

**Dr. Natalia Villanueva Rosales**  
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**(a) Professional Preparation**

Panamerican (Bonaterra) U.	Aguascalientes, MX.	Computer Science	B.Eng.1999
U. of Edinburgh	Scotland, UK	Artificial Intelligence	M.Sc. 2002
Carleton U.	Ottawa, CA	Computer Science	Ph.D. 2012

**(b) Appointments**

Associate Professor, Dept. of Computer Science, U. of Texas at El Paso	2020-pres
Assistant Professor, Dept. of Computer Science, U. of Texas at El Paso	2013-2020
Research Assistant Professor, Cyber-ShARE Center, U. of Texas at El Paso	2012-2013
Research Assistant, School of Computer Science and Dept. of Biology, Carleton U.	2006-2011
Teaching Assistant, School of Computer Science, Carleton U.	2005-2009
IT Director, Polytechnic University of Aguascalientes	2003
Chair, Mechatronics Engineering Dept., Polytechnic U. of Aguascalientes	2002-2003
Lecturer and External Academic Consultant, Panamerican U.	2002-2003
Head of the Information Department, Ministry of Education of Aguascalientes	1999-2001

**(c) Selected Publications**

1. Vargas-Acosta, R.A., Chavira, L. G., *Villanueva-Rosales N.* and Pennington, D. D. **Automating Multivariable Workflow Composition for Model-to-Model Integration.** In: *2022 IEEE 18th International Conference on e-Science (e-Science)*, Salt Lake City, UT, USA, 2022, pp. 159-170, doi: 10.1109/eScience55777.2022.00030.
2. Chavira, L.G., *Villanueva-Rosales, N.* Heyman, J., Pennington D. D. and Salas, K. **Supporting Regional Water Sustainability Decision-Making through Integrated Modeling.** In: *2022 IEEE International Smart Cities Conference (ISC2)*, Pafos, Cyprus, 2022, pp. 1-7, doi: 10.1109/ISC255366.2022.9922004.
3. Bangert, A.S., Nunez-Mchiri, G.G., Mondragon, O.A., Calvo, D., Ruiz, C., Escobedo, E., *Villanueva-Rosales, N.* and Cheu, R.L. **Using Technology to Teach Older Adults during the COVID-19 pandemic.** In *2022 IEEE International Smart Cities Conference (ISC2)* (pp. 1-7). IEEE. doi: 10.1109/ISC255366.2022.9922123.
4. Bangert, A.S., Ruiz, C., Becerra, D.L., Nunez-Mchiri, G.G., Calvo, D., Mondragon, O.A., Cheu, R.L. and *Villanueva-Rosales, N.*, **The Use of Technology by Older Adults in El Paso, Texas during COVID-19: Purposes, Challenges, and Opportunities.** In: *2022 IEEE International Smart Cities Conference (ISC2)* (pp. 1-7). IEEE. doi: 10.1109/ISC255366.2022.9922423.
5. Garijo D., *Villanueva-Rosales N.*, Kauppinen T. Editorial: **Special issue on Semantic eScience: Methods, tools and applications.** *Semantic Web.* 2020; 11:731-733. DOI: 10.3233/SW-200380.
6. Smith, N. A. , Camacho, A. C. , Escobedo, E. J., Contreras, J. M. , Mondragon Campos, O. A., *Villanueva-Rosales, N.*, Cheu, R. L. K., Larios, V. M. (2020). **A Safety Index for Smart Mobility using Real-Time Crowdsourced Data.** In: *6th IEEE International Smart Cities Conference (ISC2 2020)*. IEEE Xplore Proceedings. DOI: 10.1109/ISC251055.2020.9239007

7. Garcia, V. M. , Granados, R. P. , Medina, M. E. , Ochoa, L. E. , Mondragon Campos, O. A., Cheu, R. L. K., *Villanueva-Rosales, N.*, Larios, V. M. (2020). **Management of Real-Time Data for a Smart Flooding Alert System**. In: *6th IEEE International Smart Cities Conference (ISC2 2020)*. IEEE Xplore. DOI: 10.1109/ISC251055.2020.9239092
8. Vechione, M., Marrufo, C., Vargas-Acosta, R. A., Jimenez-Velasco, M. G., Gurbuz, O., Dmitriyeva, A., Cheu, R. Long, *Villanueva-Rosales, N.*, Nunez-Mchiri Guillermina Gina, Chow, J. Y. J. **Smart Mobility for Seniors: Challenges and Solutions in El Paso, TX, and New York, NY**. In: *4th IEEE International Smart Cities Conference (ISC2 2018)*, 1–8. IEEE Xplore Digital Library. DOI: 10.1109/ISC2.2018.8656975
9. Garnica Chavira, L., Caballero, J., *Villanueva-Rosales, N.*, Pennington, D. (2018). **Semi-structured Knowledge Models and Web Service Driven Integration for Online Execution, Visualization and Sharing of Water Sustainability Models**. *International Congress on Environmental Modelling and Software*. Forth Collins, Colorado.
10. *Villanueva-Rosales, N.*, Garnica Chavira, L., Del Rio, N., Pennington, D. (2015) **eScience through the integration of data and models: a biodiversity scenario**. *11th IEEE International Conference of eScience*. 171-176. Munich, Germany. IEEE Computer Society. <http://dx.doi.org/10.1109/eScience.2015.77>
11. *Villanueva-Rosales, N.*, Del Rio, N., Pennington, D., Garnica Chavira, L. (2015) **Semantic Bridges for Biodiversity Sciences**. In *Proceedings of the 14th International Semantic Web Conference*, Bethlehem, PA, USA. 9367:310-317. Springer International. [http://dx.doi.org/10.1007/978-3-319-25010-6\\_20](http://dx.doi.org/10.1007/978-3-319-25010-6_20)
12. *Villanueva-Rosales, N.*, Cheu, R., Gates, N., Rivera, N., Mondragon, O., Cabrera, S., Ferregut, C., Carrasco, C., Nazarian, S., Taboada, H., Larios V., Barbosa-Santillan, L. Svitek, O., Horak, T., Prochazkova, D. (2015). **A Collaborative, Interdisciplinary Initiative for a Smart Cities Innovation Network**. In: *1st IEEE International Smart Cities Conference*. Guadalajara, Mexico. <https://doi.org/10.1109/ISC2.2015.7366179>
13. Dumontier, M., Baker, C., Baran, J., Callahan, A., Chepelev, L., Cruz-Toledo, J., Del Rio, N., Duck, G., Furlong, L., Keith, N., Klassen, D., McCusker, J., Queralt-Rosinach, N., Samwald, M., *Villanueva-Rosales, N.*, Wilkinson, M., Hoehndorf, R. **The Semantic Science Integrated Ontology (SIO) for Biomedical Research and Knowledge Discovery**. 2014. *Journal of Biomedical Semantics*, 5(14). <https://doi.org/10.1186/2041-1480-5-14>

#### (d) Activities and Awards

1. Developed and delivered teaching and evaluation material for the following courses: Database Management, 2012-2022; Web-based Data Integration 2019-2022; Cyberinfrastructure applications for Smart Cities, 2016-2018. Cyberinfrastructure applications, 2012-2018. Advanced Databases, 2015-2017.
2. Recipient of the 2019 Hispanic Engineer National Achievements Awards Conference (HEENAC) Education Award. Award given by Great Minds in STEM (GMiS).
3. Recipient of the 2019 Undergraduate Research Mentoring Award - Junior Faculty member in Research Track. National Center for Women & Information Technology (NCWIT).