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Short Bio

I'm Argentinean PhD in computer science at the Centre for the Study of Marine Systems (CESIMAR) Patagonian National Research Centre (CENPAT-CONICET), and teaching assistant at National University of Patagonia San Juan Bosco. I've been working here since April 2015. My general research interest is develop solutions for the design of high quality Biodiversity/Oceanography information systems based on Semantic Web technologies.

Research Interests

- Applications of Semantic Web technologies for Biodiversity/Oceanography
- Knowledge Graphs
- Knowledge representation
- Semantic representation of biodiversity data
- Development of domain specific ontologies

Education

2015–2019   PhD in Computer Science, National University of the South (UNS), Argentina.

Thesis Title: Integrating Biodiversity and Oceanography datasets using semantic web technologies. Supervisors: PhD. Pablo Fillottrani and PhD. Claudio Delrieux

2002–2006   B.Sc., Computer Science, National University of Patagonia San Juan Bosco, Argentina

Teaching Assistant

2015-Now   Algorithms and programming II   National University of Patagonia San Juan Bosco, Argentina

2011-2019   Computer Science I   Escuela Nº 789 (secondary education), Argentina

2013-2014   Computer Science & Technology   Escuela Nº 7701 (secondary education), Argentina

Academic Supervision Activity

2019   Bachelor of Science in Computer Science: Hugo Donato, thesis in progress.

Selected Honours and Awards

2020–2022   National Scientific and Technical Research Council (CONICET), Postdoctoral fellowship.

2019   Young Researcher Award 2019: Award of 5000 € awarded by GBIF to Young Researchers that encourage innovation in the use and mobilization of shared biodiversity data through the GBIF network.

2015–2020   National Scientific and Technical Research Council (CONICET), PhD. Studentship.

Travel Grants

Dic 2019   SNDB Georreferenciación de registros biológicos. Buenos Aires - Argentina. Amount: 15.000 Argentine pesos to cover travel and accommodation costs.

Nov 2017   OTGA/INVEMAR Training Cours: Digital Repositories: the pathway from Open Access to Digital Asset Management. Santa Marta - Colombia. Amount: 500 dollars to cover travel and accommodation costs.

Aug 2016   First Argentina-US Ocean Data Stewardship and Management Meeting. Mar del Plata - Argentina. Amount: 10.000 Argentine pesos to cover travel and accommodation costs.

Nov 2015   Workshop Big Data and Environment. Buenos Aires - Argentina. Amount: 2.875 Argentine pesos to cover accommodation costs.

Jun 2015   III Jornadas de Cloud Computing Big Data (JCC&BD). La Plata - Argentima. Amount: 8.000 Argentine pesos to cover travel and accommodation costs.

Publications

Published Journal Articles

[1] **Zárate, M**., Braun G., Fillottrani P., Delrieux C., & Lewis, M. (2020). BiGe-Onto: An Ontology-Based System for Managing Biodiversity and Biogeography Data. Applied Ontology Journal. DOI: 10.3233/AO-200228

[2] Snowden, Derrick P, Tsontos, Vardis, Handegard, Nils Olav, **Zárate, M**, O'Brien, Kevin M, Casey, Kenneth S, Smith, Neville, Sagen, Helge, Bailey, Kathleen, Lewis, Mirtha and others (2019). Data Interoperability Between Elements of the Global Ocean Observing System. Frontiers in Marine Science, 6, 442. DOI: 10.3389/fmars.2019.00442

[3] **Zárate, M**., Buckle, C., Mazzanti, R., Samec, G. (2019). Improving Open Science Using Linked Open Data: CONICET Digital Use Case. Journal of Computer Science & Technology, 19, 45–54. DOI: 10.24215/16666038.19.e05

[4] **Zárate, M**., Lewis, M. (2016). Estimate of the Anesthesia Stage in Southern Elephant Seals using WEKA Data Mining Tool. International Journal of Applied Information Systems (IJAIS), 11(4):48-52, DOI: 10.5120/ijais2016451603

Chapters in books

[1] **Zárate, M**., Buckle, C., Mazzanti, R., Lewis, M., Fillottrani, P., & Delrieux, C. (2020). Harmonizing Big Data with a Knowledge Graph: OceanGraph KG Uses Case. In: Cloud Computing, Big Data Emerging Topics 8th Conference, JCC-BD&ET 2020, La Plata, Argentina, September 8-10, 2020, Proceedings. Communications in Computer and Information Science, vol 1291. Springer, Cham. DOI: 10.1007/978-3-030-61218-4_6

[2] **Zárate, M**., Rosales, P., Braun, G., Lewis, M., Fillottrani, P., & Delrieux, C. (2019). OceanGraph: Some Initial Steps Toward a Oceanographic Knowledge Graph. In: Villazón-Terrazas B., Hidalgo-Delgado Y. (eds) Knowledge Graphs and Semantic Web. KGSWC 2019. Communications in Computer and Information Science, vol 1029. Springer, Cham. DOI: 10.1007/978-3-030-21395-4_3

Conferences

[1] **Zárate, M**., Zermoglio, P., Wieczorek, J., Plos, A., & Mazzanti, R. (2020). Linked Open Biodiversity Data (LOBD): A semantic application for integrating biodiversity information, TDWG 2020 Annual Conference. Virtual Conference. DOI: 10.3897/biss.4.58975

[2] **Zárate, M**., Rosales, P., Fillottrani, P., Delrieux, C., & Lewis, M. (2018). Oceanographic Data Management: Towards the Publishing of Argentine Oceanographic Campaigns as Linked Data, 12th Alberto Mendelzon International Workshop on Foundations of Data Management. Cali, Colombia: URL: ceur-ws.org/Vol-2100/paper-20

[3] **Zárate, M**., Braun, G., & Fillottrani, P. (2017). Adding Biodiversity Datasets from Argentinian Patagonia to the Web of Data, 2nd International Workshop on Semantics for Biodiversity co-located with 16th International Semantic Web Conference 2017. Vienna, Austria: URL: ceur-ws.org/Vol-1933/paper-6

[4] **Zárate, M**., Buccella, A., & Fillottrani, P. (2017). BioOnto: Towards an Integration of Biological and Biogeographic Data, 16th Joint Ontology Workshops 2017, Bozen-Bolzano, Italy. URL: ceur-ws.org/Vol-2050/ODLS-paper-6

[5] **Zárate, M**., Braun, G., & Almonacid, S. (2017). Transforming Biodiversity Data in Linked Data, 19th Workshop of Researchers in Computer Science, Buenos Aires, Argentina. URL: ISBN-978-987-42-5143-5

[6] **Zárate, M**., Lewis, M. (2016). Estimación del Plano Anestésico en Elefante Marinos del Sur Utilizando Técnicas de Machine Learning, 12th Argentine Congress of Computer Science, San Luis, Argentina. URL: sedici.unlp.edu.ar/handle/10915/56749

Posters

[1] **Zárate, M**. & Lewis, M. (2020). Manejo integrado de campañas oceanográficas del Golfo San Jorge a través de datos abiertos enlazados. VI Seminario Golfo San Jorge, 9 septiembre 2019, CONICET-CENPAT, Puerto Madryn, Argentina, ISSN 2618-5334.

[2] **Zárate, M**., Lewis, M., Fillottrani, P. & Delrieux, C. (2018). Improving the Quality of Biodiversity Data Through Semantic Web Standards, 10th International Conference on Ecological Informatics (pp. 245–246). Jena, Germany. URL: Proceedings

[3] **Zárate, M**., Braun, G., & Fillottrani, P. (2017). Adding Biodiversity Datasets from Argentinian Patagonia to the Web of Data, 16th International Semantic Web Conference 2017 (pp. 434–441). Vienna, Austria. URL: ceur-ws.org/Vol-1963/paper584

Contributed Presentations

[1] Buckle, C., **Zárate, M.**, Mazzanti, R., Delrieux, C. & Lewis, M. (2020). Plataforma de Datos Abiertos Enlazados para la Gestión y Visualización de Datos Primarios de Ciencias del Mar, 22th Workshop of Researchers in Computer Science, El Calafate, Argentina. (In press)

[2] Samec, G., Diez Maria E., **Zárate, M.**, Buckle, C., Lima, J., Jaramillo, R., & Mazzanti, R., (2020). Herramientas Informáticas para el Estudio de la Biodiversidad utilizando Datos Abiertos Enlazados, 22th Workshop of Researchers in Computer Science, El Calafate, Argentina. (In press)

[3] Buckle, C., **Zárate, M.**, Ordinez, L. & Barry, D. (2019). Grafos y temporalidad en bases de datos: una aplicación sobre datos abiertos enlazados, 25th Argentine Congress of Computer Science, Rio Cuarto, Argentina. ISBN 978-987-688-377-1

[4] Samec, G., Diez Maria E., **Zárate, M.**, Buckle, C., Lima, J., Jaramillo, R., Sanchez A., & Mazzanti, R., (2019). Aplicaciones Informáticas para el Estudio de Biodiversidad de Poliquetos Espiónidos en los Golfos Nordpatagónicos, 21th Workshop of Researchers in Computer Science, San Juan, Argentina. ISBN 978-987-3984-85-3

[5] Mazzanti, R., **Zárate, M.**, Samec, G., Buckle, C. (2018). Integración de repositorios semánticos: un camino hacia los datos abiertos enlazados , 8th BIREDIAL ISTEC 2018 Conference, Lima, Peru. URL: Proceedings

[6] Mazzanti, R., **Zárate, M.**, Samec, G., Buckle, C. (2018). Infraestructura de Acceso a Datos Primarios con Aporte de Semántica en Repositorios Digitales , 20th Workshop of Researchers in Computer Science, Buenos Aires, Argentina. ISBN 978-987-3619-27-4

[7] Delrieux, C., Barry, D., Stickar, R. Mazzanti, R. Buckle, C. Cura, R. & **Zárate, M**. (2015). Classification of information in Big Data through the use of artificial intelligence techniques and social network analysis, 17th Workshop of Researchers in Computer Science, Salta, Argentina, ISBN-978-987-42-5143-5

Research Projects

2020–2021 (CHU-09) *Análisis prospectivo inteligente del impacto social, económico y productivo del COVID-19 en la provincia de Chubut.* Funded by Programa de articulación y fortalecimiento federal de las capacidades en ciencia y tecnología COVID-19. Directora: Maria Florencia del Castillo.

2020–2022 (PI-80020190100009UP) *Plataforma de datos abiertos enlzados para la gestión y visualización de datos primarios de ciencias del mar.* Funded by the secretary of science and technology UNPSJB. Director: Carlos Buckle.

2019–2022 PGI/UNS *Semantic Technologies for Access and Data Integration*, Funded by Universidad Nacional del Sur. Director: PhD. Pablo R. Fillottrani.

2019–2021 (PI-80020180100024UP) *Informatic applications to study of biodiversity of spionid polychaetes in North Patagonian Gulfs.* Funded by the secretary of science and technology UNPSJB. Director: Renato Mazzanti.

2018–2020 (PI-80020170100004UP) *An infraestructure for primary data access with semantic in digital repositories.* Funded by the secretary of science and technology UNPSJB. Director: Carlos Buckle.

2015–2018 PGI-UNS (24/N038) *Interoperabilidad Semántica: aplicaciones para la Web y E-Gobierno.* Funded by Departamento de Ciencias e Ingeniería de la Computación. Universidad Nacional del Sur (UNS). Director: PhD. Pablo R. Fillottrani.

2015–2017 FI_038/14 *Clasificación de información en big data mediante la utilización de técnicas de inteligencia artificial y análisis de redes sociales.* Funded by the secretary of science and technology UNPSJB. Director: PhD Claudio Delrieux.