

# ROBERTO YUS

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## EXPERIENCE

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| University of California, Irvine<br>CS Department           | 5/2016 – now    | <b>Postdoctoral Researcher</b><br><i>Supervisor: Sharad Mehrotra</i>     |
|   | 1/2015 – 5/2015 | <b>Visiting Researcher</b><br><i>Host: Sharad Mehrotra</i>               |
| University of Maryland, Baltimore County<br>CSEE Department | 6/2013 – 5/2014 | <b>Visiting Researcher</b><br><i>Hosts: Anupam Joshi / Tim Finin</i>     |
| University of Zaragoza (Spain)<br>CS Department             | 9/2011 – 4/2016 | <b>Graduate Research Assistant</b><br><i>Ph.D. Advisor: Eduardo Mena</i> |

## EDUCATION

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| University of Zaragoza (Spain) | 2016 Ph.D., 2011 M.S., 2010 B.S., Computer Science |
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## RESEARCH SUPPORT

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| <b>Spanish Ministry of Science and Innovation</b><br>  #EEBB-I-15-10433 Predoctoral Mobility Grant | 6,480€ (≈\$7,800)   | 2015-01-01 – 2015-05-01 |
| <b>Spanish Ministry of Science and Innovation</b><br>  #EEBB-I-14-08893 Predoctoral Mobility Grant | 6,480€ (≈\$8,900)   | 2014-01-01 – 2014-05-01 |
| <b>Spanish Ministry of Science and Innovation</b><br>  #EEBB-I-13-07009 Predoctoral Mobility Grant | 10,200€ (≈\$13,600) | 2013-06-01 – 2013-12-01 |

## PARTICIPATION IN RESEARCH PROJECTS

**Privacy Cognizant IoT Environment for the Brandeis Program**, DARPA (FA8750-16-2-0021). Project leaders: S. Mehrotra, N. Venkatasubramanian, and A. Kobsa. Participation: May 2016 – now.  
| Leading the design of TIPPERS, an IoT data management middleware. In particular, my focus is on designing the interoperability layer and the abstraction from raw sensor data to higher-level semantic inferences.

**Creating an Extensible Data Exchange and Analytics Sandbox for Smart Water infrastructures**, NSF S&CC (#1952247). Project leaders: N. Venkatasubramanian, S. Mehrotra, S. Ren, D. Feldman, and R. Eguchi. Participation: Oct 2020 – now  
| Designing and developing an interoperability layer to integrate water related information from diverse sources, including from IoT sensors.

**4V: Volume, Velocity, Variety, and Veracity in the Innovative Management of Data**, Spanish Ministry of Science and Innovation (CICYT, TIN2013-46238-C4-4- R). Project leaders: E. Mena and S. Ilarri. Participation: Jan 2014 – Dec 2016.  
| Adaptation of semantic technologies to support knowledge representation/reasoning/integration in constrained mobile devices.

**Semantic Data Management in Wireless Environments**, Spanish Ministry of Science and Innovation (CICYT, TIN2010-21387-C02-02). Project leader: E. Mena. Participation: Jan 2011 — Dec 2013.

Design of a general and flexible agent-based architecture based on the use of semantic technologies to provide services to mobile users.

## AWARDS, RECOGNITION, AND PRESS

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The Washington Post: “The Technology 202: Tech to contain coronavirus on college campuses sparks fresh privacy concerns”, 2020. [hyperlink]

Defense Visual Information Distribution Service: “NAVWAR Trident Warrior Team Assesses New Tracking Technology for COVID-19 Mitigation”, 2020. [hyperlink]

Health IT Analytics: “UCI Uses Campus Wi-Fi to Test COVID-19 Contact Tracing App”, 2020. [hyperlink]

UCI CS News: “IoT Hackathon Apps Coming Soon”, 2018. [hyperlink]

UCI CS News: “ICS launches IoT Hackathon to discover student talent who can develop a UCI ‘smart’ campus”, 2017. [hyperlink]

Nature: “What could derail the wearables revolution?”, 2015. [hyperlink]

Infodocket: “Interesting Research! FaceBlock App Allows Google Glass Users to Take Privacy-Aware Pictures”, 2014. [hyperlink]

FPI Fellowship of the Spanish Ministry of Science and Innovation 2011-2015

Student Travel Award – ISWC (2015,2014), WI-IAT (2015), CollaborateCom (2014)

## SERVICE

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*Mentor* – IoT-SITY Research Experiences for Undergraduates (IoT-SITY REU) 2017, 2018, 2019, 2020; Summer Undergraduate Research Fellowship in the IoT (SURF-IoT) 2018, 2019, 2020.

*Program Committee* – International Conference on Data Engineering (ICDE) 2017, International Conference on Advances in Semantic Processing (SEMAPRO) 2020, 2017, International Conference on Green Communications, Computing and Technologies (GREEN) 2019, International Conference on Big Data, Small Data, Linked Data and Open Data (ALLDATA) 2018, International Conference on Advanced Collaborative Networks, Systems and Applications (COLLA) 2019, 2018, 2017, 2016, International Workshop on Technology Enablers and Innovative Applications for Smart Cities (TESCA) 2019.

*Editorial Board* – Sensors 2020–now, Frontiers in Big Data 2018–now.

*External Reviewer Conf.* – International Conference on Extending Database Technology (EDBT) 2016, International Conference on Agents and Artificial Intelligence (ICAART) 2016, European Conference on Information Systems (ECIS) 2016, International Conference on Very Large Data Bases (VLDB) 2015, Extended Semantic Web Conference (ESWC) 2014, AAAI Conference on Artificial Intelligence (AAAI) 2014, International Conference on Ontologies, DataBases, and Applications of Semantics (ODBASE) 2014.

*External Reviewer Journal* – IEEE Internet of Things Journal 2019, Pervasive and Mobile Computing 2019, Telecommunication Systems 2016, The Scientific World Journal 2015, Journal of Internet Services and Applications 2015, EAI Endorsed Transactions on Ubiquitous Environments 2014, Distributed and Parallel Databases 2014, Journal of Systems and Software 2013, IEEE Multimedia 2013.

*Organizing Committee* – 1st Workshop on Mobile Deployment of Semantic Technologies (MoDeST) at the 14th International Semantic Web Conference (ISWC), 2015, 17th Spanish Congress on Fuzzy Logic and Technologies (ESTYLF), 2014.

## TEACHING

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**Design of Relational Databases** (Teaching Assistant) Fall 2012, University of Zaragoza, Spain.

## RESEARCH ADVISEES

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*Current undergraduates:* Aliyah Byon, Leo Peng, William Sun, Vikram Miryala, Stuart McClintock.

*Completed M.S. advisees:* Gorka Guerrero, Enrique Solano.

*Past undergraduates:* Anna Lubienski, Alpine Tang, Jesse Chong, Tristan Jogminas, Lasse Nordahl, DongCheol Jwa, HyeEun Song, MyoungHoon Han, Hyunji Lee, Jingyu Chen, Andrei Homencovschi, Nathan Ma, Yiming Wang, Jason Huang, Rayan Al Atab, Cynthia Wang, Rohit Sriram, Jorge Carlos, Fangfang Fu, Kyle Norland, Angel Castro, Owen Yang, Joshua Cao, Rushabh Shah, Karthik Gajulapalli.

## PUBLICATIONS

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### Peer-Reviewed Conference Proceedings

1. LOCATER: Cleaning WiFi Connectivity Datasets for Semantic Localization. Y. Lin, D. Jiang, R. Yus, G. Bouloukakakis, A. Chio, S. Mehrotra, and N. Venkatasubramanian. Proc. VLDB Endow. 14, 2021. A\* CORE2020; Google h5-index 70
2. SmartBench: A Benchmark For Data Management In Smart Spaces. P. Gupta, M. J. Carey, S. Mehrotra, and R. Yus. Proc. VLDB Endow. 13(11): 1807-1820, 2020. A\* CORE2020; Google h5-index 70
3. Sieve: A Middleware Approach to Scalable Access Control for Database Management Systems. P. Pappachan, R. Yus, S. Mehrotra, and J. C. Freytag. Proc. VLDB Endow. 13(11): 2424-2437, 2020. A\* CORE2020; Google h5-index 70
4. Abstracting Interactions with IoT Devices Towards a Semantic Vision of Smart Spaces. R. Yus, G. Bouloukakakis, S. Mehrotra, and N. Venkatasubramanian. 6th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys), 2019: 91-100. A CORE2018
5. Trustworthy Privacy Policy Translation in Untrusted IoT Environments. M. H. Diallo, N. Panwar, R. Yus, and S. Mehrotra. 3rd International Conference on Internet of Things, Big Data and Security (IoTBDs): 132-143, 2018.
6. Exploring fairness in participatory thermal comfort control in smart buildings. E. J. Shin, R. Yus, S. Mehrotra, and N. Venkatasubramanian. 4th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys): 19:1-19:10, 2017. A CORE2018
7. Continuous Processing of Real-Time Multimedia Requests Using Semantic Techniques. R. Yus and E. Mena. 13th International Conference on Advances in Mobile Computing and Multimedia (MoMM): 216-220, 2015. B CORE2020; Google h5-index 11
8. Generic Rules for the Discovery of Subsumption Relationships based on Ontological Contexts. R. Yus, E. Mena, and E. Solano-Bes. 2015 IEEE/WIC/ACM International Conference on Web Intelligence (WI): 309-312, 2015. B CORE2020; Google h5-index 18
9. Rafiki: A Semantic and Collaborative Approach to Community Health-Care in Underserved Areas. P. Pappachan, R. Yus, A. Joshi, and T. Finin. 10th International Conference on Collaborative

Computing: Networking, Applications and Worksharing (CollaborateCom): 322-331, 2014. C CORE2020; Google h5-index 15

10. Location-aware System Based on a Dynamic 3D Model to Help in Live Broadcasting of Sport Events. R. Yus, E. Mena, J. Bernad, S. Ilarri, and A. Illarramendi. 19th ACM International Conference on Multimedia (MM): 1005-1008, 2011. A\* CORE2020; Google h5-index 58

### Peer-Reviewed Journal Articles

1. Transitioning from testbeds to ships: an experience study in deploying the TIPPERS Internet of Things platform to the US Navy. D. Archer, M. August, G. Bouloukakis, C. Davison, M. H. Diallo, D. Ghosh, C. T. Graves, M. Hay, X. He, P. Laud, S. Lu, A. Machanavajjhala, S. Mehrotra, G. Miklau, A. Pankova, S. Sharma, N. Venkatasubramanian, G. Wang, and R. Yus. The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology, 2020.
2. A Knowledge-Based Approach to Enhance Provision of Location-Based Services in Wireless Environments. R. Yus, C. Bobed, and E. Mena, IEEE Access 8: 80030-80048, 2020. IF: 3.745 JCR2019, Q1 Computer Science, Information Systems, Q1 Engineering, Electrical & Electronic, Q2 Telecommunications
3. Robust Semantic Text Similarity Using LSA, Machine Learning, and Linguistic Resources. A. Kashyap, L. Han, R. Yus, J. Sleeman, T. Satyapanich, S. Gandhi, and T. Finin. Language Resources and Evaluation 50(1): 125-161, 2016. IF: 0.738 JCR2016, Q4 Computer Science, Interdisciplinary Applications; Google h5-index 22
4. Semantic Reasoning on Mobile Devices: Do Androids Dream of Efficient Reasoners?. C. Bobed, R. Yus, F. Bobillo, and E. Mena. Journal of Web Semantics, 2015. IF: 2.55 JCR2014, Q1 Computer Science, Artificial Intelligence, Q1 Computer Science, Information Systems, Q1 Computer Science, Software Engineering; Google h5-index 36
5. MultiCAMBA: System for Selecting Camera Views in Live Broadcasting of Sport Events Using a Dynamic 3D Model. R. Yus, E. Mena, S. Ilarri, A. Illarramendi, and J. Bernad. Multimedia Tools and Applications, 2015. IF: 1.346 JCR2014, Q2 Computer Science, Information Systems, Q2 Computer Science, Software Engineering, Q2 Computer Science, Theory & Methods, Q2 Engineering, Electrical & Electronic; Google h5-index 33
6. Real-Time Selection of Video Streams for Live TV Broadcasting Based on Query-by-Example Using a 3D Model. R. Yus, S. Ilarri, and E. Mena. Multimedia Tools and Applications, 2015. IF: 1.346 JCR2014, Q2 Computer Science, Information Systems, Q2 Computer Science, Software Engineering, Q2 Computer Science, Theory & Methods, Q2 Engineering, Electrical & Electronic; Google h5-index 33
7. SHERLOCK: Semantic Management of Location-Based Services in Wireless Environments. R. Yus, E. Mena, S. Ilarri, and A. Illarramendi. Pervasive and Mobile Computing, 2014. IF: 2.079 JCR2014, Q1 Computer Science, Information Systems, Q1 Telecommunications; Google h5-index 35
8. A Friendly Location Aware System to Facilitate the Work of Technical Directors When Broadcasting Sport Events. S. Ilarri, E. Mena, A. Illarramendi, R. Yus, M. Laka, and Gorka Marcos. Mobile Information Systems, 2012. IF: 1.789 JCR2013, Q1 Computer Science, Information Systems, Q1 Telecommunications; Google h5-index 14

### Book Chapters

1. Emerging Semantic-Based Applications. C. Bobed, R. Yus, F. Bobillo, S. Ilarri, J. Bernad, E. Mena, R. Trillo-Lado, and A. L. Garrido. Workman, M., Ed., Springer International Publishing, 2015.

## Peer-Reviewed Conference Poster/Demo Abstracts

1. A Privacy-Enabled Platform for COVID-19 Applications. M. August, C. Davison, M. H. Diallo, D. Ghosh, P. Gupta, C. T. Graves, S. Han, M. Holstrom, P. Khargonekar, M. Kline, S. Mehrotra, S. Sharma, N. Venkatasubramanian, G. Wang, and R. Yus. 18th ACM Conference on Embedded Networked Sensor Systems (SenSys), 2020. A CORE2020
2. SemIoTic: Bridging the Semantic Gap in IoT Spaces. S. Almanee, G. Bouloukakis, D. Jiang, S. Ghayyur, D. Ghosh, P. Gupta, Y. Lin, S. Mehrotra, P. Pappachan, E. J. Shin, N. Venkatasubramanian, G. Wang, and R. Yus. 6th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys), 2019: 352-353. A CORE2018
3. IoT Detective: Analyzing IoT Data Under Differential Privacy. S. Ghayyur, Y. Chen, R. Yus, A. Machanavajjhala, M. Hay, G. Miklau, and S. Mehrotra. 2018 ACM SIGMOD/PODS Conference (SIGMOD): 1725-1728, 2018. A\* CORE2020; Google h5-index 66
4. Cooperative Network of Mobile Agents to Remotely Process User Information Requests. R. Yus and E. Mena. 2015 IEEE/WIC/ACM International Conference on Web Intelligence (WI): 227-228, 2015. B CORE2020; Google h5-index 18
5. Mobile Endpoints: Accessing Dynamic Information from Mobile Devices. R. Yus and E. Mena. 14th International Semantic Web Conference (ISWC), 2015. A CORE2020; Google h5-index 40
6. Mobipedia: Mobile Applications Linked Data. P. Pappachan, R. Yus, P. K. Das, S. Mehrotra, T. Finin, and A. Joshi. 14th International Semantic Web Conference (ISWC), 2015. A CORE2020; Google h5-index 40 and position
7. Emergency Management Using SHERLOCK. R. Yus and E. Mena. 13th Annual International Conference on Mobile Systems, Applications, and Services (MobiSys), 2015. B CORE2020; Google h5-index 49
8. Infoboxer: Using Statistical and Semantic Knowledge to Help Create Wikipedia Infoboxes. R. Yus, V. Mulwad, T. Finin, and E. Mena. 13th International Semantic Web Conference (ISWC): 405-408, 2014. A CORE2020; Google h5-index 40
9. FaceBlock: Privacy-Aware Pictures for Google Glass. R. Yus, P. Pappachan, P. K. Das, E. Mena, A. Joshi, and T. Finin. 12th Annual International Conference on Mobile Systems, Applications, and Services (MobiSys), 2014. B CORE2020; Google h5-index 49
10. SHERLOCK: a system for location-based services in wireless environments using semantics. R. Yus, E. Mena, S. Ilarri, and A. Illarramendi. 22nd International World Wide Web Conference (WWW): 301-304, 2013. A\* CORE2020; Google h5-index 80
11. MultiCAMBA: A System to Assist in the Broadcasting of Sport Events. R. Yus, D. Anton, E. Mena, S. Ilarri, and A. Illarramendi. 8th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous): 238-242, 2011. A CORE2020; Google h5-index 12

## Peer-Reviewed Workshop Proceedings

1. Towards Privacy-Aware Smart Buildings: Capturing, Communicating, and Enforcing Privacy Policies and Preferences. P. Pappachan, M. Degeling, R. Yus, A. Das, S. Bhagavatula, W. Melicher, P. E. Naeini, S. Zhang, L. Bauer, A. Kobsa, S. Mehrotra, N. M. Sadeh, and N. Venkatasubramanian. 7th IEEE International Conference on Distributed Computing Systems Workshops (ICDCS Workshops): 193-198, 2017.
2. Are Apps Going Semantic? A Systematic Review of Semantic Mobile Applications. R. Yus and P. Pappachan. 1st International Workshop on Mobile Deployment of Semantic Technologies (MoDeST), co-located with the 14th International Semantic Web Conference (ISWC): 2-13, 2015.

3. Building a Mobile Applications Knowledge Base for the Linked Data Cloud. P. Pappachan, R. Yus, P. K. Das, S. Mehrotra, T. Finin, and A. Joshi. 1st International Workshop on Mobile Deployment of Semantic Technologies (MoDeST), co-located with the 14th International Semantic Web Conference (ISWC): 14-25, 2015.
4. The OWL Reasoner Evaluation Goes Mobile. R. Yus, F. Bobillo, C. Bobed, and E. Mena. 4th International Workshop on OWL Reasoner Evaluation (ORE): 38-45, 2015.
5. A Semantic Context-Aware Privacy Model for FaceBlock. P. Pappachan, R. Yus, P. K. Das, T. Finin, E. Mena, and A. Joshi. 2nd International Workshop on Society, Privacy and the Semantic Web – Policy and Technology (PrivOn), co-located with the 13th International Semantic Web Conference (ISWC), 2014.
6. Semantics for Privacy and Shared Context. R. Yus, P. Pappachan, P. K. Das, T. Finin, A. Joshi, and E. Mena. 2nd International Workshop on Society, Privacy and the Semantic Web – Policy and Technology (PrivOn), co-located with the 13th International Semantic Web Conference (ISWC), 2014.
7. Meerkat Mafia: Multilingual and Cross-Level Semantic Textual Similarity Systems. A. Kashyap, L. Han, R. Yus, J. Sleeman, T. Satyapanich, S. Ghandi, and T. Finin. 8th International Workshop on Semantic Evaluation (SemEval): 416-423, 2014. Google h5-index 23
8. Android Went Semantic: Time for Evaluation. C. Bobed, F. Bobillo, R. Yus, G. Estaban, and E. Mena. 3rd International Workshop on OWL Reasoner Evaluation (ORE): 23-29, 2014.
9. Android Goes Semantic: DL Reasoners on Smartphones. R. Yus, C. Bobed, G. Estaban, F. Bobillo, and E. Mena. 2nd International Workshop on OWL Reasoner Evaluation (ORE): 46-52, 2013.

## Dissertation

- Semantic Management of Location-Based Services in Wireless Environments. R. Yus, PhD Thesis, University of Zaragoza, 2016.

## INVITED TALKS

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“Reconciling Smartness and Privacy in the Internet of Things”, Postdoc Research Symposium, University of California, Irvine, 2017.

“Defining accurate Wikipedia Infoboxes using Statistical and Semantic Knowledge”, Edit-a-thon for the visibility of women in Aragon, Zaragoza (Spain), 2015.

“Wearable Computing: Google Glass”, Council of Computing Majors, University of Maryland, Baltimore County, 2013.

“SHERLOCK: Semantic Management of Location-Based Services in Wireless Environments”, A Web of Data (CMSC 491/691), University of Maryland, Baltimore County, 2013.

## PERSONAL BACKGROUND

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| <i>Nationality</i> | Spanish.  |
| <i>Languages</i>   | Spanish (Fluent), English (Fluent).               |
| <i>Interests</i>   | Reading (history), LEGO, Papercraft, 3D Printing. |

## REFERENCES

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**Prof. Sharad Mehrotra**

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**Prof. Nalini Venkatasubramanian**

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