford University, Stanford, California, USA.
8. Ravi D. Shankar, Marcos Martínez-Romero, Martin J. O'Connor, John Graybeal, Purvesh Khatri, Mark A. Musen (2017). **SAP – a CEDAR-based pipeline for semantic annotation of biomedical metadata**. Poster presented at the Biocuration 2017 Conference. March 26-29, 2017. Stanford University, Stanford, California, USA.
9. Marcos Martínez-Romero, Martin J. O'Connor, Ravi D. Shankar, Maryam Panahiazar, Debra Willrett, Attila L. Egyedi, John Graybeal, Mark A. Musen (2016). **Faster and Better Metadata Authoring using CEDAR's Value Recommendations**. Poster and demo presented at the BD2K All-Hands Meeting. November 29 - December 1, 2016. North Bethesda, Maryland, USA.
10. John Graybeal, Marcos Martínez-Romero, Michael Dorf, Jennifer Vendetti, Martin O'Connor, Mark A. Musen (2016). **Increasing NCBO BioPortal and CEDAR Synergy for BD2K**. Poster presented at the BD2K All-Hands Meeting. November 29 - December 1, 2016. North Bethesda, Maryland, USA.
11. Ravi D. Shankar, Marcos Martínez-Romero, Martin J. O'Connor, John Graybeal, Purvesh Khatri, Mark A. Musen (2016). **SAP – A CEDAR-based Pipeline for Semantic Annotation of Biomedical Metadata**. Poster presented at the BD2K All-Hands Meeting. November 29 - December 1, 2016. North Bethesda, Maryland, USA.
12. Mark A. Musen, Syed Ahmad Chan Bukhari, John Campbell, Kei-Hoi Cheung, Michel Dumontier, Kim A. Durante, Attila L. Egyedi, Olivier Gevaert, Alejandra Gonzalez-Beltran, John Graybeal, Purvesh Khatri, Steven H. Kleinstein, Martin J. O'Connor, Maryam Panahiazar, Philippe Rocca-Serra, Marcos Martínez-Romero, Susanna-Assunta Sansone, Ravi D. Shankar, Debra Willrett (2016). **CEDAR: Easing Authoring of Metadata to Make Biomedical Data Sets More Findable and Reusable**. Poster presented at the BD2K All-Hands Meeting. November 29 - December 1, 2016. North Bethesda, Maryland, USA.
13. Martin J O'Connor, Marcos Martínez-Romero, Attila L Egyedi, Debra Willrett, John Graybeal, Mark A Musen. **A Standards-Based Model for Metadata Exchange**. Talk given at the BD2K All-Hands Meeting. November 29 - December 1, 2016. North Bethesda, Maryland, USA.
14. Mark A. Musen, Martin O'Connor, Marcos Martínez-Romero, Attila Levente Egyedi, Debra Willrett, John Graybeal (2016). **CEDAR: Better Data Sharing Through the Authoring of Better Metadata**. System Demonstration at the AMIA 2016 Annual Symposium. November 12 - 16, 2016. Chicago, IL.
15. O'Connor, Martin J., Graybeal, John B., Martínez-Romero, M., Musen, Mark A. (2015). **Linking Ontologies and ISO/IEC 11179 in the CEDAR Metadata Repository**. Abstract presented at the Metadata Open Forum on ISO/IEC 11179. NIH, Natcher Conference Center, Bethesda, MD.
16. Mark A. Musen, John Campbell, Kei-Hoi Cheung, Michel Dumontier, Kim A. Durante, Attila L. Egyedi, Olivier Gevaert, Alejandra Gonzalez-Beltran, John Graybeal, Purvesh Khatri, Steven H. Kleinstein, Martin J. O'Connor, Maryam Panahiazar, Philippe Rocca-Serra, Marcos Martinez-Romero, Susanna-Assunta Sansone, Ravi D. Shankar, Samson W. Tu, Jeffrey A. Wiser (2015). **The Center for Expanded Data Annotation and Retrieval**. Poster presented at the BD2K All-Hands Grantee Meeting, November 2015, NIH Main Campus, Bethesda, MD.

17. [In Spanish] Martínez-Romero, M., Vázquez-Naya, J. M., Pereira, J., Pereira, M., & Pazos, A. **iOSC3: Un sistema basado en ontologías para la supervisión inteligente de pacientes en unidades de recuperación cardíaca.** Poster presented at the BioIntegraSaude 2013 Conference (BIS 2013), April 2013, University Hospital Complex of Santiago de Compostela, Spain.
18. [In Spanish] Pereira, M., Vázquez-Naya, J. M., Martínez-Romero, M., Mato, V., Pintos, J., Pereira, J., Baños, G. **Sistema experto para la monitorización de pacientes de la unidad de cuidados críticos utilizando ontologías.** Poster presented at IV Conference on Biomedical Research of Vigo, May 2011, NovaCaixaGalicia Social Center, Vigo, Spain.
19. [In Spanish] Martínez-Romero, M. **Ontologías en la anotación semántica de imágenes médicas.** International Workshop in Medical Informatics, March 2011, University Hospital Complex A Coruña, A Coruña, Spain.
20. Martínez-Romero, M. **An Approach for the Automatic Recommendation of Ontologies Using Collaborative Knowledge.** IV International Conference for Dissemination of Research Activities, September 2010, Pazo de Lóngora, A Coruña, Spain.
21. [In Spanish] Martínez-Romero, M. **Anotación semántica de datos biomédicos.** III International Conference for Dissemination of Research Activities, March 2009, University of A Coruña, A Coruña, Spain.
22. [In Spanish] De Castro ML, Glez. Conde B, Macenlle R, Ruíz Ponte C, Pazos A, Clofent J, Arnal F, Carracedo A, Rego J, Vázquez JM, Tardío A, Lorenzo MJ, Fdez Montenegro M, Graña B, López G, Alonso A, M^a Teresa Rodríguez, Riu M, Martínez-Romero M, Fdez-Campos M, Iravedra S, Pereira J, Rionda M, De la Fuente C, Navarro C, Blanco F, Gago M, Hayle R, Castelao E. **Resultados de un proyecto piloto de cáncer colorrectal en Galicia, España.** Poster presented at the XXII Meeting of the Galician Society of Digestive Pathology, 2007, Lugo, Spain.
23. [In Spanish] M. Martínez-Romero. **Integración de Información en Sistemas de Información Biomédicos.** II International Conference for Dissemination of Research Activities, October 2007, Computer Science Building, University of A Coruña, A Coruña, Spain.

PARTICIPATION IN RESEARCH PROJECTS

<i>Title</i>	Center for Expanded Data Annotation and Retrieval (CEDAR)
<i>Website</i>	http://metadatascenter.org/
<i>Organization</i>	Stanford University
<i>Period</i>	2015-currently
<i>Groups</i>	Stanford University, Oxford University, Yale School of Medicine, Northrop Grumman Health Solutions

<i>Title</i>	Galician Network for Colorectal Cancer Research (REGICC)
<i>Website</i>	http://regicc.imedir.udc.es/
<i>Organization</i>	Xunta de Galicia, Spain (ref. CN 2012/217)
<i>Period</i>	12/2006-12/2013
<i>Funding</i>	420.000€
<i>No. researchers</i>	94 (20 groups)

<i>Title</i>	Expert system for the design and development of computer support technologies for people with disabilities
<i>Organization</i>	IMERSO, Spain
<i>Period</i>	01/2012-04/2013
<i>Funding</i>	36,000€
<i>No. researchers</i>	12 (1 group)

<i>Title</i>	Ontology-based wireless system with alarm monitoring in intensive care units
<i>Organization</i>	Spanish Ministry of Science and Innovation (ref. PI10/02180)
<i>Period</i>	01/2011-12/2013
<i>Funding</i>	118,761€
<i>No. researchers</i>	10
<i>Title</i>	Web 2.0 Personal Health Registry (PHR 2.0)
<i>Organization</i>	Spanish Ministry of Industry, Tourism and Commerce (ref. TSI-020110-2009-53)
<i>Period</i>	10/2009-10/2011
<i>Funding</i>	291,924€
<i>No. researchers</i>	17 (2 groups)
<i>Title</i>	Development of an integral assistance program to heart failure in primary health care through an intelligent information system
<i>Organization</i>	MAPFRE Foundation, Spain
<i>Period</i>	03/2009-03/2010
<i>Funding</i>	15,000€
<i>No. researchers</i>	17 (3 groups)
<i>Title</i>	Comprehensive computerized therapeutic stimulation in promoting personal autonomy of people with brain damage - ETIC Project
<i>Organization</i>	MAPFRE Foundation, Spain
<i>Period</i>	03/2009-03/2010
<i>Funding</i>	15,000€
<i>No. researchers</i>	12 (2 groups)
<i>Title</i>	Ibero-American Network of Converging Technologies in Health (Ibero-NBIC)
<i>Organization</i>	Ibero-American Programme For Science, Technology And Development (CYTED)
<i>Period</i>	01/2009-12/2012
<i>Funding</i>	20,000€
<i>No. researchers</i>	84 (11 groups)
<i>Title</i>	Analysis, design and development of an image-based information system for decision support at hemodynamic units
<i>Organization</i>	Xunta de Galicia, Spain
<i>Period</i>	10/2008-10/2011
<i>Funding</i>	79,350€
<i>No. researchers</i>	16 (1 group)
<i>Title</i>	A cooperative thematic research network on computational biomedicine in Spain (COMBIOMED)
<i>Organization</i>	Carlos III Health Institute, Spain
<i>Period</i>	01/2008-12/2011
<i>Funding</i>	57,000€
<i>No. researchers</i>	41 (1 group)
<i>Title</i>	Galician Network for Bioinformatics
<i>Organization</i>	Xunta de Galicia, Spain
<i>Period</i>	08/2007-08/2009
<i>Funding</i>	180,000€
<i>No. researchers</i>	48 (4 groups)

<i>Title</i>	Acquisition and storage of data from patient monitors, development of an expert system to monitor critical patients at ICUs and remote control of drug injection pumps
<i>Organization</i>	Carlos III Health Institute, Spain (ref. FIS-PI061524)
<i>Period</i>	11/2006-12/2009
<i>Funding</i>	95,348€
<i>No. researchers</i>	8 (2 groups)
<i>Title</i>	Advanced tools to protect the Galician and Northern Portuguese coast against oil spills at sea
<i>Organization</i>	European Union. FEDER Funds (ref. INTERREG III A - PROLIT/SP1.E194/03)
<i>Period</i>	01/2006-12/2007
<i>Funding</i>	620,000€
<i>No. researchers</i>	15 (3 groups)
<i>Title</i>	Development of an information system for gathering medical data and achieving multicenter international epidemiological studies
<i>Organization</i>	Xunta de Galicia (ref. PGIDIT 05 SIN 10501PR)
<i>Period</i>	08/2005-08/2008
<i>Funding</i>	88,000€
<i>No. researchers</i>	20 (1 group)
<i>Title</i>	In-TIC Project: New technologies to support integration and accessibility of people with disabilities within Information and Communication Technologies
<i>Organization</i>	Orange Foundation
<i>Period</i>	10/2007-12/2010
<i>Funding</i>	132,507€
<i>No. researchers</i>	16 (1 group)
<i>Title</i>	A pilot study of Colorectal Cancer in Galicia, Spain
<i>Organization</i>	National Cancer Institute (NCI), USA (ref. PAR-03-010)
<i>Period</i>	04/2004-03/2006
<i>Funding</i>	\$162,440
<i>No. researchers</i>	29 (5 groups)

TEACHING EXPERIENCE

Academic Courses Taught

2012	Systems Integration (Design patterns, .NET, Visual Studio, C#, Entity Framework, SQL Server, XHTML, XML, XSLT, CSS) (64 hours) Degree: Master in Information Systems Engineering Department of Information and Communication Technologies, University of A Coruña
2012	Information Retrieval and Semantic Web (RDF, SPARQL, DBpedia) (10 hours) Degree: Master in Information Systems Engineering Department of Information and Communication Technologies, University of A Coruña
2011	Systems Integration (Design patterns, .NET, Visual Studio, C#, Entity Framework, SQL Server, XHTML, XML, XSLT, CSS) (45 hours) Degree: Master in Information Systems Engineering Department of Information and Communication Technologies, University of A Coruña

2008-2010 **Systems Integration** (Design patterns, .NET, Visual Studio, C#, Entity Framework, SQL Server, XHTML, XML, XSLT, CSS) (180 hours)
 Degree: Computer Science Engineering (5^o year)
 Department of Information and Communication Technologies, University of A Coruña

Lectures, Seminars and Tutorials Taught

- 2018 **Stanford BMIR: Open Source Solutions for Biomedical Knowledge Management.**
 IV International Workshop in Medical Imaging, Acquisition and Integration of Clinical Data. June 2016, University Hospital Complex of A Coruña, Spain.
- 2017 **CEDAR: Better Metadata for Better Science.** RNASA-IMEDIR Young Researchers Meeting.
 Computer Science Building, University of A Coruña, A Coruña, Spain.
- 2017 **CEDAR's Predictive Data Entry: Easier and Faster Creation of High-quality Metadata.**
 Stanford Center for Biomedical Informatics Research, Research in Progress Talk, February 2017, Medical School Office Building, Stanford University, CA, USA.
- 2016 **Using biomedical ontologies to enhance metadata management in the CEDAR project.**
 III International Workshop in Medical Imaging, Acquisition and Integration of Clinical Data. June 2016, University Hospital Complex of A Coruña, Spain.
- 2016 **The CEDAR System: suite of tools to simplify the authoring of high-quality metadata in biomedicine.** Stanford Center for Biomedical Informatics Research, Research in Progress Talk, May 2016, Medical School Office Building, Stanford University, CA, USA.
- 2015 **Better metadata creation and management using CEDAR technology** (1 hour)
 (<http://tinyurl.com/hl37ofm>). Protégé Research Meeting, December 2015, Medical School Office Building, Stanford University, CA, USA.
- 2014 **Improving the NCBO Ontology Recommender** (1 hour) (<http://tinyurl.com/hyns92t>). Protégé Research Meeting, September 2014, Medical School Office Building, Stanford University, CA, USA.
- 2014 **Ontology recommendation** (1 hour) (<http://tinyurl.com/h29exzh>). Protégé Research Meeting, January 2014, Medical School Office Building, Stanford University, CA, USA.
- 2012 Instructor in the program **Surfing the Internet Safely** (www.navegaconrumbo.es), which is addressed to teach children aged 8-14 to navigate safely online (10 talks, 1 hour each). Galician College of Computer Engineers and Xunta de Galicia, Spain
- 2012 **Microsoft PowerPoint. Advanced Options** (10 hours). 4th Program of Educational Innovation in Health Sciences. Faculty of Health Sciences. University of A Coruña, Spain
- 2012 **Introduction to Information Systems** (10 hours). Specialty Course on ICT for Spanish Navy Officers. Ministry of Defense, A Coruña, Spain
- 2011 **Introduction to Biomedical Ontologies** (1 hour). Biomedical Research Institute of A Coruña, Spain
- 2011 **Microsoft PowerPoint. Advanced Options** (10 hours). 3rd Program of Educational Innovation in Health Sciences. Faculty of Health Sciences. University of A Coruña, Spain

- 2008 **Creation of Scientific Presentations** (10 hours). 3rd Program of Educational Innovation in Health Sciences. Faculty of Health Sciences. University of A Coruña, Spain
- 2008 **The Virtual Faculty Web Application** (10 hours). 3rd Program of Educational Innovation in Health Sciences. Faculty of Health Sciences. University of A Coruña, Spain
- 2007 **Creation of Scientific Presentations** (10 hours). 2nd Program of Educational Innovation in Health Sciences. Faculty of Health Sciences. University of A Coruña, Spain
- 2007 **The Virtual Faculty Web Application** (10 hours). 2nd Program of Educational Innovation in Health Sciences. Faculty of Health Sciences. University of A Coruña, Spain

Supervision of Final Degree Projects

- 2017 Jesús Barros. **Development of an editor of GDL clinical guidelines based on archetypes using Web technologies**. Final degree project. M.Sc. Computer Science. University of A Coruña, Spain. Score 10/10
- 2013 Tamara Viña. **Development of an online artist community using Microsoft .NET technology**. Final degree project. B.Sc. Computer Science. University of A Coruña, Spain. Score: 10/10
- 2012 Moisés López. **In-TIC Web 2.0: Web portal to exchange In-TIC project experiences and resources**. Final degree project. B.Sc. Computer Science. University of A Coruña, Spain. Score: 9/10
- 2012 Álvaro García. **Information system for the comprehensive management of an association of people with disabilities**. Final degree project. B.Sc. Computer Science. University of A Coruña, Spain. Score: 10/10
- 2011 Pablo Suárez. **Development of a hotel booking system using .NET technology**. Final degree project. M.Sc. Computer Science. University of A Coruña, Spain. Score: 9.5/10
- 2011 Marta García. **Intelligent data access through Semantic Web Services**. M.Sc. Computer Science. University of A Coruña, Spain. Score: 9/10
- 2010 Víctor Portela. **Development of a Web 2.0 online community about short stories using .NET technology**. Final degree project. B.Sc. Computer Science. University of A Coruña, Spain. Score: 10/10
- 2010 Ana Torres. **Development of a knowledge management system for intensive care environments using ontologies**. M.Sc. Computer Science. University of A Coruña, Spain. Score: 9.5/10

AWARDS AND SCHOLARSHIPS

- 2017 Best Poster Award. Biocuration 2017 Conference. CEDAR's predictive data entry: easier and faster creation of high-quality metadata. March 2017. Stanford University, Stanford, California, USA.
- 2015 Winner of the 4th Network of BioThings and 2nd BD2K Hackathon for our project: Concept Centric Viewer: <http://ccv.bioontology.org/>. Stanford University.

- 2015 Award of Scientific Excellence for our paper: “Diagnostic Knowledge Extraction from MedlinePlus: An Application for Infectious Diseases”. Conference on Practical Applications of Computational Biology & Bioinformatics (PACBB-15).
- 2014 Editor’s Choice Award for our paper “BiOSS: a system for biomedical ontology selection”. Computer Methods and Programs in Biomedicine (CMPB) journal.
- 2011 PhD Degree with European Honors. University of A Coruña, Spain.
- 2013 Postdoctoral Scholarship. Xunta de Galicia. Spain.
- 2009 PhD student Scholarship. University of A Coruña. Spain.

OTHER ACTIVITIES

Side Projects

- 2008-2012 www.laria.com
- Description: laria.com is one of the leading websites for primary care physicians in Spain. It contains the knowledge and tools required to solve problems that occur regularly in the daily activity of primary care
 - Responsibilities: Main frontend and backend developer (Microsoft .NET, Visual Studio, C#, Entity Framework, SQL Server, XHTML, XML, XSLT, CSS)
- 2007-2009 www.cardiobarbanza.com
- Description: website of a Spanish research group in cardiology
 - Responsibilities: Main frontend and backend developer (Design patterns, .NET, Visual Studio, C#, Entity Framework, SQL Server, XHTML, XML, XSLT, CSS)
- 2005-2009 <http://regicc.imedir.udc.es>
- Description: website of the Galician Network for Colorectal Cancer Research (REGICC)
 - Responsibilities: Main frontend and backend developer (Design patterns, .NET, Visual Studio, C#, Entity Framework, SQL Server, XHTML, XML, XSLT, CSS)

Committee and Association Activities

- 2019 **Member of the Program Committee** of the 13th International Conference on Practical Applications of Computational Biology & Bioinformatics (PACBB'19). Ávila, Spain. June 26-28, 2019.
- 2019 **Chair of the Doctoral Consortium** of the 32th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2019). Córdoba, Spain. June 5-7, 2019.
- 2018 **Member of the Program Committee** of the 31th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2018). Karlstad, Sweden. June 18-21, 2018.
- 2018 **Member of the Program Committee** of the 12th International Conference on Practical Applications of Computational Biology & Bioinformatics (PACBB'18). Toledo, Spain. June 20-22, 2019.

2017	Member of the Program Committee of the 11th International Conference on Practical Applications of Computational Biology & Bioinformatics (PACBB'17). Porto, Portugal. June 21-23, 2017.
2017	Member of the Program Committee of the 30th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2017). Thessaloniki, Greece. June 22-24, 2017.
2014	Member of the Program Committee of the 29th AAAI Conference on Artificial Intelligence (AAAI-15). Austin, Texas. January 25-29, 2015.
2015-present	Full Member of the Association of Spanish Scientists in USA (ECUSA) (www.ecusa.es).
2014-present	Member (technology specialist) of the Stanford A.I.M.S. (Association of Industry-Minded Stanford Professionals) . Stanford University. California, USA (http://aims.stanford.edu/).
2012-present	Professional Association of Galician Computer Engineers (http://www.cpeig.org/)
2012-2015	Member of KES International (http://www.kesinternational.net/members/?id=5741382).
2013	Member of the Faculty Governance Committee - Representative for academic staff. Faculty of Computer Science, University of A Coruña, Spain.
2006-2009	Member of the Faculty Governance Committee - Representative for graduate students. Faculty of Computer Science, University of A Coruña, Spain.
2006-2008	Member of the University Governance Council - Representative for graduate students. University of A Coruña, Spain.
2006-2008	Member of the Teaching Committee - Representative for students. Computer Science M.Sc. degree, Faculty of Computer Science, University of A Coruña, Spain.

Reviewer Work for Journals

Journal	No. manuscripts reviewed
Journal of Medical Systems (JOMS)	2012 (1), 2016 (1), 2018 (1)
Computers and Electronics in Agriculture (COMPAG)	2018 (1)
International Journal of Medical Informatics (IJMI)	2018 (1)
Interdisciplinary Sciences: Computational Life Sciences	2018 (1)
eCancerMedicalScience	2018 (1)
International Journal of Data Science and Analytics (JDASA)	2017 (1)
Database Journal	2017 (1), 2018 (1)
IEEE Transactions of Systems	2017 (1)
Computer Methods and Programs in Biomedicine (CMPB)	2015 (1), 2017 (1)
Applied Ontology	2015 (1)
Computers in Biology and Medicine (CBM)	2015 (1)
Journal of Biomedical Informatics (JBI)	2013 (1)
Journal of Healthcare Engineering (JHE)	2013 (1)
Journal of Web Semantics (JWS)	2012 (1)
Computational and Mathematical Methods in Medicine (CMMM)	2012 (1)
Bioinformatics	2011 (1), 2014 (1)

Reviewer Work for Conferences

Conference	No. revisions
International Conference on Practical Applications of Computational Biology & Bioinformatics (PACBB)	2017 (3), 2018 (2)
IEEE International Symposium on Computer-Based Medical Systems (CBMS)	2017 (3), 2018 (1)
AMIA Annual Symposium	2016 (1), 2017 (5), 2018 (2), 2019 (3)
AAAI Conference on Artificial Intelligence (AAAI)	2015 (4)
Conference of the Virtual Physiological Human Network of Excellence (VPH)	2012 (1)
International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES)	2012 (2)