

CV: Arturo S. Leon, Ph.D., P.E., D.WRE

Associate Professor of Water Resources Engineering, Civil and Environmental
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<http://scholar.google.com/citations?hl=en&user=R5MecbQAAAAJ&oi=sra>

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A. EDUCATION AND EMPLOYMENT INFORMATION

A1. Education

- | | |
|------|---|
| 2007 | Ph.D., Civil and Environmental Engineering
University of Illinois at Urbana-Champaign |
| 2000 | M.S., Hydraulic Engineering
(1st place in M.S. program, 1st place in entrance examination)
National University of Engineering, Peru |
| 1998 | C.E., Civil Engineering (Recognition for Outstanding Thesis)
Nat. Univ. of San Cristobal de Huamanga, Peru |
| 1996 | B.S., Civil Engineering
(1st place in B.S. program out of 87, 1st place in entrance
examination out of 26,000)
Nat. Univ. of San Cristobal de Huamanga, Peru |

A2. Professional Experience

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|---------------------|--|
| August 2018-present | Associate Professor
Department of Civil and Environmental Engineering
Florida International University, FL |
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Sept. 2016-July 2018	Associate Professor Department of Civil and Environmental Engineering University of Houston, TX
Jan. 2011-Aug. 2016	Assistant Professor School of Civil and Construction Engineering Oregon State University, OR
Sept. 2009-Dec. 2010	Assistant Professor Department of Civil Engineering Boise State University, ID
Apr. 2007-Aug. 2009	Post-doctoral Research Associate Department of Civil and Environmental Engineering University of Illinois at Urbana-Champaign, IL
Sept. 2002-Mar. 2007	Graduate Research Assistant Department of Civil and Environmental Engineering University of Illinois at Urbana-Champaign, IL
Aug. 2000-July 2002	Staff Hydrologic and Hydraulic Engineer Knight Piesold Consulting S.A., Lima, Peru
Jan 1999-July 2000	Staff Hydraulic Engineer COSAPI S.A., Lima, Peru
Jan. 1998-Dec. 1998	Assistant Hydraulic Engineer Agua y Agro Asesores Asociados S.A.C., Lima, Peru
April 1997-Dec.1998	Graduate Teaching Assistant Department of Civil Engineering National University of Engineering, Lima, Peru

B. TEACHING, ADVISING, AND OTHER ASSIGNMENTS

B1. Instructional Summary

B1.1. Credit Courses

At University of Houston

Number	Course Title	Term/Year	Credits	Enrollment
CIVE 3434	Fluid Mechanics and Hydraulic Engineering	Spring 2018	4	58
CIVE 7397	Optimization in Water Resources Engineering	Fall 2017	3	10
CIVE 3434	Fluid Mechanics and Hydraulic Engineering	Spring 2017	4	38
CIVE 7397-30837	Unsteady flows in Rivers and Pipe Networks	Fall 2016	3	5

At Oregon State University

Number	Course Title	Term/Year	Credits	Enrollment
CE 313	Hydraulic Engineering	Winter 2011	4	127
CE 412/512	Hydrology	Spring 2011	4	70/8
CE505	Unsteady flows in Rivers and Pipe Networks	Fall 2011	4	6
CE 313	Hydraulic Engineering	Winter 2012	4	72
CE 412/512	Hydrology	Spring 2012	4	66
CE 540	Stormwater Management and Modeling	Fall 2012	4	9
CE 313	Hydraulic Engineering	Winter 2013	4	96
CE 412/512	Hydrology	Spring 2013	4	70
CE 540	Unsteady flows in Rivers and Pipe Networks	Fall 2013	4	11
CE 313	Hydraulic Engineering	Winter 2014	4	70
CE 540	Stormwater Management and Modeling	Winter 2014	4	5
CE 540	Unsteady flows in Rivers and Pipe Networks	Fall 2014	4	10

CE 544	Open Channel Flow	Winter 2015	4	13
CE 313	Hydraulic Engineering	Spring 2015	4	37
CE 540	Stormwater Management and Modeling	Fall 2015	4	10
CE 313	Hydraulic Engineering	Winter 2016	4	102
CE 540	Unsteady flows in Rivers and Pipe Networks	Spring 2016	4	

At Boise State University

Number	Course Title	Term/Year	Credits	Enrollment
CE 697	Special Topics: Open Channel Hydraulics	Fall 2010	4	6
CE 697	Special Topics: Optimization in Water Resources Engineering	Spring 2010	4	5

B1.2. Non-Credit Courses and Workshops

1. Workshop on “Overview of the OSU-OUU model and its Application to the Columbia River System”, 2 hours, held at Bonneville Power Administration Headquarters, Portland, OR, July 22, 2015.
2. Short course on “Flow Dynamics in Combined Storm-sewer Systems. Modeling needs and Application of the Illinois Transient Model (ITM)”, 8 hours, held at City of Portland, Environmental Services, Portland, OR, October 25, 2013.
3. Short course on “Modeling of flows in Combined Storm-sewer Systems”, 4 hours, held at the ASCE-EWRI World Environmental & Water Resource Congress, Providence, Rhode Island, May 16, 2010.
4. Short course on “Unsteady flow modeling using HEC-RAS”, 16 hours, held at Montgomery Watson and Harza Engineering (MWH), Denver, Colorado, August 21 and 23, 2010.

B1.3. Course and Curriculum Development

CIVE 7397: Optimization in Water Resources Engineering

Optimization in Water Resources Engineering is a graduate elective that I have added to the curriculum at UH. Very few water resources engineering programs have the expertise to offer standalone classes on the topic of Optimization in Water Resources Engineering (e.g., optimal operation of reservoir systems for flood control and

hydropower production, optimal design of hydraulic structures such as pipe network distribution systems). This course presents the fundamentals of optimization techniques such as non-linear methods and genetic algorithms and their applications to various water resources engineering problems (e.g., optimal operation of multi-objective and multi-reservoir systems, flood control, optimal design of water distribution systems).

CE 540 ST, CIVE 7397: Stormwater Management and Modeling

Stormwater Management and Modeling is a water resources engineering graduate elective that I have added to the curriculum at OSU. Very few water resources engineering programs have the expertise to offer standalone classes on the topic of stormwater management. This course covers the analysis and design of various components of stormwater collection systems including stormwater inlets, storm sewers, combined sewers, detention, infiltration basins, stormwater wetlands, flow regulators, culverts, drainage channels, erosion and sediment control. This course also covers concepts and methodologies for sediment transport in drainage systems, distributed stormwater control and management and reuse systems. Finally, this course involves computer hands-on labs using The EPA Storm Water Management Model (SWMM) and the Illinois Transient Model (ITM). The ITM model, which I developed, is intended for the modeling of transient and non-transient flows in storm sewers, combined sewers or in general closed-conduit systems. The ITM model was used for the analysis of combined sewer systems in the United States in cities like Chicago, Dallas and San Francisco and currently is being used in countries such as Switzerland, New Zealand and France. The material I created for this course is available at the course webpage: http://www2.egr.uh.edu/~aleon3/Teaching_Stormwater.html, which benefits not only OSU students but also the wider stormwater management community.

CE 540 ST: Unsteady Flows in Rivers and Pipe Networks

Unsteady Flows in Rivers and Pipe Networks is a water resources engineering graduate elective that I have added to the curriculum at OSU. Nationally, only two universities (University of South Carolina and University of Minnesota) offer a similar class to this graduate elective. This course covers the introduction and analysis of unsteady open-channel flows (e.g., rivers) and pressurized flows (e.g., full-pipe flows). Strong emphasis is given to the application of efficient numerical techniques and computational procedures for flow routing. This course focuses primarily on one-dimensional unsteady flows, although a brief introduction to two-dimensional flows is also presented. This course involves computer hands-on labs using *HEC-RAS* (USACE), *ITM* (Arturo Leon), and *TELEMAC-2D* (EDF-LNHE, Paris). The material I created for this course is available at the course webpage:

http://www2.egr.uh.edu/~aleon3/Teaching_unsteady_rivers.html

B1.4. Teaching material that I developed

The teaching material that I developed (handouts and software) for each of the classes that I taught can be found in the following links (UG = undergraduate, and G = graduate):

Level	Course Title	Website
UG	Hydraulic Engineering	http://www2.egr.uh.edu/~aleon3/Teaching_hydraulic_engineering.html
UG	Hydrology	http://www2.egr.uh.edu/~aleon3/Teaching_hydrology.html
G	Stormwater Management and Modeling	http://www2.egr.uh.edu/~aleon3/Teaching_Stormwater.html
G	Open Channel Flow	http://www2.egr.uh.edu/~aleon3/Teaching_open_channel.html
G	Unsteady Flows in Rivers and Pipe Networks	http://www2.egr.uh.edu/~aleon3/Teaching_unsteady_rivers.html
G	Optimization in Water Resources Engineering	http://www2.egr.uh.edu/~aleon3/Teaching.html

B2. Student and Participant Evaluations

At University of Houston

Course No.	Term	Enrollment	# Responding	Student Evaluation (#10)	Level Averages* (#10)	Δ	Required /Elective
CIVE 7397	Fall 2017	10	7	4.9	4.61	+0.29	Elective
CIVE 3434	Spring 2017	47	37	4.6	4.1	+0.50	Required
CIVE 7397-30837	Fall 2016	5	5	4.8	4.63	+0.17	Elective

Question 10:

Based on what I have seen in this class, I believe this instructor is an effective educator

...

1 = Poor, 2 = Below average, 3 = Average, 4 = Above average, 5 = Outstanding

At Oregon State University

Course No.	Term	Enrollment	# Responding	Student Evaluation (#1/#2)	College Averages* (#1/#2)	Δ	Required/Elective
CE 313	Winter 2011	127	-	3.8/4.1	4.5/4.7	-0.7/-0.6	Required
CE 412/512	Spring 2011	70/8	-	3.4/3.5	4.7/4.8	-1.3/-1.3	Required
CE 505 (***)	Fall 2011	6	-	-/-	-/-	-/-	Elective
CE 313	Winter 2012	72	71	4.1/4.2	4.5/4.7	-0.4/-0.5	Required
CE 412/512	Spring 2012	66	58	3.10/3.10	4.2/4.3	-1.1/-1.2	Required
CE 540 (1)	Fall 2012	9	8	5.10/5.50	4.8/5.0	+0.3/+0.5	Elective
CE 313	Winter 2013	96	58	3.90/4.10	4.3/4.4	-0.4/-0.3	Required
CE 412/512	Spring 2013	63	58	4.60/4.90	4.2/4.3	+0.3/+0.4	Required
CE 540 (2)	Fall 2013	11	10	5.50/5.90	5.0/5.2	+0.5/+0.7	Elective
CE 313	Winter 2014	68	61	5.00/5.30	4.4/4.5	+0.6/+0.8	Required
CE 540 (1)	Winter 2014	5	***				Elective
CE 540 (2)	Fall 2014	10	6	4.00/3.80	5.1/5.3	-1.1/-1.5	Elective
CE 544	Winter 2015	13	8	5.20/5.00	5.03/5.14	+0.17/-0.14	Elective
CE 313	Spring 2015	34	30	4.30/4.1			Required
CE 540 (2)	Fall 2015	10	5	***			Elective
CE 313	Winter 2016	62	50	4.40/4.60	4.3/4.4	+0.10/+0.20	Required
CE 540 (2)	Spring 2016	7	4	***			Elective

- (1) Stormwater Management and Modeling
- (2) Unsteady Flows in Rivers and Pipe Networks

* College averages are shown separately for each level (e.g., 300,400, 500) taught.

* Review Questions from Student Evaluations:

Question 1. The course as a whole was ...

Question 2. The instructor's contribution to the course was ...

1= Very Poor, 2 = Poor, 3 = Fair, 4 = Good, 5 = Very Good, 6 = Excellent

***** No evaluation was performed. Evaluations are NOT collected for courses that have fewer than 6 students.**

B3. Advising

B3.1. Graduate Advisees – Completed

Student	Degree	Thesis	Graduated
Ahmet Emirhan Yolcu	M.S.	<i>An Automated and Remotely Operated Siphon System for Flood Control</i>	Spring 2018
Julia Rask	M.S.	<i>Free surface flow-groundwater interaction: The Calapooia case study</i>	Winter 2018
Yunji Choi	Ph.D.	<i>Numerical Investigations on Sewer Geysers</i>	Winter 2018
Parnian Hosseini	Ph.D.	<i>Multi-objective Optimization of Reservoir Operation Under Uncertainty with Robust and Flexible Decision Variables</i>	Fall 2016
Ibrahim Elayeb	M.S.	<i>An experimental study on violent geysers in vertical shafts and a retrofitting method to reduce geyser intensity</i>	Spring 2016
Ali Alnahit	M.S.	<i>A remotely controlled siphon system for dynamic water storage management</i>	Summer 2015
Christopher Gifford-Miears	M.S.	<i>A Novel Framework for Uncertainty Propagation in River Systems based on Performance Graphs using Two-dimensional Hydrodynamic Modeling</i>	Winter 2014
Akemi E. Kanashiro	M.S.	<i>A new framework for flooding control in regulated river systems</i>	Winter 2013

B3.2. Graduate Advisees – Current

Student	Degree	Expected Graduation	Thesis Title
1. Sayed Abedin	PhD	Fall 2020	Intelligent flood control using remote storage management of multiple wetlands
2. Taher Chegini	PhD	Fall 2019	Numerical modeling of violent geysers in stormwater and combined sewer systems
3. Erfaneh Sharifi	PhD	Fall 2019	Real-options valuation in multi-objective reservoir operation
4. Li Qin	PhD*	Fall 2018	*Advances in photoelectric detection (Visiting student of Dalian Maritime University, Dalian, China, August 2017-August 2018)

Graduate Thesis or Project Committees

MEng Advisor:

Graduated

1. Yun Tang, MEng, 2016
2. Christopher Ryan Hockert, MEng, 2015
3. Benjamin Church, MEng, 2014

Current

- 1.

Minor Professor or Committee Member:

Graduated

1. Fong-Shu Jao, PhD, 2018 (UH, Civil Engineering)
2. Yan Miao, PhD, 2017 (UH, Civil Engineering)
3. Parameswaran Ariram, MS, 2017 (UH, Civil Engineering)
4. Amir Javaheri, PhD, 2017 (OSU, Civil Engineering)
1. Eben M. Babb, MEng, 2016 (OSU, Civil Engineering)
2. Luis Gomes, MEng, 2016 (OSU, Civil Engineering)
3. Grant Livingston, MS (OSU Water Resources Graduate Program), 2015
4. Lauren Dove, MEng, 2015 (OSU, Civil Engineering)
5. Joshua Sexton, MEng, 2015 (OSU, Civil Engineering)

6. Cao Chang, MEng, 2014 (OSU, Civil Engineering)
7. Kelli Walters, MS, 2014 (OSU, Civil Engineering)
8. Perry Morrow, MS, 2013 (OSU Water Resources Graduate Program)
9. Jeff Knowles, MEng, 2013 (OSU, Civil Engineering)
10. Jake Taylor, MEng, 2012 (OSU, Civil Engineering)
11. Kevin Heath, MEng, 2012 (OSU, Civil Engineering)
12. Owen Haskell, MEng, 2012 (OSU, Civil Engineering)
13. Thilini Jaksa, MS, 2011 (Boise State University)

Current

1. Li Fei (External examiner), PhD, 2018, PhD, *The Hong Kong Polytechnic University (HKPU), Hong Kong, Civil Engineering*

Graduate Council Representative:

1. Nathan Germann, MS, 2013 (Mechanical Engineering)

B3.4. Undergraduate Research Assistants

1. Davis Isaias Hernandez-Alvarez (Winter 2016)
2. Tyler Oathes (Winter-Spring 2016)
3. Megan Conley (Winter-Spring 2016)
4. Alyssa Saito (Winter-Spring 2016)
5. Emily Napualani Luke (Winter-Spring 2016)
6. Devin Robert Sene (Winter-Spring 2016)
7. Parker Wood Murphy (Winter-Spring 2016)
8. Lee Brian Bissinger (Summer 2011, Fall 2012, Summer 2012, Spring 2014)
9. Tim Lloyd (Winter 2014, Spring 2014)
10. Emiko Fukuchi (Fall 2013 - Spring 2014) [Environmental Engineering]
11. YunJi Choi (Summer 2011, Winter 2012 - Summer 2012)
12. Jeffrey Knowles (Summer 2011)
13. Hadi Mirsadeghi (Summer 2010 - Fall 2010) [Boise State University]
14. Esther Contreras (Summer 2010) [Boise State University]

B3.5. Postdoctoral Trainees

1. Hamid Bashiri, PhD, March 2017 – Present
2. Duan Chen, PhD, May 2013 – December 2016

B3.6. Other Advising

Co-Faculty Advisor (With Dr. Hanadi Rifai), Engineers Without Borders (EWB) University of Houston Chapter, Spring 2017 – Present.

Faculty Advisor, Engineers Without Borders (EWB) Oregon State University Chapter, Winter 2011 – Present. During this period I reviewed technical reports for two

international projects of EWB. I also assisted in the design of hydraulic structures for these projects. In 2013, the EWB-OSU Chapter has received a **Premier Project National Award** for the successful implementation of a well and rainwater catchment in Lela, Kenya. This award recognizes excellence in EWB-USA projects.

Selected Student Awards and Achievement

- Taher Chegini, Ph.D. student, 3rd Place – ASCE-EWRI graduate student technical paper competition, 2018.
- Taher Chegini and Erfaneh Sharifi were named CACDS Fellow, September 2017 (<https://www.cacds.uh.edu/about/cacds-fellows/>)
- Parnian Hosseini, Ph.D. student, 2nd Place – CCE-OSU College of Engineering Research Engineering Expo, 2015
- Parnian Hosseini, Ph.D. student, NW Energy Prize scholarship, 2014
- Yunji Choi, Ph.D. student, Arthur N. L. Chiu Endowed Scholarship, 2013
- Christopher Gifford-Miears, M.S. student, [ASCE's Arthur S. Tuttle Memorial Scholarship](#), 2012

B4. Other Instruction Related Assignments

University of Illinois at Urbana-Champaign: Teaching Assistant

- CEE 551 Open-Channel Hydraulics, Fall 2006

C. SCHOLARSHIP AND CREATIVE ACTIVITY

C1. Publications (*student advisees are underlined*)

The candidate's role on joint publications is indicated as part of each entry; if nothing has been included, the candidate's involvement was minor. The candidate should identify student advisees.

C1.1. Refereed Books & Book Chapters

Books

1. **A. S. Leon** (2009). "Improved Modeling of Transient Flows in Storm-sewer Systems", ISBN 978-3-639-15213-5, VDM Verlag Dr. Müller, Germany.
2. **A. S. Leon** (2000). "Local scour around cylindrical piers in non-cohesive beds (In Spanish)", Distribuidora Lopez G., Lima, Peru.
3. **A. S. Leon** and F. Coronado (1998). "The hydraulic design of a bottom rack-type intake in supercritical regime (In Spanish)", W. H. Editores S.R. Ltda., Lima, Peru (primary author).

Book Chapters

1. **A. S. Leon**, N. Oberg, A. R. Schmidt and M. H. García (2011). "The Illinois Transient Model. A state-of-the-art model for simulating flow dynamics in combined storm-sewer systems". *Urban Water Systems*, Monograph 19 (primary author).
2. **A. S. Leon**, M. S. Ghidaoui, A. R. Schmidt and M. H. García (2007). "An efficient finite-volume scheme for modeling water hammer flows." *Contemporary Modeling of Urban Water Systems*, Monograph 15 (primary author).

C1.2. Refereed Journal Publications

1. Chen, D., **Leon, A. S.**, Chen, Q., and Li, R. (2018). A derivative-free hybrid optimization model for short-term operation of a multi-objective reservoir system under uncertainty, *Water Resources Management*. Accepted.
<https://doi.org/10.1007/s11269-018-2014-5>
2. **Leon, A. S.** (2018). Mechanisms that lead to violent geysers in vertical shafts. *Journal of Hydraulic Research*. Accepted. E-print:
<https://www.tandfonline.com/doi/full/10.1080/00221686.2018.1459895>
3. **Leon A. S.**, Chen, D. and Yolcu A. (2018). A wetland system for flood control, *IAHR Journal of Applied Water Engineering and Research*. Accepted.

4. **Leon, A. S.** (2018), Elayeb I. S., Tang, Y. (2018). An experimental study on violent geysers in vertical pipes. *Journal of Hydraulic Research*. Accepted.
5. Qin, L., Dong, L. L., Xu, W. H, Zhang L. D, and **Leon, A. S.** (2018). Influence of Vehicle Speed on the Characteristics of Driver's Eye Movement at a Highway Tunnel Entrance during Day and Night Conditions: A Pilot Study, *Int. J. Environ. Res. Public Health*, 15(4), 656. (Provided significant text and discussion).
6. **Leon A. S.**, Tang, Y., Chen, D., Yolcu A., Glennie, C., Pennings, S. C. (2018). Dynamic Management of Water Storage for Flood Control in a Wetland System: A Case Study in Texas, *Water*, 10, 325. (Original idea, wrote the hydraulics code/model integration and wrote the initial draft).
7. Chen, D., **Leon, A. S.**, Fuentes, C., Gibson, N. L., and Qin, H. (2017). Incorporating filters in random search algorithms for the hourly operation of a multi-reservoir system, *ASCE Journal of Water Resources Planning and Management*. 144(2). E-print: <https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29WR.1943-5452.0000876> (Provided significant text and discussion).
8. Qin, L., Dong, L. L., Xu, W. H, Zhang L. D, and **Leon, A. S.** (2017). An intelligent luminance control method for tunnel lighting based on traffic volume, *Sustainability*, 9(12), 2208. E-print: <http://www.mdpi.com/2071-1050/9/12/2208> (Provided significant text and discussion).
9. Sharifi, E., Bashiri, H., **Leon, A. S.**, Chen, Y., Gibson, N. (2017). "Valuation of flexibility for optimal reservoir operation." *Open Water Journal*, 14(2), Article 5 (Provided significant text and discussion).
10. Bashiri, H., Sharifi, E., **Leon, A. S.**, Chen, Y., Gibson, N. (2017). "Quantification of Short-term Hydropower Generation Flexibility." *Open Water Journal*, 14(2), Article 6 (Provided significant text and discussion).
11. Chen, D., **Leon, A. S.**, Engle, S. P., Fuentes, C., and Chen, Q. (2017). "Offline training for improving online performance of a genetic algorithm based optimization model for hourly multi-reservoir operation." *Environmental Modelling and Software*, 96, 46-57. E-print: <https://doi.org/10.1016/j.envsoft.2017.06.038> (Provided significant text and discussion).
12. **Leon, A. S.** and Gifford-Miears, C. (2017) "Evaluation of the PG Method for Modeling Unsteady flows in Complex Bathymetries." *IAHR Journal of Applied Water Engineering and Research*. Accepted. E-print: <http://dx.doi.org/10.1080/23249676.2017.1287017> (Primary author).
13. Chen, D., **Leon, A. S.**, Hosseini, P., Gibson, N. L., and Fuentes, C. (2017) "Application of Cluster Analysis for Finding Operational Patterns of Multireservoir System during Transition Period." *ASCE Journal of Water Resources Planning and Management*. 143(8). E-print: <http://ascelibrary.org/doi/abs/10.1061/%28ASCE%29WR.1943-5452.0000772>

(Provided significant text and discussion).

14. Oberg N., Schmidt, A. R., Landry, B. J., **Leon, A. S.**, Waratuke, A. R., Mier, J. M. and García, M. H. (2017) "Improved understanding of combined sewer systems using the Illinois Conveyance Analysis Program (ICAP)." *Urban Water Journal*, 14(8), 811-819, doi: 10.1080/1573062X.2016.1269811. E-print: <http://dx.doi.org/10.1080/1573062X.2016.1269811>. (wrote the original HPG code and provided significant text and discussion).
15. **Leon, A. S.** and Goodell C. (2016) .“Controlling HEC-RAS using MATLAB” *Journal of Environmental Modelling and Software*, 84, 339-348. (Developed 100% of the code and provided 95% of the text)
16. **Leon, A. S.** (2016). “Mathematical models for quantifying eruption velocity in degassing pipes based on exsolution of a single gas and simultaneous exsolution of multiple gases” *Journal of Volcanology and Geothermal Research*, 323, 72–79.
17. Chen, D., Chen, Q., **Leon, A. S.**, and Li, R. (2016). “A Genetic Algorithm Parallel Strategy for Optimizing the Operation of Reservoirs with Multiple Eco-environmental Objectives” *Water Resources Management*, 30(7), 2127–2142. (Provided significant text and discussion).
18. Chen, D., **Leon, A. S.**, Gibson, N., and Hosseini, P. (2016) “Dimension reduction of decision variables for multireservoir operation: A spectral optimization model.” *Water Resources Research*, 52(1), 36–51 (provided significant text and discussion – Impact Factor 3.55).
19. Lowe, R. J., **Leon, A. S.**, Symonds, G., Falter, J. L., Gruber, R. (2015). “The intertidal hydraulics of tide-dominated reef platforms.” *Journal of Geophysical Research - Oceans*, 120(7), 4845–4868 (derived the analytical solutions and provided 20% of the text and discussion – Impact Factor 3.44). Available at <http://onlinelibrary.wiley.com/doi/10.1002/2015JC010701/pdf>
20. Nania, L. S., **Leon, A. S.**, and Garcia, M. H. (2015). “Hydrologic-Hydraulic Model for Simulating Dual Drainage and Flooding in Urban Areas: Application to a Catchment in the Metropolitan Area of Chicago.” *Journal of Hydrological Engineering*, 20(5), 04014071-1 – 04014071-13 (developed the hydraulic code and provided 40% of the text and discussion – Impact Factor 1.62)
21. **Leon, A. S.**, Zhu, L. (2014). “A dimensional analysis for determining optimal discharge and penstock diameter in impulse and reaction water turbines.” *Renewable Energy*, 71, 609–615 (provided 95% of the text and developed the MATLAB software – Impact Factor 3.36)
22. Gibson, N. L., Gifford-Miears, C., **Leon, A. S.**, Vasylykivska, V. S. (2014). “Efficient computation of unsteady flow in complex river systems with uncertain inputs.” *International Journal of Computer Mathematics*, 91(4), 781-797. DOI:

- [10.1080/00207160.2013.854336](https://doi.org/10.1080/00207160.2013.854336) (provided 20% of the text and helped in the development of the hydraulics code – Impact Factor 0.72)
23. **Leon, A. S., Kanashiro, E. A., Valverde, R.,** and Sridhar V. (2014) “Dynamic Framework for Intelligent Control of River Flooding - Case Study.” *ASCE Journal of Water Resources Planning and Management*, 140(2), 258-268 (provided 60% of the text and developed 50% of the hydraulics and optimization code – Impact Factor 1.76)
 24. **Leon A. S., Kanashiro E. A.,** and Gonzalez-Castro J. A. (2013), “Fast Approach for Unsteady Flow Routing in Complex River Networks Based on Performance Graphs”, *Journal of Hydraulic Engineering*, 139(3), 284-295 (provided 70% of the text and developed most of the hydraulics code – Impact Factor 1.26)
 25. **Leon, A. S.** and **Gifford-Miears, C. H.** and **Choi, Y.** (2013) “Well-balanced scheme for modeling open-channel and surcharged flows in steep-slope closed conduit systems.” *Journal of Hydraulic Engineering*, 139(4), 374-384 (provided 80% of the text and developed the transient flow code – Impact Factor 1.26)
 26. **Leon, A. S.,** Oberg N., Schmidt, A. R., and García, M. H. (2011). “The Illinois Transient Model. A state-of-the-art model for simulating the flow dynamics in combined storm-sewer systems”. *Urban Water Systems, Monograph 19* (provided 95% of the text and developed most of the transient flow code – No Impact Factor)
 27. **Leon, A. S.,** Liu, X., Ghidaoui, M. S., Schmidt, A. R., and Garcia, M. H. (2010) “Junction and drop-shaft boundary conditions for modeling free-surface, pressurized, and mixed free-surface pressurized transient flows.” *Journal of Hydraulic Engineering*, 136(10), 705-715 (provided 90% of the text and all 1D transient flow simulations – Impact Factor 1.26)
 28. **Leon, A. S.,** Ghidaoui, M. S., Schmidt, A. R. and Garcia, M. H. (2010) “A Robust two-equation model for transient mixed flows.” *Journal of Hydraulic Research*, 48(1), 44-56 (provided 95% of the text and developed the 1D boundary contrasient flow code – Impact Factor 1.347)
 29. **Leon, A. S.,** Ghidaoui, M. S., Schmidt, A. R. and Garcia, M. H. (2009) “Application of Godunov-type schemes to transient mixed flows.” *Journal of Hydraulic Research*, 47(2), 147-156 (provided 95% of the text and developed the transient flow code – Impact Factor 1.347)
 30. **Leon, A. S.,** Ghidaoui, M. S., Schmidt, A. R. and Garcia, M. H. (2008) “Efficient second-order accurate shock-capturing scheme for modeling one and two-phase water hammer flows.” *Journal of Hydraulic Engineering*, 134(7), 970-983 (provided 95% of the text and developed the transient flow code – Impact Factor 1.26)
 31. **Leon, A. S.,** Ghidaoui, M. S., Schmidt, A. R., and García, M. H. (2007). “An efficient finite-volume scheme for modeling water hammer flows.” *Contemporary Modeling of Urban Water Systems, Monograph 15* (provided 95% of the text and developed the transient flow code – No Impact Factor)

32. **Leon, A. S.**, Ghidaoui, M. S., Schmidt, A. R. and Garcia, M. H. (2006) "Godunov-type solutions for transient flows in sewers". *Journal of Hydraulic Engineering*, 132(8), 800-813 (provided 95% of the text and developed the transient flow code – Impact Factor 1.26)

Journal Discussions:

33. Nania, L. S., Gómez, M., Dolz, J. and **Leon, A. S.** (2010). Discussion to "Experimental and numerical modelling of symmetrical four-branch supercritical cross junction flow" by Emmanuel Mignot, André Paquier, and Nicolas Riviere. *Journal of Hydraulic Research*, 48(6), 826-828. doi:10.1080/00221686.2010.512813 (provided 25% of the text and provided feedback on the entire document – Impact Factor 1.347)
34. **Leon, A. S.**, and Ghidaoui, M. S. (2010) **Closure** to Discussion of "Application of Godunov-type schemes to transient mixed flows." *Journal of Hydraulic Research*, 48(5), 688-689 (provided 90% of the text and provided feedback on the entire document – Impact Factor 1.347)
35. **Leon, A. S.**, Ghidaoui, M.S. (2010). Discussion of "Numerical oscillations in pipe-filling bore predictions by shock-capturing models" by J. G. Vasconcelos, S. J. Wright, and P. L. Roe. *J. Hydraulic Engng.*, 136(6), 392-393 (provided 90% of the text and provided feedback on the entire document – Impact Factor 1.26)
36. **Leon, A. S.**, Nania, L. S. and Sridhar, V. (2010). Discussion of "Potential Dangers of Simplifying Combined Sewer Hydrologic/Hydraulic Models" by J. P. Cantone and A. R. Schmidt. *J. Hydrological. Engng.*, 15, 587-588 (provided 80% of the text and provided feedback on the entire document – Impact Factor 1.62)

C1.3. Peer-Reviewed Archival Conference Publications

All of these papers were presented at their respective conferences. (*) identifies the presentations I made, (†) represents presentations made by students or Post-Doc that I advise(d), and the (§) represents presentations made by my collaborators.

1. Chegini, T., Phan, M. K., and **Leon, A. S.** (2018). "Comparison of Various Turbulence Models for Violent Geysers in Vertical Pipes." In proceedings of 2018 ASCE-EWRI World Environmental & Water Resource Congress, XXX-XXX, Minneapolis, MN, June 3-7, 2018 (contributed text and discussion). **This paper won the third place in graduate student technical paper competition.**
2. Sharifi, E., Chen, Y., Gibson, N., Bashiri, H., **Leon, A. S.**, (2018). "A Spread Pricing Option Model for Optimal Operation of Hydropower Systems." In proceedings of 2018 ASCE-EWRI World Environmental & Water Resource Congress, XXX-XXX, Minneapolis, MN, June 3-7, 2018 (contributed text and discussion).
3. Sharifi, E., Bashiri, H., **Leon, A. S.**, Chen, Y., Gibson, N. (2017). "Valuation of flexibility for optimal reservoir operation." In proceedings of 2017 CUAHSI

- Conference on Hydroinformatics, XXX-XXX, Tuscaloosa, AL, July 25-27, 2017 (contributed text and discussion).*
4. Bashiri, H., Sharifi, E., **Leon, A. S.**, Chen, Y., Gibson, N. (2017). "Quantification of Short-term Hydropower Generation Flexibility." In proceedings of *2017 CUAHSI Conference on Hydroinformatics, XXX-XXX, Tuscaloosa, AL, July 25-27, 2017 (contributed text and discussion).*
 5. **Leon, A. S.** (2017). "Mechanisms that lead to the occurrence of violent geysers in storm water and combined sewer systems." In Proceedings of *37th IAHR World Congress, XXXX-XXXX, Kuala Lumpur, Malaysia, August 13-18, 2017 (primary author).* *
 6. **Leon, A. S.** (2016). "Determining Optimal Discharge and Optimal Penstock Diameter in Water Turbines." In B. Crookston & B. Tullis (Eds.), *Hydraulic Structures and Water System Management. 6th IAHR International Symposium on Hydraulic Structures, Portland, OR, 27-30 June (pp. 332-342).* doi:10.15142/T390628160853 (ISBN 978-1-884575-75-4) (primary author). *
 7. **Leon, A. S.** and Alnahit, A. O. (2016). "A Remotely Controlled Siphon System for Dynamic Water Storage Management." In B. Crookston & B. Tullis (Eds.), *Hydraulic Structures and Water System Management. 6th IAHR International Symposium on Hydraulic Structures, Portland, OR, 27-30 June (pp. 1-11).* doi:10.15142/T3690628160853 (ISBN 978-1-884575-75-4) (primary author). *
 8. Choi, Y., **Leon, A. S.**, and Apte, S. (2016). "A One-Dimensional Numerical Model to Predict Pressure and Velocity Oscillations of a Compressed Air Pocket in a Vertical Shaft Filled with Water." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress, 202-211, West Palm Beach, FL, May 22-26, 2016 (contributed text and discussion).* †
 9. **Leon, A. S.** (2016). "New Evidence on the Causes of Explosives Geysers in Stormwater and Combined Sewer Systems: A Simplified Model for the Prediction of These Geysers." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress, 224-233, West Palm Beach, FL, May 22-26, 2016.* *
 10. Chen, D., **Leon, A. S.**, and Hosseini P. (2016). "Patterns of Optimal Operational Schemes for the Short-Term Operation of a Multi-Reservoir System with Shifting Objectives." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress, 428-437, West Palm Beach, FL, May 22-26, 2016 (contributed text and discussion).* †
 11. Choi, Y., **Leon, A. S.**, and Apte, S. (2014). "Three-dimensional Numerical Modeling of Air-water Geyser Flows." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress, 1535-1548, Portland OR, June 1-5, 2014 (contributed text and discussion).* †

12. Chen, D., **Leon, A. S.**, and Hosseini P. (2014). "Optimizing Short-term Operation of a Multi-reservoir System During Transition of Objectives and Constraints." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress*, 1093-1105, Portland OR, June 1-5, 2014 (provided significant text and discussion). †
13. Gomez, L. A., Lee, H. W., and **Leon, A. S.** (2014). "A real options-based framework to evaluate investments in river flood control under uncertainty." In proceedings of *Second International Conference on Vulnerability and Risk Analysis and Management (ICVRAM) and the Sixth International Symposium on Uncertainty, Modeling, and Analysis (ISUMA)*, 1465-1474, Liverpool, UK, July 13-16, 2014 (provided discussion). †
14. **Leon, A. S.**, Valverde, R., and Gonzalez-Castro, J. A. (2012). "A robust, numerically efficient model for unsteady flow routing in topologically complex river networks." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress*, 1119-1128, Albuquerque, New Mexico, May 20-24, 2012 (primary author). *
15. **Leon, A. S.**, Kanashiro E. A., Gichamo, T. Z., Valverde, R., and Gifford-Miears, C. H. (2012). "Towards the intelligent control of river flooding." In proceedings of *ASCE-EWRI World Environmental & Water Resource Congress*, 1687-1696, Albuquerque, New Mexico, May 20-24, 2012 (primary author). *
16. Bernedo, C. E., Julien, P., **Leon, A. S.** (2011). "Dam Breach Analysis in Tailings Storage Facilities (TSF)" In Proceedings of the *ASCE-EWRI World Environmental and Water Resources Congress*, 2216-2224, Palm Springs, CA, May 2011 (provided significant text and discussion). §
17. **Leon, A. S.** "A New Coupled Optimization-Hydraulic Routing Model for Real-Time Operation of Regulated River Systems", In Proceedings of *Watershed Management*, 213-224, ASCE-EWRI, August 23-27, 2010, Madison, Wisconsin (primary author). *
18. **Leon, A. S.**, Choi, N. J., Schmidt, A. R., and García, M. H. (2010). "Flow Dynamics in Combined Storm-Sewer Systems: Application of the Illinois Transient Model (ITM) to the Calumet TARP System in Chicago, Illinois." In Proceedings of *ASCE-EWRI World Environmental & Water Resource Congress*, 3703-3717, Providence, Rhode Island, May 16-20, 2010 (primary author). *
19. **Leon, A. S.**, Liu, X. Ghidaoui, M. S., Schmidt, A. R., and García, M. H. (2009). "Boundary Conditions for Simulating Complex Storm-sewer Systems in Free Surface, Pressurized, and Mixed Flow Conditions." In Proceedings of *ASCE-EWRI World Environmental & Water Resource Congress*, 5557-5567, Kansas City, Missouri, 2009 (primary author). *
20. **Leon, A. S.**, Nanía, L. S., Schmidt, A. R., and García, M. H. (2009). "A Robust And Fast Model For Simulating Street Flooding." In Proceedings of *ASCE-EWRI World Environmental & Water Resource Congress*, 5364-5373, Kansas City, Missouri, 2009, (primary author). *

21. **Leon, A. S.**, Ghidaoui, M. S., Schmidt, A. R., and García, M. H. (2008). "A Shock-capturing Approach for Simulating Gravity Flows, Pressurized Flows and the Simultaneous Occurrence of Gravity and Pressurized Flows." In Proceedings of *10th International Conference on Pressure Surges*, 489-502, BHR Group, 14-16 May, 2008, Edinburgh, United Kingdom (primary author). *
22. **Leon, A. S.**, Ghidaoui, M. S., Schmidt, A. R., and García, M. H. (2008). "A finite volume model for mixed free surface-pressurized flows in drainage systems." In Proceedings of *World Water and Environmental Resources Congress*, CD-ROM Edition (10 pages), Hawaii, USA, May 13-16, 2008. Permalink: [http://dx.doi.org/10.1061/40976\(316\)671](http://dx.doi.org/10.1061/40976(316)671) (primary author). *
23. **Leon, A. S.**, Cataño-Lopera, Y. A., Liu, X., Schmidt, A. R., and García, M. H. (2008). "Experimental and CFD modeling of a vortex flow restrictor." In Proceedings of *World Water and Environmental Resources Congress*, CD-ROM Edition (10 pages), Hawaii, USA, May 13-16, 2008. Permalink: [http://dx.doi.org/10.1061/40976\(316\)646](http://dx.doi.org/10.1061/40976(316)646) (primary author). *
24. **Leon, A. S.**, Ghidaoui, M. S., Schmidt, A. R., and García, M. H. (2007). "Godunov-type solutions for two-phase water hammer flows." In Proceedings of *Fifth International Symposium on Environmental Hydraulics*, CD-ROM Edition (7 pages), Tempe, Arizona, USA. Dec. 4-7, 2007 (primary author). *
25. **Leon, A. S.**, Ghidaoui, M. S., Schmidt, A. R. and Garcia, M. H. (2006) "An efficient numerical scheme for the modeling of two-phase bubbly homogeneous air-water mixtures". In Proceedings of *World Environmental & Water Resources Congress*, CD-ROM Edition, P32 (10 pages), Nebraska, 2006 (primary author). *
26. **Leon, A. S.**, Ghidaoui, M. S., Schmidt, A. R., and García, M. H. (2005). "Importance of numerical efficiency for real time control of transient gravity flows in sewers." In Proceedings of *XXXI IAHR Congress*, 1106-1115, Seoul, Korea (primary author). *
27. Schmidt, A. R., Ghidaoui, M. S., **Leon, A. S.**, and García, M. H. (2005). "Review of sewer surcharging phenomena and models." In Proceedings of *XXXI IAHR Congress*, 257-258, Seoul, Korea (provided significant text and discussion). §

C1.4. Journal Papers Currently under Peer Review

1. Qin, L. and **Leon, A. S.** (2018), Architecture of a remotely operated siphon system for water storage management in Wetlands. *Journal of Computer Hardware Engineering*. Under review.
2. Chegini, T., and **Leon, A. S.** (2018). Three-dimensional numerical modeling of violent geysers in vertical shafts. *Journal of Hydraulic Research*. Under review.
3. Hosseini P., Gibson, N. L., Chen, D., **Leon, A. S.** (2017). Flexible Decision Variables in Multi-Objective Reservoir Operation, *Journal of Optimization Theory and Applications*. Under review.

4. Benavides, H. M. and **Leon A. S.** (2018). Self-assessed Sustainability Diagnosis for Public Service Providers: A Case Study, *Journal of Construction Engineering and Management*.

C1.5. Other Publications

Non-Refereed Conference Proceedings including Abstracts (not included in presentations):

1. Chegini, T., Phan, M. K., and **Leon, A. S.** (2018). "Numerical Investigation of a Retrofitting Method for Minimizing Violent Geysers in Sewer Systems" Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Minneapolis, MN, June 3-7, 2018.
2. **Leon, A. S.** and Chegini, T. (2018). "Chain mechanisms preceding and during violent geysers in sewer systems" Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Minneapolis, MN, June 3-7, 2018.
3. Chegini, T., Ma, T., Phan, M. K., and **Leon, A. S.** (2018). "Techniques for Increasing Computational Efficiency in the modeling of Violent Geysers", Presented in *The 8th International Symposium on Environmental Hydraulics*, Notre Dame, IN, June 4-7, 2018.
4. **Leon, A. S.** and Chegini, T. (2018). "Physical mechanisms preceding and during violent geysers in sewer systems", Presented in *The 8th International Symposium on Environmental Hydraulics*, Notre Dame, IN, June 4-7, 2018.
5. Bashiri, H., Sharifi, E., **Leon, A. S.**, and Gibson, N. (2018). "Optimization of Reservoir Operation using Uncertain Forecasts", Presented in the *Sustainable Water Management Conference*, Seattle, WA, March 25-28, 2018.
6. Sharifi, E., Bashiri, H., **Leon, A. S.**, and Gibson, N. (2018). "Stochastic Modeling of Operational Flexibility for a Reservoir System", Presented in the *Sustainable Water Management Conference*, Seattle, WA, March 25-28, 2018.
7. Bashiri, H., Sharifi, E., **Leon, A. S.**, Gibson, N. and Chen, Y. (2017). "Toward Quantification and Valuation of Flexibility for Hydropower Reservoir Systems." Presented in the *2017 AGU Fall Meeting*, New Orleans, LA, December 11-15, 2017.
8. **Leon, A. S.** (2017). "Dynamic management of water storage of wetlands and shallow ponds for flood control" Presented in the *37th IAHR World Congress*, Kuala Lumpur, Malaysia, August 13-18, 2017 (primary author). *
9. Gibson, N., **Leon, A. S.** and Hosseini P. (2017). "Flexible decision variables in reservoir operation using dimension reduction approach", Presented in the *2017 SIAM Conference on Optimization*, Vancouver, British Columbia, Canada, May 22-25, 2017.

10. **Leon, A. S.** (2017). "Why Violent Geysers Occur in Stormwater and Combined Sewer Systems?" Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Sacramento, CA, May 21-25, 2017 (primary author). †
11. Chen, D., **Leon, A. S.**, Gibson, N. L., and Vasylykivska, V. S. (2014). "Using a Concurrent Hybrid Method to Optimize Short-Term Operation of a Multi-Reservoir System with Multiple Objectives". In *Proceedings of the 11th International Conference on Hydroinformatics HIC 2014*, New York City, NY, August 17-21, 2014.
12. Hosseini P., Chen, D., **Leon, A. S.**, Gibson, N., Hoyle C. (2014). "A Multi-objective Robust Optimization Framework for the Operation of Multi-reservoir Systems", Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Portland OR, June 1-5, 2014.
13. **Leon, A. S.**, Hosseini P. (2014). "Effects of Small Tidal-type Waves on Rating Curves in Rivers", Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Portland OR, June 1-5, 2014.
14. **Leon, A. S.**, Zhu L. (2014). "A Dimensional Analysis for Determining Optimal Discharge and Optimal Penstock Diameter in Impulse and Reaction Water Turbines", Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Portland OR, June 1-5, 2014.
15. Gomez, L., and **Leon, A. S.** (2014). "Investment Time for Flood Control Under Uncertainty: A Real Options-Based Framework". 2014 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 12, 2014.
16. Gibson, N., Gomez, L., **Leon, A. S.**, and Vasylykivska, V. (2014). "A Domain Decomposition Method for Unsteady Flow Routing in Complex River Systems". 16th SIAM Conference on Parallel Processing for Scientific Computing, Portland OR, February 18-21, 2014.
17. **Leon, A. S.**, Gifford-Miears, C., and Gibson, N., Hoyle, C. (2013). "Development of a State-of-the-Art Computational Framework for the Optimal Control of Multi-Reservoir Systems Under Uncertainty", Presented in the 2013 AWRA Annual Water Resources Conference, Portland OR, November 4-7, 2013.
18. Chen, D., **Leon, A. S.**, Chen, Q. and Li, R. (2013). "Pareto-Optimal Solutions and Operational Strategies for a Multi-Objective Reservoir with Ecological and Environmental Purposes: A Case Study of Qingshitan Reservoir", Presented in the 2013 AWRA Annual Water Resources Conference, Portland OR, November 4-7, 2013.
20. **Leon, A. S.**, Gifford-Miears, C., and Gibson N. (2013). "A Framework for Propagation of Uncertainty in River Systems", Presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Cincinnati OH, May 19-22, 2013.

21. Alam M., and **Leon, A. S.** (2013). "Upper Limit of Extractable Hydropower". 2013 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 13, 2013.
22. Choi, Y., and **Leon, A. S.** (2013). "Towards Predicting the occurrence of geysers and CSOs in combined sewer systems - An experimental, theoretical and numerical approach". 2013 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 13, 2013.
23. Choi, Y., **Leon, A. S.** (2012). "Towards predicting the occurrence of geysers and CSOs in combined sewer systems - an experimental, theoretical and numerical approach." Presented in the 2012 Sustainable Stormwater Symposium, Portland, Oregon, September 19-20, 2012.
24. Bernedo, C. E., Salas, J., and **Leon, A. S.** (2012). "Challenges of safe and sound designs: Hydrologic design criteria in areas affected by El Niño phenomenon... Can conventional hydrology be applied?" In proceedings of the 2012 Dam Safety Conference, Association of State Dam Safety Officials, Denver, CO., September 16-21, 2012.
25. **Leon, A. S.**, Gibson, N. L., and Gifford-Miears, C. H. (2012). "Toward reduction of uncertainty in complex multi-reservoir river systems." In proceedings of the XIX International Conference on Computational Methods in Water Resources (CMWR), University of Illinois at Urbana-Champaign, Urbana, Illinois, June 17-21, 2012.
26. **Leon, A. S.**, Kanashiro, E. A., Gichamo, T. Z., and Valverde, R. (2012). "Towards the intelligent control of river flooding. Harmonizing long-term objectives (e.g., irrigation, hydropower) with the flooding objective." In proceedings of the XIX International Conference on Computational Methods in Water Resources (CMWR), University of Illinois at Urbana-Champaign, Urbana, Illinois, June 17-21, 2012.
27. Choi, Y., and **Leon, A. S.** (2012). "Minimizing Geysers and CSOs in the Portland Combined Sewer System." 2012 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 18, 2012.
28. Gifford-Miears, C. H., and **Leon, A. S.** (2012). "Applicability of Three Dimensional Modeling in the Construction of Hydraulic Performance Graphs for Unsteady Flow Routing in Complex River Networks." 2012 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 18, 2012.
29. Gomez, L.A., and **Leon, A. S.** (2012). "Improving the Computational Efficiency of the Hydraulic Performance Graphs for Unsteady Flow Routing in Complex River Networks." 2012 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 18, 2012.
30. Gibson, N. L., **Leon, A. S.**, and Gifford-Miears, C. H. (2012). "Toward Reduction of Uncertainty in Complex Multi-Reservoir River Systems." SIAM (Society for

Industrial and Applied Mathematics) Conference on Uncertainty Quantification, Raleigh, North Carolina, April 2-5, 2012.

31. **Leon, A. S., Kanashiro, E. A., Valverde, R., Gifford-Miears, C. H., Gichamo, T. Z., Gomez L., and Rask, J.** (2012) "A Computationally Efficient and Robust Approach for Multi-objective Operation of Multi-reservoir systems Subjected to Multiple Constraints." Reservoir System Modeling Technologies Conference, Bonneville Power Administration, February 21-22, 2012, Portland, Oregon.
32. Gibson, N. L., Gichamo, T. Z., Valverde, R., Gifford-Miears, C. H., and **Leon, A. S.** (2012) "Towards reduction of uncertainty in the operation of reservoir systems." Reservoir System Modeling Technologies Conference, Bonneville Power Administration, February 21-22, 2012, Portland, Oregon.
33. **Leon, A. S.,** and Gichamo, T. Z. (2011). "A novel physically-based framework for the intelligent control of river flooding." Oregon Water Conference, Corvallis, Oregon, 2011.
34. **Leon, A. S.** (2006) "Towards modeling for real-time control of combined-sewer-overflow systems: Application to the Calumet TARP System in Chicago, Illinois." *Proc., Illinois Water Conference*, October 4-5, 2006. Edited by Jennifer Fackler, Illinois Water Resources Center.
35. **Leon, A. S.** (2006). "Efficient numerical modeling of one and two-phase transient flows (In Spanish)." *Proc., I International Congress of Hydraulics, Hydrology and Environment*. Organized by Instituto de la Construcción y Gerencia, Lima, Peru.
36. **Leon, A. S.** (2006). "New numerical model for the simultaneous simulation of unsteady free surface and pressurized flows. (In Spanish)." *Proc., I International Congress of Hydraulics, Hydrology and Environment*. Organized by Instituto de la Construcción y Gerencia, Lima, Peru.
37. **Leon, A. S.** (2004). "Special topics in unsteady flows and its applications to Hydraulic Engineering (Key Note speaker - in Spanish)." *Proc., I Conference in Hydraulics of Rivers and Channels*, Lima, Peru.
38. **Leon, A. S.** (2003). "One-dimensional modeling of the intrusion of contaminants for conservative substances in non-permanent and non-uniform flows (In Spanish)." *Proc., XIV National congress of Civil Eng., Iquitos, Peru.*
39. **Leon, A. S.** (2002). "Alternative of hydraulic design for intakes in steep rivers and large transport of boulders. (In Spanish)." *Proc., Instituto de la Construcción y Gerencia, Lima, Peru.*
40. **Leon, A. S.** (1999). "Local scour around cylindrical piers in non-cohesive beds (In Spanish)." *Proc., XII National congress of Civil Eng., Huánuco, Peru.*

Posters:

1. **Leon, A. S.** and Goodell, C. (2017). "Automation of HEC-RAS using MATLAB." Poster presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, Sacramento, CA, May 21-25, 2017.
2. Chen, D., **Leon, A. S.**, Hosseini, P. (2016). "A warm-start Strategy to Improve the Performance of an Evolutionary Algorithm for Optimizing Operation of Multi-reservoirs." Poster presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, West Palm Beach, FL, May 22-26, 2016.
3. **Leon, A. S. and Elayeb, I.** (2016). "An Experimental Study on Geysers with Unsaturated Air and Near-saturation CO₂. Implications on the Design of Stormwater and Combined Sewer Systems." Poster presented in the *ASCE-EWRI World Environmental & Water Resource Congress*, West Palm Beach, FL, May 22-26, 2016.
4. Elayeb, I. and **Leon, A. S.** (2016). "An experimental study on air- and CO₂ based geyser flows" Poster presented in the *Water Research Symposium*, Oregon State University, Corvallis, Oregon, April 18, 2016.
5. Hosseini, P., Chen D., **Leon, A. S.** and Gibson N. (2016). "Optimization of reservoir operation considering uncertain decision variables." Poster presented in the *Water Research Symposium*, Oregon State University, Corvallis, Oregon, April 18, 2016.
6. Choi, Y., **Leon, A. S.**, and Apte, S. (2016). "A one-dimensional numerical model for predicting pressure and velocity oscillations due to buoyancy of a compressed air-pocket in a vertical shaft" Poster presented in the *Water Research Symposium*, Oregon State University, Corvallis, Oregon, April 18, 2016.
7. Elayeb, I. and **Leon, A. S.** (2016). "An experimental study of geyser occurrence in combined sewer systems" Poster presented in the *Oregon State COE Graduate Student Research Expo*, Portland, March 01, 2016.
8. Choi, Y., **Leon, A. S.**, and Apte, S. (2016). "A one-dimensional numerical model for predicting pressure and velocity oscillations due to buoyancy of a compressed air-pocket in a vertical shaft." Poster presented in the *Oregon State COE Graduate Student Research Expo*, Portland, March 01, 2016.
9. Hosseini, P., Chen, D. **Leon, A. S.**, Gibson, N. (2016). "Robust Optimization of Reservoir Operation Considering Uncertainty of Inflows and Flexible Decision Variables." Poster presented in the *Oregon State COE Graduate Student Research Expo*, Portland, March 01, 2016.
10. Alnahit, A. O., and **Leon, A. S.** (2015). "A Remotely Controlled Siphon System for Dynamic Water Storage Management." Poster presented in the *American Geophysical Union Fall Meeting*, San Francisco, California, December 14-18, 2015.
11. Choi, Y., **Leon, A. S.**, and Apte, S. (2015). "A one-dimensional numerical model for predicting pressure and velocity oscillations of a compressed air-pocket in a vertical

- shaft." Poster presented in the American Geophysical Union Fall Meeting, San Francisco, California, December 14-18, 2015.
12. Hosseini, P., Chen, D., Leon, A. S. and Gibson, N. (2015). "Flexible Decision Variables in Short-term Operation of Reservoirs Using Dimension Reduction Approach." Poster presented in the American Geophysical Union Fall Meeting, San Francisco, California, December 14-18, 2015.
 13. Elayeb, I. S., Leon, A. S., Choi, Y., and Alnahit, A. O. (2015). "An experimental study of geyser-like flows induced by a pressurized air pocket." Poster presented in the American Geophysical Union Fall Meeting, San Francisco, California, December 14-18, 2015.
 14. Chen, D., Leon, A. S., Hosseini, P., and Gibson, N. (2015). "Robust multi-objective optimization for short-term reservoir operation under inflow uncertainty." Poster presented in the American Geophysical Union Fall Meeting, San Francisco, California, December 14-18, 2015.
 15. Hosseini, P., and **Leon, A. S.** (2015). "Multi-Objective Optimization of Reservoir Operation Considering Flexibility in Decision Variables." Poster presented in the OSU College of Engineering Research Engineering Expo, Portland, March 04, 2015. **Parnian received the Runner-up Award** (School of Civil and Construction Engineering).
 16. Choi, Y., Leon, A. S., and Apte, S. (2014). "Predicting Air-Water Geysers and their Implications on Reducing Combined Sewer Overflows." Poster presented in the American Geophysical Union Fall Meeting, San Francisco, California, December 15-19, 2014.
 17. Livingston, G. E., **Leon, A. S.** and Babbar-Sebens, M. (2014). "Oregon BEST Lab: OSU-Benton County, Green Stormwater Infrastructure Research Facility." Poster presented in the Oregon BEST FEST, Portland, Oregon, September 15th –16th, 2014.
 18. Livingston, G. E., Babbar-Sebens, M. and **Leon, A. S.** (2014). "Green Infrastructure for Stormwater Treatment." Poster presented in the Water Research Symposium, Oregon State University, Corvallis, Oregon, May 12, 2014.
 19. Choi, Y., Leon, A. S., and Apte, S. (2014). "Three-Dimensional Numerical Study of the Turbulent Flow Structures Present in Air-Water Geyser Flows." Poster presented in the Water Research Symposium, Oregon State University, Corvallis, Oregon, May 12, 2014.
 20. Hosseini, P., and **Leon, A. S.** (2014). "A Multi-Objective Optimization for the Operation of Multi-Reservoir Systems under Uncertainty." Poster presented in the Water Research Symposium, Oregon State University, Corvallis, Oregon, May 12, 2014.

21. Gomez, L., Lee, H. W, and **Leon, A. S.** (2014). "A Domain Decomposition strategy for Unsteady Flow Routing in River Systems." Poster presented in the Water Research Symposium, Oregon State University, Corvallis, Oregon, May 12, 2014.
22. Hosseini, P., and **Leon, A. S.** (2014). "Effects of small tidal-type waves on average flow discharge in mild-sloped rivers and canals." Poster presented in the OSU College of Engineering Research Engineering Expo, Portland, OR, 2014.
23. Hosseini, P., **Leon, A. S.** and Chen D. (2014). "A Framework for Optimizing Short-time Operation of Multiple Reservoirs with Multi-objectives Under Uncertainty." Poster presented in the OSU College of Engineering Research Engineering Expo, Portland, OR, 2014.
24. **Leon, A. S.**, Gifford-Miears C. and Gomez L. (2013). "Unsteady flow routing using Performance Graphs based on two-dimensional hydrodynamic simulations" Poster presented in the ASCE-EWRI World Environmental & Water Resource Congress, Cincinnati OH, May 19-22, 2013
25. **Leon, A. S.** and Choi Y. (2013). "A new numerical model that preserves "lake at rest" conditions in open-channel and surcharged flows in steep-slope closed conduit systems" Poster presented in the ASCE-EWRI World Environmental & Water Resource Congress, Cincinnati OH, May 19-22, 2013.
26. Gomez, L., Lee, H. W, and **Leon, A. S.** (2013). "A *real options*-based framework to evaluate investments in river flood control under uncertainty." Poster presented in the Water Research Symposium, Oregon State University, Corvallis, Oregon, May 13, 2013.
27. Gomez, L., and **Leon, A. S.** (2013). "The OSU Rivers Model and its Comparison with the Unsteady HEC-RAS Model." Poster presented in the Water Research Symposium, Oregon State University, Corvallis, Oregon, May 13, 2013.
28. **Leon, A. S.**, Gichamo, T. Z., Valverde, R., and Rask, J. (2012). "Hydraulic performance graph-based model for unsteady flow simulations in topologically complex river networks." Poster presented in the XIX International Conference on Computational Methods in Water Resources (CMWR), University of Illinois at Urbana-Champaign, Urbana, Illinois, June 17-21, 2012.
29. Choi, Y., and **Leon, A. S.** (2012). "Design, Analysis and Implementation of Multipurpose River Research Facility at O.H. Hinsdale Wave Research Laboratory." Poster presented in the 2012 Water Research Symposium, Oregon State University, Corvallis, Oregon, May 18, 2012.
30. Bernedo C., Salas, J. and **Leon, A. S.** (2012). "Considering climate uncertainties to determine hydrologic design criteria – Does traditional Rainfall-Frequency Analysis works?" Poster presented in the ASCE-EWRI World Environmental & Water Resource Congress, Albuquerque, NM, May 20-24, 2012.

Thesis:

1. **Leon A. S.** (2006) "Improved Modeling of Unsteady Free Surface, Pressurized and Mixed Flows in Storm-sewer Systems." Ph.D. Thesis, University of Illinois at Urbana-Champaign.
2. **Leon, A. S.** (2000) "Local scour around cylindrical piers in non-cohesive beds (In Spanish)." M.S Thesis, Universidad Nacional de Ingeniería. Advisor: Dr. Francisco Coronado (Ph.D., Massachusetts Institute of Technology (MIT)).
3. **Leon, A. S.** (1998) "The hydraulic design of a bottom rack type intake in a supercritical regime and software applications (In Spanish)." C.E Thesis, Universidad Nacional San Cristobal de Huamanga. Advisors: Prof. Erasmo Matos, Dr. Francisco Coronado (MIT).

Professional Reports

1. **Leon, A. S.**, and other nine authors (2018). "Framework for Quantification of Risk and Valuation of Flexibility in the FCRPS – **Final Report, Software and User's Manual**", Report, Software and User's Manual prepared for the Bonneville Power Administration, US Department of Energy (primary author).
2. **Leon, A. S.**, and other nine authors (2018). "Framework for Quantification of Risk and Valuation of Flexibility in the FCRPS – **Stage gate 5**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
3. **Leon, A. S.** (2017). "Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics, Reduction of CSOs", Final Report prepared for the U.S. Environmental Protection Agency.
4. **Leon, A. S.**, and other nine authors (2017). "Framework for Quantification of Risk and Valuation of Flexibility in the FCRPS – **Stage gate 4**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
5. **Leon, A. S.**, and other nine authors (2017). "Framework for Quantification of Risk and Valuation of Flexibility in the FCRPS – **Stage gate 3**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
6. **Leon, A. S.**, and other eight authors (2016). "Framework for Quantification of Risk and Valuation of Flexibility in the FCRPS – **Stage gate 2**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
7. **Leon, A. S.** (2016). "Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics, Reduction of CSOs", Progress Report **Year 4** prepared for the U.S. Environmental Protection Agency.

8. **Leon, A. S.**, and other eight authors (2016). "Framework for Quantification of Risk and Valuation of Flexibility in the FCRPS – **Stage gate 1**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
9. **Leon, A. S.**, and other nine authors (2015). "Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty – **Final Report, Software and Other Deliverables**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
10. **Leon, A. S.**, and Choi Y. (2015). "Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics, Reduction of CSOs", Progress Report **Year 3** prepared for the U.S. Environmental Protection Agency (primary author).
11. Babbar-Sebens M. and **Leon, A. S.** (2015). "Improving sustainability of urban streets via rain gardens – How effective are these practices in the Pacific Northwest?", Final Project Report prepared for the Pacific Northwest Transportation Consortium (PacTrans), USDOT University Transportation Center for Federal Region 10, University of Washington.
12. **Leon, A. S.**, and other nine authors (2015). "Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty - **Stage gate 6**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
13. **Leon, A. S.**, and other nine authors (2014). "Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty - **Stage gate 5**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
14. **Leon, A. S.**, and Choi Y. (2014). "Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics, Reduction of CSOs", Progress Report **Year 2** prepared for the U.S. Environmental Protection Agency (primary author).
15. **Leon, A. S.**, and other nine authors (2014). "Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty - **Stage gate 4**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
16. **Leon, A. S.**, and other nine authors (2013). "Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty - **Stage gate 3**", Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
17. **Leon, A. S.**, and Choi Y. (2013). "Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics,

- Reduction of CSOs”, Progress Report **Year 1** prepared for the U.S. Environmental Protection Agency (primary author).
18. **Leon, A. S.**, and other nine authors (2013). “Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty - **Stage gate 2**”, Report prepared for the Bonneville Power Administration, US Department of Energy (primary author).
 19. **Leon, A. S.**, and Oberg, N. (2013). “User's manual for Illinois Transient Model-two equation model v. 1.3. A Model for the Analysis of Transient Free surface, Pressurized and Mixed flows in Storm-sewer Systems”, Oregon State University, Corvallis.
 20. **Leon, A. S.**, and other nine authors (2012). “Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty - **Stage gate 1**”, Report prepared for the Bonneville Power Administration, US Department of Energy.
 21. **Leon, A. S.**, and Oberg, N. (2010). “User's manual for Illinois Transient Model-two equation model. A Model for the Analysis of Transient Free surface, Pressurized and Mixed flows in Storm-sewer Systems. Version 1.2”.
 22. **Leon, A. S.**, and Oberg, N. (2009). “Illinois Transient Model Programmer's Manual”, University of Illinois at Urbana-Champaign.
 23. **Leon, A. S.**, Oberg, N., Choi, N.J., Schmidt, A., and García, M.H., 2009. "Transient Analysis of the Calumet TARP System" Report prepared for the Metropolitan Water Reclamation District of Greater Chicago. University of Illinois at Urbana-Champaign, Civil Engineering Studies, Hydraulic Engineering Series.
 24. Cataño-Lopera Y. A., Oberg N., Choi N. J., Schmidt, A. R., **Leon, A. S.**, and Garcia, M. H. (2009). “Hydraulic Conveyance Analysis of the Tarp Calumet System.” Report prepared for the Metropolitan Water Reclamation District of Greater Chicago. University of Illinois at Urbana-Champaign, Civil Engineering Studies, Hydraulic Engineering Series.
 25. **Leon, A. S.**, and Oberg, N. (2009). “User's manual for Illinois Transient Model-two equation model v. 1.1. A Model for the Analysis of Transient Free surface, Pressurized and Mixed flows in Storm-sewer Systems”, University of Illinois at Urbana-Champaign.
 26. Oberg, N., Schmidt, A., **Leon, A. S.**, Waratuke, A., and García, M.H., 2008. "Illinois Hydraulic Conveyance Analysis Program: ICAP." Report prepared for the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). University of Illinois at Urbana-Champaign, Civil Engineering Studies, Hydraulic Engineering Series No. 81, ISSN: 0442-1744.
 27. **Leon, A. S.**, Christensen, D. R., Schmidt, A. R., and García, M. H. (2007). “Illinois Transient Model (One-equation model) user's manual. A Model for the Analysis of

- Unsteady Free surface, Pressurized and Mixed flows in Storm-sewer Systems”, University of Illinois at Urbana-Champaign.
28. García, M. H., **Leon, A. S.**, Ancalle, C. (2007) “Sedimentation analysis of Valenciano reservoir, Juncos, Puerto Rico”, Prepared by CA Engineering for CSA Group, San Juan, Puerto Rico.
 29. García, M. H., **Leon, A. S.**, Ancalle, C. (2007) “Safe yield Analysis of Valenciano reservoir, Juncos, Puerto Rico”, Prepared by CA Engineering for CSA Group, San Juan, Puerto Rico.
 30. **Leon, A. S.**, Schmidt, A. R., Ghidaoui, M. S. and García, M. H. (2006) “Review of sewer surcharging phenomena and models.” University of Illinois at Urbana-Champaign. *Civil Engineering Studies, Hydraulic Engineering Series No. 78*
 31. García, M. H., Niño, Y., Abad, J. D., Cantero, M., **Leon, A. S.**, Manzini, S., Sequeiros, O. (2003) “Sedimentation management in combined sewer overflow storage reservoirs using water jets.” University of Illinois at Urbana-Champaign. Report to Metropolitan Water Reclamation District of Greater Chicago.

C2. Professional Meetings, Symposia, and Conferences

C2.1. Presentations to Professional Groups (includes presentations of papers cited in C1.3)

Invited-Keynote

1. Keynote Talk, *HGS Flood Conference: FLOODING IN SOUTHEAST TEXAS: THE SCIENCE BEHIND THE FLOODS* (<https://www.hgs.org/civicrm/event/info?id=1958>), Houston, Texas, “Towards smart and green flood control,” June 2018.
2. Keynote Talk, *XXIV Congreso Nacional de Estudiantes de Ingeniería Civil del Perú* (<http://coneic2016.com/>), Ayacucho, Peru, “State-of-the-art strategies on flood mitigation, reservoir operation and control of geyser eruptions in stormwater and combined sewer systems,” August 2016
3. Keynote Talk, *Pacific Northwest Waterways Association (PNWA) Summer Conference, Hood River, OR*, “Development of a Computational Framework for the Optimal

Control of Multi-Reservoir Systems Under Uncertainty: Application to the Columbia River System”, June 2015

4. Keynote Talk, *X Congreso Latinoamericano de Estudiantes de Ingeniería Civil - XXII Congreso Nacional de Estudiantes de Ingeniería Civil del Perú* (<http://www.coleic-coneic2014.com/>), Arequipa, Peru, “Recent advances on Flood Control, Reservoir Operation and Transient Flows,” August 2014

Invited-Other

5. Invited Talk, Center for Thermo-Fluid Mechanics Seminar, University of Houston, Houston, TX, “Violent Geysers in Stormwater and Combined Sewer Systems: Experimental and Numerical Modeling,” April 2017.
6. Invited Talk, Harris County Flood Control District, Houston, TX, “Flood Control Research and Applications,” March 2017.
7. Invited Talk, Technology Innovation Summit, Bonneville Power Administration, Portland, OR, “Framework for Quantification of Risk and Valuation of Flexibility in the Federal Columbia River Power System (FCRPS),” January 2017.
8. Invited Talk, Technology Innovation Summit, Bonneville Power Administration, Portland, OR, “Framework for Quantification of Risk and Valuation of Flexibility in the Federal Columbia River Power System (FCRPS),” January 2016.
9. Invited Talk, *Changjiang River Scientific Research Institute (CRSRI), Wuhan, Hubei, China*, “Recent Advances on Flood Control and Reservoir Operation”, May 2015.
10. Invited Talk, *Winter Seminar Series, Water Resources Graduate Program, Oregon State University, Corvallis, OR*, “Development of Computer Models for the Optimal Control of Multi-Reservoir Systems Under Uncertainty: Application to the Columbia River System,” March 2015
11. Invited Talk, Technology Innovation Summit, Bonneville Power Administration, Portland, OR, “Development of a computational framework and platform for the optimal control of multi-reservoir systems under uncertainty,” January 2015
12. Invited Talk, Geosyntec, Portland, OR, “Stormwater and Reservoir Operation Research and Potential Collaborations between OSU and Geosyntec,” June 2014
13. Invited Talk, Technology Innovation Summit, Bonneville Power Administration, Portland, OR, “Development of a computational framework and platform for the optimal control of multi-reservoir systems under uncertainty,” January 2014
14. Invited Talk, *EPA RESEARCH FORUM: Extreme Event Impacts on Air Quality and Water Quality with a Changing Global Climate, Arlington, VA*, “Prediction and quantification of CSOs under extreme storm events: Flow dynamics and Reduction of CSOs,” February 2013

15. Invited Talk, Technology Innovation Summit, Bonneville Power Administration, Portland OR "Development of a computational framework and platform for the optimal control of multi-reservoir systems under uncertainty," January 2013
16. Invited Talk, *Reservoir System Modeling Technologies Conference, Bonneville Power Administration, Portland, OR*, "A Computationally Efficient and Robust Approach for Multi-objective Operation of Multi-reservoir systems Subjected to Multiple Constraints," February 2012
17. Invited Talk, *Winter Seminar Series, Department of Mathematics, Oregon State University, Corvallis, OR*, "Towards the intelligent control of river flooding. Harmonizing long-term objectives with the flooding objective," February 2012
18. Invited Talk, Universidad Nacional San Cristobal de Huamanga, Ayacucho, Peru, "Real-time Control of Multi-Objective and Multi-Reservoir Systems," December 2011
19. Invited Talk, Universidad Nacional de Ingenieria, Lima, Peru, "Real-time Control of Multi-Objective and Multi-Reservoir Systems," December 2011
20. Invited Talk, Bonneville Power Administration (BPA), Portland, Oregon, "Towards Real-time Control of Multi-objective and Multi-Reservoir Systems," October 2011
21. Invited Talk, Ecosystem Informatics at Oregon State University (IGERT), Corvallis, OR, "Towards Real-time Control of Multi-objective and Multi-Reservoir Systems," May 2011
22. Invited Talk, Universidad Nacional de Ingenieria, Lima, Peru, "Modeling of Combined Sewer Systems," December 2010
23. Invited Talk, Montgomery Watson and Harza Engineering (MWH), Denver, CO, "Modeling of Unsteady Flows using HEC-RAS," July 2010
24. Invited Talk, Oregon State University, Corvallis, OR, "Towards Real-time Control of Reservoir Systems," May 2010
25. Invited Talk, University of Idaho, Boise, Idaho, "Application of Genetic Algorithms to the Operation of Reservoir Systems," May 2010
26. Invited Talk, Boise State University, Boise, ID, "Towards Real-time Control of Combined Sewer Systems," March 2009
27. Invited Talk, University of Illinois at Urbana-Champaign, Urbana, IL, "A mathematical and numerical model for the simultaneous occurrence of free surface and pressurized flows," May 2006
28. Invited Talk, Universidad Nacional de Ingenieria, Lima, Peru, "Transient flows in Combined Sewer Systems," December 2005
29. Invited Talk, *I Conference in Hydraulics of Rivers and Channels, Lima, Peru*, "Special Topics in Unsteady Flows and its Applications to Hydraulic Engineering," December 2004

30. Invited Talk, *I Conference in Hydraulics of Rivers and Channels, Lima, Peru*, "Special Topics in Unsteady Flows and its Applications to Hydraulic Engineering," December 2004
31. Invited Talk, *Universidad Nacional San Cristobal de Huamanga, Ayacucho, Peru*, "Unsteady transition between free surface and pressurized flows (In Spanish)," December 2004

Non-invited (Contributed Talks)

32. Contributed Talk, *37th IAHR World Congress, Kuala Lumpur, Malaysia*, "Mechanisms that lead to the occurrence of violent geysers in storm water and combined sewer systems", August 2017.
33. Contributed Talk, *37th IAHR World Congress, Kuala Lumpur, Malaysia*, "Dynamic management of water storage of wetlands and shallow ponds for flood control", August 2017.
34. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Sacramento CA*, "Why Violent Geysers Occur in Stormwater and Combined Sewer Systems," May 2017.
35. Contributed Talk, *6th International Symposium on Hydraulic Structures, Portland OR*, "Determining Optimal Discharge and Optimal Penstock Diameter in Water Turbines," June 2016.
36. Contributed Talk, *6th International Symposium on Hydraulic Structures, Portland OR*, "A Remotely Controlled Siphon System for Dynamic Water Storage Management," June 2016.
37. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, West Palm Beach, FL*, "New Evidences on the Causes of Explosives Geysers in Stormwater and Combined Sewer Systems: A Simplified Model for Prediction of These Geysers," May 2016.
38. Contributed Talk, *International Conference on Water Management Modeling, Toronto Canada*, "New insights on the causes of explosives geysers in stormwater and combined sewer systems: A model for their prediction.," February 2016
39. Contributed Talk, *American Geophysical Union Fall Meeting, San Francisco CA*, "Minimizing water consumption when producing hydropower," December 2015.
40. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Portland OR*, "Effects of Small Tidal-type Waves on Rating Curves in Rivers," June 2014.
41. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Portland, OR*, "A Dimensional Analysis for Determining Optimal Discharge and Optimal Penstock Diameter in Impulse and Reaction Water Turbines," June 2014.

42. Contributed Talk, *AWRA Annual Water Resources Conference, Portland, OR*, "Development of a State-of-the-Art Computational Framework for the Optimal Control of Multi-Reservoir Systems Under Uncertainty," November 2013.
43. Contributed Talk, *City of Portland, Environmental Services, Portland OR*, "Flow Dynamics in Combined Storm-sewer Systems. Modeling needs and Application of the Illinois Transient Model (ITM)," October 2013.
44. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Cincinnati, OH*, "A Framework for Propagation of Uncertainty in River Systems," May 2013
45. Contributed Talk, *XIX International Conference on Computational Methods in Water Resources (CMWR), Urbana, IL*, "Toward Reduction of Uncertainty in Complex Multi-reservoir River Systems," June 2012
46. Contributed Talk, *XIX International Conference on Computational Methods in Water Resources (CMWR), Urbana, IL*, "Towards the Intelligent Control of River Flooding. Harmonizing Long-term Objectives (e.g., irrigation, hydropower) with the Flooding Objective," June 2012
47. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Albuquerque, NM*, "A Robust, Numerically Efficient Model for Unsteady Flow Routing in Topologically Complex River Networks," May 2012
48. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Albuquerque, NM*, "Towards the Intelligent Control of River Flooding," May 2012
49. Contributed Talk, *Oregon Water Conference, Corvallis, OR*, "A Novel Physically-based Framework for the Intelligent Control of River Flooding," May 2011
50. Contributed Talk, *Watershed Management Conference, Theme: "Innovations in Watershed Management Under Land Use and Climate Change", Madison, WI*, "A New Coupled Optimization-hydraulic Routing Model for Real-time Operation of Highly Complex Regulated River Systems," August 2010
51. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Providence, RI*, "Flow Dynamics in Combined Storm-Sewer Systems: Application of the Illinois Transient Model (ITM) to the Calumet TARP System in Chicago, Illinois," May 2010
52. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Kansas City, MO*, "A Robust and Fast Model for Simulating Street Flooding," May 2009
53. Contributed Talk, *ASCE-EWRI World Environmental & Water Resource Congress, Kansas City, MO*, "Boundary Conditions for Simulating Complex Storm-sewer Systems in Free Surface, Pressurized, and Mixed Flow Conditions," May 2009
54. Contributed Talk, *10th International Conference on Pressure Surges, BHR Group, Edinburgh, United Kingdom* "A Shock-capturing Approach for Simulating Gravity

- Flows, Pressurized Flows and the Simultaneous Occurrence of Gravity and Pressurized Flows,” May 2008
55. Contributed Talk, *World Water and Environmental Resources Congress, Honolulu HI*, “A Finite Volume Model for Mixed Free Surface-pressurized Flows in Drainage Systems,” May 2008
 56. Contributed Talk, *World Water and Environmental Resources Congress, Honolulu HI*, “Experimental and CFD Modeling of a Vortex Flow Restrictor,” May 2008
 57. Contributed Talk, *5th International Symposium on Environmental Hydraulics, Tempe AZ* “Godunov-type Solutions for Two-phase Water Hammer Flows,” December 2007
 58. Contributed Talk, *Contemporary Modeling of Urban Water Systems, Toronto Canada*, “An efficient finite-volume scheme for modeling water hammer flows.,” February 2007
 59. Contributed Talk, *Annual Illinois Water Conference, Urbana IL*, “Towards Modeling for Real-time Control of Combined Sewer Overflow Systems: Application to the Calumet TARP System in Chicago, Illinois,” October 2006
 60. Contributed Talk, *I International Congress of Hydraulics, Hydrology and Environment, Lima, Peru* “Efficient Numerical Modeling of One and Two-phase Transient Flows (In Spanish),” June 2006
 61. Contributed Talk, *I International Congress of Hydraulics, Hydrology and Environment, Lima, Peru*, “New Numerical Model for the Simultaneous Simulation of Unsteady Free Surface and Pressurized Flows (In Spanish),” June 2006
 62. Contributed Talk, *World Environmental & Water Resources Congress, Omaha NE*, “An Efficient Numerical Scheme for the Modeling of Two-phase Bubbly Homogeneous Air-water Mixtures,” May 2006
 63. Contributed Talk, *XXXI IAHR Congress, Seoul, Korea*, “Importance of Numerical Efficiency for Real-Time Control of Transient Gravity Flows in Sewers,” September 2005
 64. Contributed Talk, *XIV National congress of Civil Engineering, Iquitos, Peru*, “One-dimensional Modeling of the Intrusion of Contaminants for Conservative Substances in Non-permanent and Non-uniform Flows (In Spanish),” September 2003
 65. Contributed Talk, *Instituto de la Construcción y Gerencia, Lima, Peru*, “Alternative of Hydraulic Design for Intakes in Steep Rivers and Large Transport of Boulders (In Spanish),” August 2002
 66. Contributed Talk, *XII National congress of Civil Engineering, Huánuco, Peru*, “Local Scour around Cylindrical Piers in Non-cohesive Beds (In Spanish),” September 1999

C2.2. Participation at Invitational Workshops

1. ExCEED Teaching Workshop, American Society of Civil Engineers (ASCE), United States Military Academy at West Point, New York, July 2012.
2. CMMI CAREER Proposal Writing Workshop, National Science Foundation, University of Nevada, Reno, March 2012

C3. Grant and Contract Support

At University of Houston

<i>Agency & Dates</i>	<i>PI (and co-PIs)</i>	<i>Title</i>	<i>Total Budget</i>	<i>My Share</i>
National Science Foundation (08/18-07/21)	A. Leon (PI), Craig Glennie, Steven Pennings	Dynamic Management of Water Storage in Watersheds for Reducing the Magnitude of Floods	\$307,756	\$153,000
Rice University, Texas	A. Leon (PI)	Development of inundation model for the Greater Meyerland area, Houston, Texas	\$18,000	\$18,000
Grants to Enhance and Advance Research (GEAR), University of Houston	Stacey Louie (PI) Arturo Leon (CoPI)	Sustainable wetland management for flood and water quality control	\$30,000	\$15,000
Harris County Flood Control District (10/17 – 07/18)	A. Leon	A New Decision Support System for Flood Control. The Little Cypress Creek Case Study.	\$50,000	\$50,000
US Department of Energy [Bonneville Power Administration (BPA)] 09/16-10/18	A. Leon (PI), N. Gibson, C. Hoyle, Y. Chen, C. Fuentes	Framework for Quantification of Risk and Valuation of Flexibility in the Federal Columbia River Power System (FCRPS)	Money transferred to UH = \$890,516	Money transferred to UH = \$436,804
U.S. Environmental Protection Agency 6/12-5/17 (CAREER Award)	Arturo Leon	Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics, Reduction of CSOs	\$265,528 Money transferred to UH = \$0	\$265,528 Money transferred to UH = \$0

At Oregon State University

<i>Agency & Dates</i>	<i>PI (and coPIs)</i>	<i>Title</i>	<i>Total Budget</i>	<i>My Share</i>
Pac-Trans UTC 12/15-1/16	Meghna Babbar-Sebens (PI) Arturo Leon (CoPI)	PacTrans Technology Transfer Success Story 2015: How green is your green infrastructure? A field-scale testing facility to investigate efficiency of road-side storm water technologies.	\$4,000	\$2,000
US Department of Energy (BPA) 11/15-10/18	A. Leon (PI), N. Gibson, C. Hoyle, Y. Chen, C. Fuentes	Framework for Quantification of Risk and Valuation of Flexibility in the Federal Columbia River Power System (FCRPS)	\$1,189,492 (no match shown)	\$511,280
Wade Trim, Pittsburgh, Pennsylvania 12/14 -12/14	Arturo Leon	ITM Technical Support for Design of Doan Valley Tunnel, Cleveland	\$1,500	\$1,500
Wade Trim, Pittsburgh, Pennsylvania 12/14 -12/14	Arturo Leon	ITM Technical Support for Design of New Tunnel Systems in St. Louis.	\$1,500	\$1,500
Oregon BEST 9/14-6/15	Arturo Leon	Support for installation of donated equipment from North West Research Associates	\$21,173 (no match shown)	\$21,173 (no match shown)
Hunziker Betatech AG, Switzerland 8/14-8/14	Arturo Leon	ITM Technical Support for Design of New Tunnel System, Switzerland	\$600	\$600
CCE OSU 8/14-8/14	Arturo Leon	Support for transportation of donated equipment from North West Research Associates	\$10,000	\$10,000
Hunziker Betatech AG, Switzerland	Arturo Leon	ITM Technical Support for Imfeldsteig Combined Storm-Sewer System, Switzerland	\$1,500	\$1,500

6/14-6/14				
Pac-Trans UTC 7/13-6/14	Meghna Babbar- Sebens (PI) Arturo Leon (CoPI)	Improving sustainability of urban streets via rain gardens – How effective are these practices in the Pacific Northwest? This project was featured as a success PacTrans story.	\$25,000	\$12,500
US Department of Energy (BPA) 10/12- 11/15	Arturo Leon (PI) Nathan Gibson Christopher Hoyle	Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty	\$665,993 (no match shown)	\$410,390 (no match shown)
U.S. Environment al Protection Agency 6/12-5/17 (CAREER Award)	Arturo Leon (PI)	Prediction and quantification of CSOs in combined sewer systems under extreme storm events: Extreme events, Flow dynamics, Reduction of CSOs	\$265,528	\$265,528
Northwest Hydraulic Consultants Inc. 4/12-8/12	Arturo Leon	ITM Technical Support for Omaha Combined Storm-Sewer System	\$2,000	\$2,000
RERF - OSU 3/12-12/13	Arturo Leon	Construction of first phase of River Hydraulics Research Facility	\$59,950 (no match shown)	\$59,950 (no match shown)
Federal Highway Administratio n /CTME 3/12-12/12	Hans Tritico (PI) Arturo Leon (CoPI) Jose Vasconcelos	Development and Demonstration of an Improved Ranking Algorithm for Fish Passage through Culverts	\$49,531	\$4,250
Totals			\$2,693,767	\$1,702,171

At Boise State University

<i>Agency & Dates</i>	<i>PI (and coPIs)</i>	<i>Title</i>	<i>Total Budget</i>	<i>My Share</i>
NSF EPSCoR program 6/10-8/10	Arturo Leon	Water Resources in a Changing Climate – supplement	\$20,000	\$20,000
NSF EPSCOR REU 6/10-8/10	Arturo Leon	Engaging undergraduate students in the operation and management of regulated river systems	\$8,000	\$8,000
Northwest Hydraulic Consultants Inc. 6/10-8/10	Arturo Leon	Illinois Transient Model (ITM) Technical Support for Dallas combined storm-sewer system	\$4,000	\$4,000
NSF EPSCoR program 1/10-12/10	Arturo Leon	Water Resources in a Changing Climate	\$100,000	\$100,000
Totals			\$132,000	\$132,000

C3.1. Donations

<i>Year</i>	<i>Source</i>	<i>Donation</i>	<i>Approx Value</i>
2014	North West Research Associates	Laboratory equipment including two large flumes, various tanks and a wide array of hydraulic instrumentation	\$423,466

C3.2. Proposals Currently under Review

<i>Agency</i>	<i>PI (and co-PIs)</i>	<i>Title</i>	<i>Budget</i>	<i>Duration</i>
Texas Sea Grant	S. Louie (PI) A. Leon (Co-PI), D. Rodriguez (Co-PI)	Implementation of Dynamic Water Management for Flood Mitigation and Storm Water Treatment	\$299,783	2 yrs
NSF	D.J. Seo (PI), A. Leon (Co-PI)	Advancing Planning and Management of Flood Control and Storm Water Infrastructure	\$229,996	3 yrs

		for Extreme Precipitation under Nonstationarity (APMWIN) – Co-PI		
NSF	A. Leon (PI), D. Liu (Co-PI)	Dynamics of Explosive Geysers in Combined Sewer Systems and Novel Retrofitting Methods	\$329,929	3 yrs
NSF	A. Leon (PI), S. Pennings, C. Glennie	Dynamic Management of Water Storage in Watersheds for Reducing the Magnitude of Floods	\$307,757	3 yrs

C4. Other Scholarship and Creative Activities

Refereed Journal Publications Under Development

1. Sharifi, E., Bashiri, H., Leon, A. S., Chen, Y., Gibson, N. (2018). "Valuation of flexibility for optimal reservoir operation." *Water Resources Research*.
2. Bashiri, H., Sharifi, E., Leon, A. S., Chen, Y., Gibson, N. (2018). "Quantification of Short-term Hydropower Generation Flexibility." *Journal of Water Resources Planning and Management*.
3. Chegini, T. and Leon, A. S. (2018). Numerical modeling of the geyser event on July XX, 200X at Interstate 35 in Minneapolis. *Journal of Hydraulic Research*.
4. Chegini, T., and Leon, A. S. (2018). A deep-tunnel retrofitting strategy (**Experiments and Numerical Modeling**) for minimizing gesyers in combined sewer systems. *Journal of Hydraulic Research*.
5. Leon, A. S., Chegini, T. (2018). Violent geysers in Stormwater and Combined Sewer Systems I: An analysis with an expanded laboratory data set. *Journal of Hydraulic Research*.
6. Chegini, T. and Leon, A. S. (2017). A near-surface retrofitting strategy (**Experiments and Numerical Modeling**) for minimizing gesyers in combined sewer systems. *Journal of Hydraulic Research*.

Software and Codes that I developed

I have developed several computational models, which are available at the webpage: <http://www2.egr.uh.edu/~aleon3/Codes.html>. The main models that I have developed include:

1. **Illinois Transient Model** (2004-Present): The Illinois Transient Model (ITM) is an **open source** multipurpose Finite Volume (FV) model to analyze transient flows in

closed-conduit systems ranging from dry-bed flows to gravity flows, to partly gravity-partly surcharged flows (mixed flows) to fully pressurized flows (waterhammer flows). In the ITM model, the free surface region is modeled using the 1D Saint-Venant equations and the pressurized region is modeled using the 1D compressible waterhammer equations. The current version of the ITM model (V. 1.5 May, 2015) has features that make this model superior with respect to other models for analyzing transient flows in complex closed-conduit systems. The ITM model was used for the analysis of combined sewer systems in the United States in cities like Chicago, Cleveland, San Francisco, and Dallas and has been used in countries such as Switzerland, China, New Zealand and Mexico.

Link: <http://www2.egr.uh.edu/~aleon3/ITM.htm>

2. **Controlling HEC-RAS using MATLAB** (2016-Present): This code contains a set of MATLAB scripts to write input files, read output files, make plots, execute parallel computations, and perform fully-automated functions of HEC-RAS. The Examples of procedures are illustrated using a river-reservoir network that involves ten inline structures (e.g., dams) with operation of gates at each of these dams.

Link: <http://www2.egr.uh.edu/~aleon3/Codes.html>

3. **Steady-Pipe Networks** (2014-Present): Code for analyzing steady flows in pipe networks. This Matlab code is intended for analyzing steady flows in complex pipe networks. This code can handle reservoirs, pumps and user-defined flows at nodes. The input data is entered in Excel and the equations are solved in Matlab.

Link: http://www2.egr.uh.edu/~aleon3/Pipe_Network.html

4. **OSU-Hydro turbines** (2013-Present): Matlab code for determining optimal flow discharge and optimal penstock diameter when designing impulse and reaction turbines for hydropower systems. This code is based on the paper "A dimensionless analysis for determining optimal discharge and penstock diameter in impulse and reaction water turbines" by Leon A. and Zhu L. (2013).

Link: http://www2.egr.uh.edu/~aleon3/hydropower_calc.html

5. **Annel2** (2002-Present): Matlab code for computing water surface profiles in circular and trapezoidal channels in series.

Link: <http://www2.egr.uh.edu/~aleon3/Annel2.html>

6. **Illinois Conveyance Analysis Program (ICAP)** (2012-Present). ICAP uses hydraulic performance graphs to describe the conveyance of a system, identify bottlenecks for varying conditions, conserve mass by tracking outflow and overflows under stepwise steady flow conditions.

Authors: [Oberg, Nils](#); [Schmidt, Arthur R.](#); [Landry, Blake J.](#); [Leon, Arturo S.](#); [Mier, Jose M.](#); [Garcia, Marcelo H.](#)

Link: <https://www.ideals.illinois.edu/handle/2142/89288>

7. **Dual Drainage Model (DDM)** (2008-Present): Code for modeling overland flows, street flows, Curb-and-grate inlet flows and pipe flows For the street and pipe flows a finite volume-shock-capturing scheme was used. Collaborator: Prof. Leonardo Nania (University of Granada, Spain).
8. **OSU-OUU** (2012-Present): Code for real-time operation of multi-objective and multi-reservoir systems that accounts for uncertainty and flexibility. This model couples hybrid optimization algorithms with a robust and numerically efficient hydraulic routing approach (OSU-Rivers). This model allows for scalable parallelization and has an integrated platform with a user-friendly graphical interface.
9. **OSU-Rivers** (2011-Present): Code for unsteady flow routing of complex rivers systems based on the performance graphs approach. This model is named OSU-Rivers. This model is robust and numerically efficient and is recommended for simulation of regulated river systems in real-time conditions.
10. Code for modeling the development, propagation, coalescence and release of air pockets in pipelines (2007-2008, Finite volume method & shock-capturing schemes)
11. Code for the solution of the 2D shallow water equations (2004, Finite volume method & shock-capturing schemes)
12. Code for modeling two-phase waterhammer flows in complex networks (2004, Finite volume method & shock-capturing schemes)
13. Code for modeling unsteady free surface flows in complex networks (2004, Finite volume method & shock-capturing schemes)
14. Code for the 1D modeling of sediment transport in rivers (2004, Finite differences)
15. Code for modeling one-phase waterhammer flows in complex networks (2003, Finite volume method & shock-capturing schemes)
16. Code for the 1D modeling of transport of contaminants in channels in series (2003, Finite differences)
17. Code analyzing the hydraulic conveyance of tunnel networks (2003)
18. Code for the design of intakes in supercritical flows (1998)
19. Code for the design of channels and energy dissipators (1997).

Research Media Coverage

1. (January 30, 2018) Dr. Leon was interviewed on solutions for Houston's flooding problems. See more at <https://www.houstoniamag.com/articles/2018/1/30/houston-flooding-problems-solution> , or <https://rare.us/local/houston/a-u-of-h-professor-says-he-knows-the-solution-to-houstons-flood-troubles-but-its-nothing-new/>

2. (October 25, 2017) Dr. Leon was interviewed on the releases of the Barker and Addicks reservoirs. See more at <https://communityimpact.com/houston/katy/development-construction/2017/10/25/barker-addicks-releases-still-frustrating-residents-but-officials-say-flooding-was-inevitable/>
3. (October 3, 2017) Dr. Leon was interviewed by HoustonPress on the controlled release of the Addicks and Barker Dams by the U.S. Army Corps of Engineers. See more at <http://www.houstonpress.com/news/how-houston-is-recovering-from-hurricane-harvey-one-month-later-9842561>
4. (September 21 and 22, 2017) Dr. Leon was interviewed on the replacement of Addicks and Barker Dams in Houston. See more at <http://www.houstonpress.com/news/sheila-jackson-lee-calls-for-addicks-and-barker-to-be-redone-post-harvey-9813174> and <http://www.houstonpublicmedia.org/articles/news/politics/2017/09/20/238162/jackson-lee-replace-addicks-and-barker-dams/>
5. (August 31 2017) Dr. Leon was interviewed by over ten national and international magazines and radio and TV networks with regard to the Hurricane Harvey flooding in Houston. Some of the articles can be seen at <https://www.scientificamerican.com/article/hurricane-harvey-houston-has-no-quick-way-to-get-rid-of-floodwater1/>, http://plus.lapresse.ca/screens/054d6c99-e395-4274-ba07-950c42e7a4f1%7C_0.html, <https://iowaenvironmentalfocus.org/2017/09/>, <https://www.carbonbrief.org/daily-brief/harvey-makes-another-landfall-port-arthur-now-underwater>, <https://www.egr.uh.edu/news/201709/uh-civil-engineer-provides-science-behind-hurricane-harvey-floods-national-media>
6. (September 2016) Arturo discusses the world's largest indoor waterfall with WIRED Magazine (September 2016 issue). The waterfall, called the Rain Vortex, is scheduled to open inside of Singapore's Changi Airport in 2018. See more at <https://www.wired.com/2016/09/fit-worlds-biggest-indoor-waterfall-airport/>
7. (January 2016) Our project was featured as a success PacTrans story: "PacTrans Technology Transfer Success Story 2015 #4: How Green is your Green Infrastructure? A Field-Scale Testing Facility to Investigate Efficiency of Roadside Stormwater Technologies". **Investigators:** Meghna Babbar-Sebens (OSU) and Arturo Leon (OSU). The complete article can be found at <http://depts.washington.edu/pactrans/pactrans-technology-transfer-success-story-2015-4-how-green-is-your-green-infrastructure-a-field-scale-testing-facility-to-investigate-efficiency-of-roadside-stormwater-technologies/#>
8. (Nov 2014) Arturo was interviewed by The American Society of Mechanical Engineers (ASME) about top jobs in Hydraulic Engineering, November, 2014. <https://www.asme.org/engineering-topics/articles/workforce-development/4-leading-job-areas-hydraulics>

9. (October 16, 2014) Two new research labs were inaugurated at Oregon State University: The Multipurpose Hydraulics Research Facility and the Green Stormwater Infrastructure Research Facility, October, 2014. Arturo is the director of the Multipurpose Hydraulics Research Facility and co-director (with Dr. Meghna Babbar-Sebens) of the Green Stormwater Infrastructure Research Facility.
<http://www.bentonswcd.org/stormwater-research-facility/>
<http://oregonbest.org/news-events/news/item/news/News/action/detail/story/two-new-oregon-best-labs-focus-on-water/>
10. (May 5, 2014) Arturo was inducted as **Diplomate, Water Resources Engineer** (D.WRE) of the American Academy of Water Resources Engineers (AAWRE), June 2, 2014. <http://blogs.oregonstate.edu/oregonstatecce/2014/05/08/professor-arturo-leon-receives-honor-aawre/>
<http://water.oregonstate.edu/h2osu-may-12-2014>
11. (April 2012) Arturo was awarded an EPA Early Career Award, April, 2012.
<http://blogs.oregonstate.edu/engineering/2012/04/10/four-engineering-professors-earn-prestigious-awards/>. Also appeared in IWW-OSU.
12. Arturo's research was featured in the OSU College of Engineering site, December, 2011 <http://engineering.oregonstate.edu/content/novel-approach-flood-control>
13. Student-built model simulates water flow in Graf Hall, Daily Barometer newspaper, October 25, 2011. http://www.dailybarometer.com/student-built-model-stimulates-water-flow-in-graf-hall/article_30620311-f4b9-5ddb-a6d9-d48aaef8029.html
14. Arturo Leon recognized as one of the most successful professionals of all times of the Universidad Nacional San Cristobal de Huamanga, Universidad Nacional San Cristobal de Huamanga, July 06, 2009.
<http://www.modestomontoya.org/reportescienciaperu/200906julioportescienciaperu/JCRomanicondecoradoUNSCH.html>

D. SERVICE

D1. University Service

Standing Committees

- CIVE 6111 Graduate Seminar Coordinator, Fall 2017
- Graduate Committee, Member, AY12/13, 13/14
 - Sub-Committee on Graduate Admissions & Recruiting, Chair, AY 12/13
- Institute for Water and Watersheds (IWW) Executive Committee, Member, AY11 – Present

Ad-Hoc Committees

- Environmental Engineering Tenure-Track Faculty Search Committee, Member, AY 17
- Construction Engineering Tenure-Track Faculty Search Committee, Member, AY 11/12
- Interim School Head of Civil & Construction Engineering Search Committee, Member, AY 11/12

Websites Designed & Maintained

- Leon Research Program, <http://www2.egr.uh.edu/~aleon3/>
 - This website has more than 26,000 unique visitors from 146 countries and 50 states in past 2.5 years (Jan 2013 – Present)
- Leon Teaching courses, <http://www2.egr.uh.edu/~aleon3/Teaching.html>, Jan 2011 – Present
- River Hydraulics Research facility, http://www2.egr.uh.edu/~aleon3/River_Facility.html, Jan 2015 – Present

Development of Research Laboratories and Teaching equipment

- Identifying new equipment for improvement of Labs 3 and 4 in CIVE 3434
- Design and Implementation of a new multi-purpose hydraulic research laboratory at SPA
- Designed and obtained funds for the construction of the River Hydraulics Research Facility (http://www2.egr.uh.edu/~aleon3/River_Facility.html) located at the O.H. Hinsdale Wave Research Laboratory. This new research facility features a recirculating system with the ability to test up to two simultaneous and independent experiments with flows up to 35 cfs (1000 L/s). The river facility consists of a 20 m

(66 ft) x 10 m (33 ft)) concrete platform for hosting hydraulic experiments, two independent head tanks (can be extended), a sediment catchment, a clean water sump, multiple pumps (variable and constant speed), and impulsion and return pipe lines. The river facility is ideal for the testing of river hydraulic structures and low head (< 15 ft) pressurized hydraulic structures. This facility is currently being used for two sponsored research projects (geysers and flood control). Overall, this facility could be used for a wide range of research projects, including flood control, reservoir sedimentation, density currents, erosion and scour, aquatic habitat, stream restoration, fish passage and dam removal. I am currently the director of this facility.

- Helped in the design and in obtaining funds for the construction of the OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility (<http://research.engr.oregonstate.edu/hydroinformatics/Avery>). This facility is a three-celled stormwater research facility for field-scale experiments and testing on green infrastructure (e.g., raingardens, bioswales, etc.). The cells provide the ability to test various stormwater treatment technologies and treatment of various stormwater contaminants. These cells are also instrumented with multiple sensors to enable better data collection and modeling. Located on the NW corner of the Benton County Development Department property at SW Avery Avenue in Corvallis, Oregon, the facility intercepts and captures runoff from approximately 100,000 square feet of catchment area in the County property. Some of the pollutants being captured include tractor leaks, fuel tank spills, raw asphalt, road fill sediment, parking lot sediments and chemicals, road paint spills, etc. The facility also provides education and outreach to engage the general public in taking action to support enhancing water quality. Each cell is approximately 93 feet 4 inches long and 10.5 feet wide. The depth of each cell is 3 feet. The underdrain for each cell was laid in an 18 inches trench that is 4 feet from the top of the cell walls. The soils and plants in each of these cells can be replaced by experimental soil and plants. The Co-Directors of this Facility are Dr. Meghna Babbar-Sebens and Dr. Arturo Leon.
- Designed and funded the construction of a 10-m long semi-circular (D = 18") re-circulatory flume (http://www2.egr.uh.edu/~aleon3/Projects_Flume_Graf.html). This facility is located in the Hinsdale wave lab and is intended to be used for teaching purposes. The maximum flow discharge of this flume is 10 liters per second.

Other Leadership Activities

- Water Resources Engineering Group Coordinator (GC), AY 11/12, 12/13, 13/14
- Water Resources Engineering Ph.D. Qualifying Examination Coordinator, AY 13/14

Selected River Hydraulics Research Facility Tours Hosted [5 tours and 30 people]

- OSU Water Resources Graduate program [8], November 2015

- OSU College of Engineering Faculty [4], October 2015
- City of Portland, Bureau of Environmental Services [10], May 2015
- Civil & Construction Engineering Graduate Recruitment [6], March 2015
- ODOT engineers [2], February 2015

D2. Service to the Profession

D2.1. Conference and Workshop Organization

- International Scientific Committee, 8th International Symposium on Environmental Hydraulics, University of Notre Dame, Indiana, United States, June 2018.
- Session organizer [with Jose Vasconcelos, Auburn University], Session on Two-phase flows (Gas-liquid) in Hydraulic Structures, World Environmental & Water Resources Congress 2018 (organized annually), Minneapolis, Minnesota, June 2018.
- Mini-Symposium organizer [with Moez Louati, Hong Kong University of Science and Technology (Hong Kong)], Session on Transients and Geysers in Urban Systems, 8th International Symposium on Environmental Hydraulics (<https://cees.nd.edu/iseh2018>), University of Notre Dame, Indiana, United States, June 2018.
- Session organizer [with Silvia Meniconi, University of Perugia (Italy), Pedro Lee, University of Canterbury (New Zealand); Sang Hyun Kim, Pusan National University (South Korea), and Moez Louati, Hong Kong University of Science and Technology (Hong Kong)] on Transients Flows in Pipes, 37th IAHR World Congress (organized biennially), Kuala Lumpur, Malaysia, August 2017.
- Session organizer, Session on Short-term Operation of Reservoir Systems Under Uncertainty, World Environmental & Water Resources Congress 2016 (organized annually), West Palm Beach, Florida, May 2016.
- Session organizer, Session on Reservoir Operation, AWRA Annual Water Resources Conference, Portland, OR, November 2013.
- Steering Committee and Advisory Board Member, International Conference on Engineering & Ecohydrology for Fish Passage, Corvallis, OR, June 2013
- Chair, Spring Hydrology Seminar Series of the Institute of Water and Watersheds (IWW). Theme: “Innovations in International Waters”, Corvallis, OR, April-June 2012.

D2.2. Conference Program Committees

- Session Chair (with Prof. Huang-Feng Duan, Co-Chair), Special Session: Transients in Pipes, 37th IAHR World Congress, Kuala Lumpur, Malaysia, August 2017.
- Member of Scientific International Committee, XXVII Latin-American Congress of Hydraulics, Lima, Peru, September 2016.
- Session Chair (Energy Dissipation Basins), 6th International Symposium on Hydraulic Structures, Portland OR, June 2016.
- Session Moderator (Short-term Operation of Reservoirs Systems Under Uncertainty), World Environmental & Water Resources Congress 2016, West Palm Beach, FL, May 2016.

- Session Chair, AWRA Annual Water Resources Conference, Portland, OR, November 2013.
- Session Moderator, International Conference on Engineering & Ecohydrology for Fish Passage, Corvallis, OR, June 2013.
 - Modeling and Design
 - Columbia River Passage

D2.3. Reviewing

Books [2]

- Hydrologic Analysis and Design, 4th Edition, by Richard McCuen, November 2014
- Sustainable Water Resources Planning and Management, by Larry W. Mays and Y.K. Tung, August 2013

Research Proposals [14]

- National Science Foundation (NSF) Proposal Review Panels, 2014 [2]
- Natural Sciences and Engineering Research Council of Canada (NSERC) Reviewer, 2013 [1]
- National Science Foundation (NSF) Reviewer, 2013 [1], 2014[12]

Archival Journals [36]

- MDPI: Water, 2016 - present [2]
- AGU: Water Resources Research, 2014 – present [2]
- IWA: Journal of Hydroinformatics, 2015 – present [1]
- ASCE: Journal of Water Resources Planning and Management, 2013 – present [3]
- ASCE: Journal of Engineering Mechanics, 2013 – present [1]
- ASCE: Journal of Computing in Civil Engineering, 2013 – present [2]
- IWA: Water Science and Technology, 2013 – present [1]
- ASCE: Journal of Hydrologic Engineering, 2011 – present [3]
- Springer: Journal of Water Resources Management, 2011 – present [1]
- IAHR, International Journal of Hydraulic Research, 2009 – present [6]
- ASCE: Journal of Hydraulic Engineering, 2007 – present [14]

Refereed Conferences [53]

- IAHR World Congress (organized biennially), Kuala Lumpur, Malaysia, August 2017 [6].
- Latin-American Congress of Hydraulics, 2015-present [10]
- ASCE-EWRI World Environmental & Water Resource Congress, 2013 – present [12]
- International Conference on Engineering & Ecohydrology for Fish Passage, 2014 – present [16]
- AWRA Annual Water Resources Conference, 2013 – present [6]

- Computational Hydraulics International (CHI) Annual Conference, 2011 – present [3]

D2.4. Other

- American Society of Civil Engineers, Environmental & Water Resources Institute (EWRI), Task Committee on Two-Phase Flow In Urban Water Systems, *Vice-Chair*, 2017-Present
- Engineers Without Borders (EWB), University of Houston Chapter, Co-Faculty Advisor (With Dr. Hanadi Rifai), Spring 2017 – Present
- American Academy of Water Resources Engineers (AAWRE), *Member*, 2014 – Present
- American Society of Civil Engineers, Environmental & Water Resources Institute (EWRI), Task Committee on Sustainable Stormwater Infrastructure, *Member*, 2016 – Present
- Engineers Without Borders (EWB), Oregon State University Chapter, Faculty Advisor, Fall 2012 – Spring 2016
- American Society of Civil Engineers, Environmental & Water Resources Institute (EWRI), Task Committee on Eco-Hydraulics, *Member*, 2013 – Present
- Engineers Without Borders (EWB), *Member*, 2012 – Present
- American Society of Civil Engineers, Environmental & Water Resources Institute (EWRI), Task Committee on Low Impact Development - Combined Sewer (LID-CS) Areas, *Member*, 2012 – Present
- Delta Science Program (State of California), Review panel member of the Fall Low Salinity Habitat (FLaSH) Studies and Adaptive Management Plan, 2012
- Oregon Seismic Resiliency, Committee member of Water and Waste Water System task group, 2012-2015
- American Geophysical Union (AGU), *Member*, 2012 – Present
- OSU Water Resources Research Symposium, Judge for student presentations and posters, 2013, 2014
- Professional Certification, *Professional Engineer* (PE 14251, Idaho), 2010
- American Society of Civil Engineers, *Member*, 2009 – Present
- International Association for Hydraulic Research (IAHR), *Member*, 2009 – Present
- American Water Resources Association (AWRA), *Member*, 2009 – Present
- Professional Certification, *Professional Engineer* (Peru, CIP 58619), 2001

D3. Service to the Public

D3.1. Professionally Related

- **International Visitor Leadership Program, 2013.** I participated as panelist in the International Visitor Leadership Program, a greening of America with a focus on renewable energy: A Project for Germany, Corvallis, OR, June 26, 2013.
- **Laboratory Demonstration, Intel Engineering Summer Scholars (IESS) program, 2013.** IESS is a bridge program for high achieving underrepresented minority freshman in Engineering. A group of 30 students spend 45 minutes in the hydraulics teaching laboratory (recirculation flume) learning about the dangers of submerged hydraulic jumps (downstream of dams) for kayakers and boaters in rivers.
- **Reviewer of Technical Reports, Engineers Without Borders (EWB), Oregon State University Chapter, 2011-present.** I reviewed various technical reports and designs for two international water-related projects.
- **Hosted Advocates for Women in Science, Engineering, and Math (AWSEM), 2012:** A group of 25 female high school students, and a group of 25 female middle school students each spend 30 minutes in the hydraulics teaching laboratory (recirculation flume) learning about the dangers of submerged hydraulic jumps (downstream of dams) for kayakers and boaters in rivers.
- **Designer, Engineers Without Borders, University of Illinois at Urbana-Champaign Chapter (2005-2006).** Helped in the design of water infrastructure for the Enugu State Project (Water development in Nigeria).

D3.2. Other Public Service

- **Volunteer, OSU Hydrophiles, 2012.** I served as volunteer in the one-day long clean-up of Mary's River. This event was organized by OSU Hydrophiles.
- **'Dunkee', OSU College of Engineering, 2012.** I served as 'dunkee' in the Engineering Carnival Dunk Tank. All proceeds go to Linn-Benton Food Share.

E. AWARDS

E1. National and International Awards

Ayacucho Chapter of Civil Engineers, Society of Peruvian Engineers Outstanding Academic Contributions Award, 2017

This award is presented by the Ayacucho Province Chapter of Civil Engineers, Society of Peruvian Engineers, (Capitulo de Ingeniería Civil del Colegio de Ingenieros del Perú, Consejo Departamental de Ayacucho) to a Civil Engineer with outstanding academic contributions. This award is normally given to one civil engineer every year.

Diplomate, Water Resources Engineer (D.WRE), 2014

This award is given by the American Academy of Water Resources Engineers (AAWRE), a subsidiary of the American Society of Civil Engineers (ASCE). The D.WRE certification is the highest post-license certification available in the water resources engineering profession. The D.WRE represents strong professional ethics, a commitment to life-long learning and continuing professional development.

ASCE ExCEED Teaching Fellow, 2012

This fellowship award is to attend a six-day workshop that provides engineering educators with an opportunity to improve their teaching abilities. This workshop includes a series of demonstration classes - models of high-quality teaching, presented by ExCEED faculty mentors. During the latter half of the course, participants apply what they have learned by preparing and teaching three actual classes in a small-group setting. In this workshop I was honored by the lead teaching mentor with the “chalk award” for best teaching improvement in my group.

Environmental Protection Agency (EPA) Early CAREER Award, 2012

The EPA CAREER award supports “research performed by PIs with outstanding promise at the Assistant Professor or equivalent level”.

Society of Peruvian Engineers Outstanding Contributions Award, 2011

This award is presented by the Society of Peruvian Engineers (Colegio de Ingenieros del Peru) to engineers with outstanding contributions in their field. This award is normally given to one or two engineers every year.

Peruvian National Council of Science and Technology fellow, 1997-1998

This fellowship was awarded by the Peruvian National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología -CONCYTEC) to support the two years of my MS studies at the National University of Engineering in Lima, Peru.

Fellowship to attend the Peruvian National Annual Conference of Executives (Peru), 1996

The best student from each department is selected to attend the National Annual Conference of Executives (Conferencia Anual de Ejecutivos). The purpose of this one-week long meeting is to serve as a networking mixer between the very best students of the country and selected CEOs of the most important Peruvian companies.

E2. University or Community Awards

Chancellor Medal and Diploma for outstanding graduate of the Universidad Nacional San Cristobal de Huamanga, 2008.

The medal and diploma was awarded by the Chancellor of the University for being one of the two most outstanding graduates of all times in the Civil Engineering Department of the Universidad Nacional San Cristobal de Huamanga.

Research Fellowship at the Hong Kong University of Science and Technology, China (six weeks), 2004

This Fellowship was awarded by the University of Illinois at Urbana-Champaign to perform research at the Hong Kong University of Science and Technology.

Best undergraduate student award of Civil Engineering, 1992-1996 (5 years in a row)

The undergraduate curriculum in Peru is a 5 year program. The best undergraduate student award is given every year to the student with highest GPA.

F. Other: Consulting/Construction Projects I participated before my PhD studies

- 1. Project: Infrastructure design of Cerro Yanacocha Stage 4, Cajamarca, Peru. (2002)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consuting S.A.
Description: Design of channels, culverts, detention ponds, dams, energy dissipation structures, spillways, sediment control structures, surface and underground drainage, etc.
Funding Agency: Minera Yanacocha S.R.L.
- 2. Project: Infrastructure design of Carachugo Stage 8, Cajamarca, Peru. (2002)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consuting S.A.
Description: Design of channels, culverts, sediment/erosion control structures and energy dissipation structures.
Funding Agency: Minera Yanacocha S.R.L.
- 3. Project: Upper Arkansas River Restoration Project, Colorado, USA. (September – December 2001)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consuting S.A.
Description: Design of drop structures, sediment/erosion control structures and detention ponds.
Funding Agency: Colorado Division of Wildlife, Colorado, USA.
- 4. Project: Definitive study for Huachuacaja Tailing Dam, Cerro de Pasco, Peru. (2001)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consuting S.A.
Description: Water balance, design of spillways, channels and sediment/erosion control structures.
Funding Agency: Sociedad Minera El Brocal S.A.
- 5. Project: Pallca Hydrogeological Study, Ancash, Peru (2001)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consuting S.A.
Description: Calculation of flows at tunnel galleries.
Funding Agency: Mitsui Mining
- 6. Project: Hydrologic study of Conococha Lake, Ancash, Peru. (2001)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consuting S.A.
Description: Hydrological studies including surface flow measurements, measurement of infiltration, water balance, etc.
Funding Agency: Minera Antamina S.A.

7. **Project: Control structure of Conococha Lake, Ancash, Perú. (2001)**
Position: Staff Hydrologic and Hydraulic Engineer of Knight Piesold Consulting S.A.
Description: Hydraulic design of the control structure of Conococha Lake.
Funding Agency: Minera Antamina S.A.

8. **Project: Improvement and Construction of the Yura-Patahuasi-Santa Lucía Road to asphalt surface - Section IV, 50 km. (1999-2000)**
Position: Assistant Engineer 2 of COSAPI S.A.
Description: Hydraulic and structural design of more than 100 hydraulic structures, and field responsible of surface drainage and sediment/erosion control.
Funding Agency: Ministry of Transport and Communications, MTC, Peru.

9. **Project: Protection of the piers of the Girasoles and Naña bridges, Rimac River, Chaclacayo, Lima (1998)**
Position: Independent Consultant Engineer
Description: Study for the protection of the piers of the Girasoles and Naña bridges
Funding Agency: DGAS - INRENA – Ministry of Agriculture, Peru

10. **Project: Hydraulic, Hydrologic and Geotechnic studies for the construction of the Omayá and Uviato bridges, La Convención, Cusco, Peru. (1998)**
Position: Independent Consultant Engineer
Description: Hydrologic and hydraulic studies for the design of the Omayá and Uviato bridges.
Funding Agency: Proyecto Especial Sierra Centro Sur

11. **Project: Underground excavation of Tunnel I Chiara – Chontaca and associated works to the east, siphons and aqueducts. Chiara-Chontaca, Ayacucho, Peru (1996)**
Position: Assistant of Field Engineer (Instituto Nacional de Desarrollo - INADE)
Description: Quality control of the construction of several hydraulic structures (canals, water intakes and sediment/erosion control structures)
Funding Agency: Proyecto Rio Cachi (INADE), Peru

12. **Project: Construction of different facilities (channels, reservoirs, culverts, roads, etc.) for various local communities: Cangallo, Vilcas Huamán, Ocros, Tambillo, etc. – Ayacucho, Peru. (1995-1996)**
Position: Assistant of Field Engineer EL AGUA S.R.LTDA
Description: Quality control of the construction of several hydraulic structures and assistant in the design of various hydraulic structures (water intakes, canals, sediment/erosion control structures).

Funding Agency: Proyecto Rio Cachi, Proyecto Sierra Centro Sur, and Foncodes, Peru.