

Shannon Lynn Isovitsch Parks, P.E., Ph.D.

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SUSTAINABILITY PROFESSIONAL | WATER EXPERT | INSTRUCTOR

Experienced environmental technology professional passionate about growing talent and community

PROFESSIONAL PROFILE

Insightful senior level leader with progressive, broad-based, applied knowledge and highly successful experience in **Water Resources and Environmental Engineering**. Demonstrated strengths include:

- Practical Problem Solving
- Innovation and Creativity
- Project Planning and Execution
- Environmental Compliance
- Communication and Presentation Skills
- Building strong relationships
- Coaching and mentoring
- Research and Analysis

Ideal role in a leadership position in an exploratory and process oriented work environment where 20 years of engineering experience will add value, with opportunity to write and develop strategies, marketing materials, or curriculum, perform water resources and/or environmental engineering analysis, and mentor.

CAREER EXPERIENCE

Associate Professor, University of Pittsburgh at Johnstown, Johnstown, PA, 9/2016 to present.

Taught Water Supply & Wastewater, Fluid Mechanics, Water Resources & Hydrology, Engineering & Sustainable Development, Introduction to Environmental Engineering, and Hydraulic Design. Mentored undergraduate research.

Mott MacDonald, Pittsburgh, PA 2/2019 to 3/2022

In-house consultant supporting various stormwater management, design, and modeling efforts.

CES Clean Water, LLC, Pittsburgh, PA 5/2017 to 12/2018

Senior engineer supporting research, development, and commercialization of on-lot wastewater treatment technology.

Senior Project Leader, Alcoa Technical Center, Pittsburgh, PA, 8/2008 to 2/2016.

Led env. R&D, commercialization, and community investment programs, incl. >\$1.2MM annual budget, >75 team members, and alignment of IP, R&D, quality control, marketing, and env. compliance. Doubled community grants.

Drove organizational effectiveness among Chief Technology Officer (CTO) leadership team. Developed CTO Investor Day presentation; Led engagement with University of Virginia's McIntire School of Commerce.

Supervised 10-person team, lab, and >\$2MM annual budget, focused on R&D of water, air, and waste technologies. Developed, permitted, deployed 5gpm constructed wetland field pilot testing >12 design configurations; supported design/deployment of 1MGD constructed wetland wastewater treatment system in Saudi Arabia.

Led research, development, and construction of constructed wetlands and natural media filtration at domestic and international industrial sites, with >\$1MM annual budget, and >30 interdisciplinary team members.

Research/Teaching Assistant, Carnegie Mellon University, Pittsburgh, PA, 8/2005 to 8/2008.

Advisor: Dr. Jeanne VanBriesen, P.E.; Dissertation Title: Water Quality Control through Spatial and Temporal Analysis of Water Quality Monitoring Systems. Teaching Assistant for Introduction to Engineering and Fluid Mechanics.

Senior Engineer, Hatch Mott MacDonald, Pittsburgh, PA, 8/2000 to 7/2005.

Performed engineering analysis, design and permitting of stormwater and sanitary sewer systems and bike/hike trails.

Water/Sanitation Engineer, United States Peace Corps, Mali, West Africa, 8/1999 to 7/2000.

Conducted community education, construction, and repair on wells, latrines, water treatment, and proper sanitation.

Civil Engineer, Dewberry & Davis, Fairfax, VA, 8/1997 to 7/1999.

Performed analysis and reporting of hydrologic and hydraulic models for the National Flood Insurance Program.

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EDUCATION

Ph.D., Civil and Environmental Engineering, Carnegie Mellon University, 2008. GPA: 3.48/4.0

M.S., Civil and Environmental Engineering, Carnegie Mellon University, 2005. GPA: 3.52/4.0

B.S., Civil Engineering, Pennsylvania State University, 1997. GPA: 3.44/4.0

PROFESSIONAL CERTIFICATIONS AND SKILLS

Registered Professional Engineer, Commonwealth of Pennsylvania, January 2003 - September 2023

Hazardous/Toxic Waste Management, Lion Technology Inc., November 2015 - November 2016

MBA Essentials, University of Pittsburgh Katz Graduate School of Business, May 2011

Computer: Daptiv, MS Project, MS Word, MS Excel, MS Access, AutoCAD, ArcGIS, Visual C++, HEC-HMS, HEC-geoHMS, HEC-RAS, HEC-1, HEC-2, EPANET, MATLAB

Language: conversant in French

SELECT HONORS AND RECOGNITIONS

Engineering for One Planet - Mini-Grant Program, Mentor (2023)

American Society for Engineering Education, Environmental Engineering Division, Program Chair, 2022-2023

American Society of Civil Engineers Excellence in Civil Engineering Education (ExCEEEd) Fellow, 2018

Alcoa Foundation Board of Directors, 2011 - 2016

Sigma Xi, The Scientific Research Society (Alcoa Chapter), Full Member, 2013-2015

Duquesne University Bayer School of Natural and Environmental Sciences Commencement Speaker, 2012

Alcoa Impact Award Winner; Environment, Health and Safety Category, 2011

Penn State Engineering Society Student Leadership Award, 1997

PROFESSIONAL OUTREACH AND AFFILIATIONS

American Society for Engineering Education, Environmental Engineering Division, Secretary, 2021-2022

American Society for Engineering Education, Environmental Engineering Division, Treasurer, 2020-2021

American Society of Civil Engineers, Member, 2018-Present

American Society for Engineering Education, Member, 2017-Present

Pennsylvania Water Environment Association, Member, 2016-2018, 2023

Intel International Science and Engineering Fair, Grand Award Judge, 2018

Intel International Science and Engineering Fair, Special Awards Lead Judge, 2012, 2015

Penn State Engineering Leadership Development Program Advisory Board Member, 2015 - 2016

R&D 100 Judge, 2015

Pittsburgh Water Innovation Consortium industry representative, 2010 - 2011

University of Pittsburgh Engineers without Borders Technical Mentor, 2009 - 2010

Pittsburgh Regional Science & Engineering Fair, Category Judge, 2001-2005, 2007, 2011, 2013, 2016, 2019

Carnegie Science Center National Engineer's Week Event, Volunteer, 2001-2005, 2007

Habitat for Humanity, Volunteer Group Coordinator, 1995 - 2003

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JOURNAL REVIEWER

1. International Journal of Sustainability in Higher Education, 2022
2. Water Research, 2014
3. Environmental Science & Technology, 2011
4. Journal of Environmental Engineering, 2010

EDUCATIONAL OUTREACH

1. St. Francis of Assisi Parish Children's Faith Formation, Teacher's Aid (2019-2021), Catechist (2021-2022).
2. Buffalo Elementary Parent-Teacher Organization, Volunteer (2019-Present), Treasurer (2021-2023).
3. St. Francis University, Environmental Engineering Visiting Council (2019-Present).
4. Invited speaker, St. Francis University, Environmental Engineering Seminar (2019).
5. Invited panel speaker on sustainability, at a Product Development and Management Association (PDMA) Pittsburgh section event; May 1, 2018.
6. University of Pittsburgh at Johnstown, Engineer Your Future Day (2017-2020). Gave 20-minute presentation to admitted engineering students and parents highlighting the Fluid Mechanics/Hydraulics lab.
7. Carnegie Mellon University, DFM 49-731: Design for Environment (2016-2018). Invited lecturer on sustainability, as part of semester-long course taught by Mr. Stephen Leonard.
8. Carnegie Mellon University, 12-702: Fundamentals of Water Quality Engineering (2011). Taught semester long graduate level course.
9. Carnegie Mellon University Doctoral student co-advisor, (2010 – 2011).

CONFERENCE PAPER REVIEWER

1. American Society for Engineering Education, 2016-Present

SUPERVISED STUDENT RESEARCH

1. Jacob Dum, "A HEC-RAS Approach to Analysis of Flood Reduction in Central Pennsylvania due to the Raystown Dam" (2022).
2. James Regan, "Phosphorus Removal from Wastewater" (2019).
3. Christopher Bridge, Isabelle Macioce, "Integrating History into Civil Engineering Education" (2018-2019).
4. Alexander Roper, James Regan, "Phosphorus Removal from Wastewater" (2018-2019). Supported by The Mentorship Fund to Support Faculty-Student Scholarship, Research and Creative Activities Grant from the University of Pittsburgh at Johnstown ("The UPJ Mentorship Fund").
5. Jeramy Bittinger, Mick Galbraith, Kody Blevins, Christopher Bridge, Isabelle Macioce, "Geostatistical evaluation of precipitation data sources for streamflow analysis" (2017-2019). Supported by The UPJ Mentorship Fund.
6. Matthew Kinney, "Advanced Onlot Wastewater Treatment Technology Development," (2016-2017). Supported by The UPJ Mentorship Fund.

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RESEARCH SUPPORT

1. “Phosphorus Removal from Wastewater.” The Mentorship Fund to Support Faculty-Student Scholarship, Research and Creative Activities Grant. \$1000, Spring 2019; \$700 Fall 2018.
2. “Geostatistical evaluation of precipitation data sources for streamflow analysis.” The Mentorship Fund to Support Faculty-Student Scholarship Research and Creative Activities. \$495 Spring 2018; \$300 Fall 2017.
3. “Geostatistical evaluation of precipitation data sources for streamflow analysis.” College Research Grant from the University of Pittsburgh at Johnstown. \$2,000. Summer 2017.
4. “Advanced onlot wastewater treatment technology development.” The Mentorship Fund to Support Faculty-Student Scholarship, Research and Creative Activities. \$500 Fall 2016.

TEACHING EXPERIENCE

Undergraduate

- Fluid Mechanics Lecture & Laboratory
- Water Supply and Wastewater Lecture & Lab
- Hydrology and Water Resources Lecture & Lab
- Introduction to Environmental Engineering
- Engineering & Sustainable Development
- Hydraulic Design Lecture & Laboratory

Graduate

- Fundamentals of Water Quality Engineering

TEACHING EVALUATIONS (Scale 1-5, with 5 high)

Course Name	Years Taught	Average Rating of Teaching
Water Supply and Wastewater Lecture	2016 - 2022	4.56
Water Supply and Wastewater Laboratory	2016 - 2019	4.54
Fluid Mechanics Lecture	2016 - 2022	4.39
Fluid Mechanics Laboratory	2017 - 2022	4.56
Hydrology and Water Resources Lecture	2017 - 2023	4.32
Hydrology and Water Resources Laboratory	2017 - 2023	4.53
Introduction to Environmental Engineering	2017 - 2022	4.50
Engineering & Sustainable Development	2018 - 2023	4.27
Hydraulic Design	2019- 2023	4.50

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SELECT CONFERENCE PAPERS AND PRESENTATIONS

1. Bridge, C.; Parks, S., (2019). "Modeling History: Development of a GIS based hydrologic model of the Great Johnstown Flood Watershed," ASCE World Environmental & Water Resources Congress Conference Proceedings, Pittsburgh, PA.
2. Roper, A.; Parks, S., (2019). "Phosphorus Removal from Wastewater," ASCE World Environmental & Water Resources Congress Conference Proceedings, Pittsburgh, PA.
3. Kinney, M., Parks, S., Smith, J., (2017). "Advanced Onlot Wastewater Treatment Technology Development." Pres. at PA Decentralized Wastewater Conference and Trade Show, Harrisburg, PA.
4. Parks, S. L., (2015). "Green Levees: Beneficially Reusing Bauxite Residue as Levee Fill." Poster Pres. at Association of State Dam Safety Officials, Dam Safety 2015 National Conference, New Orleans, LA.
5. Parks, S. L. I., Merrick, N., Fu, J., Smith, J. (2011). "Novel ecological water treatment for nutrient removal from sanitary wastewater." Pres. at PA Lake Management Society 21st Annual Conf., State College, PA.
6. Isovitsch, S. L. and VanBriesen, J. M. (2008). "Booster disinfection to reduce the impact of contamination in a drinking water distribution system." Pres. at PA-AWWA 60th Annual Conference, Valley Forge, PA.
7. Isovitsch, S. L. and VanBriesen, J. M. (2007). "Spatial Analysis of Optimized Sensor Locations using GIS." Proceedings of the World Environmental and Water Resources Congress 2007, ASCE, Tampa, FL.
8. Isovitsch, S. L. and VanBriesen, J. M. (2007). "Integrating SCADA and GIS to Understand the Effectiveness of On-line Chlorine Boosters used in Response to Contamination Incidents within a Water Dist. Network." Proc. of the 2007 WEF Disinfection Specialty Conference, Pittsburgh, PA.

PATENTS

1. D. F. Iwig, R. J. Kilmer, C. L. Dobbs, J. Nichols, J. R. Smith, M. L. Weaver, S. L. I. Parks and M. Gershenzon, "Fertilizer compositions and methods of making the same," U.S. Patent 9,718,738 B2, Issued August 1, 2017.
2. S. K. Strano, S. L. I. Parks, J. K. Fu, J. R. Smith, "Wastewater Treatment Systems and Methods," U.S. Patent Application Publication No.: US 2017/0073260 A1, Published March 16, 2017.
3. M. L. Weaver, K. A. Crum, J. Nichols, D. F. Iwig, S. C. Orkis, G. E. Carkin, O. D. Gencaga, S. P. Sunday, I. R. Harrison, J. R. Smith, S. L. I. Parks and M. Gershenzon, "Fertilizer compositions and methods of making and using the same," U.S. Patent 9,630,886, issued April 25, 2017.
4. M. L. Weaver, K. A. Crum, J. Nichols, D. F. Iwig, S. C. Orkis, G. E. Carkin, O. D. Gencaga, S. P. Sunday, I. R. Harrison, J. R. Smith, S. L. I. Parks, "Fertilizer compositions and methods of making and using the same," U.S. Patent 9,527,779, issued December 27, 2016.
5. Strano, S.K., Parks, S.L.I., Fu, J.K., and Smith, J.R.. "Wastewater treatment systems and methods." U.S. Patent 9,315,406, issued April 19, 2016.
6. Parks, S.L.I., Iwig, D., Smith, J.R., Fu, J.K., and Ghosh, R. "Method for removing drugs from waste water using neutralized bauxite residue." U.S. Patent 9,187,342, issued November 17, 2015.

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PEER REVIEWED PUBLICATIONS

1. Ozis, F., Parks, S.L.I., Sills, D., Akca, M., Kirby, C. (2022) "Teaching Sustainability: Does Style Matter?", *International Journal of Sustainability in Higher Education*.
2. Parks, S.L.I., Klavuhn, K., Wieserman, L., Miller, A., Tumkor, S. "Academic Integrity during the COVID-19 Pandemic," 2022 ASEE Annual Conference Proceedings; June 26-29, 2022.
3. Parks, S.L.I. (2021) "Student perceptions and performance with online instruction of sustainability during COVID-19 response," 2021 ASEE Virtual Annual Conference Proceedings; July 26-29, 2021.
4. Parks, S.L.I. (2020) "Working toward tenure in a teaching focused branch campus", 2020 ASEE Virtual Annual Conference Proceedings; June 21-24, 2020.
5. Parks, S.L.I.. (2019). "Classroom-based games for student learning and engagement", 126th ASEE Annual Conference Proceedings, Tampa, FL; June 16-19, 2019.
6. Kinney, M., Parks, S.L.I., and Smith, J.R. (2018). "Advanced On-lot Wastewater Treatment for Nitrogen Removal," *Keystone Water Quality Manager*, 35-41.
7. Parks, S.L.I. and Dietz, L.J. (2017). "Incorporating professional experience into teaching," 124th ASEE Annual Conference Proceedings, Columbus, OH.
8. Parks, S.L.I. and Dietz, L.J. (2017). "Mid-Career Change: Benefits and challenges of leaving industry for academia," 124th ASEE Annual Conference Proceedings, Columbus, OH.
9. VanBriesen, J.M., Parks, S.L.I., Helbling, D.E., and McCoy, S.L. (2011). "Chlorine Residual Management for Water Distribution System Security," in Handbook of Water and Wastewater Systems Protection, Springer Science+Business Media,LLC, 185-203.
10. Parks, S.L.I. and VanBriesen, J.M. (2009). "Evaluating temporal variability in bacterial indicator samples for an urban watershed." *J. of Environmental Engineering*, (135)12, 1294-1303.
11. Parks, S.L. Isovitsch and VanBriesen, J.M. (2009). "Booster disinfection for response to contamination in a drinking water distribution system." *J. of Water Resources Planning & Management*, (135)6, 502-511.
12. Ostfeld, A., Uber, J.G., Salomons, E., Berry, J.W., Hart, W.E., Phillips, C.A., Watson, J.P., Dorini, G., Jonkergouw, P., Kapelan, Z., Pierro, F., Khu, S.T., Savic, D., Eliades, D., Polycarpou, M., Ghimire, S.R., Barkdoll, B.D., Gueli, R., Huang, J.J., McBean, E.A., James, W., Krause, A., Leskovec, J., Isovitsch, S., Xu, J., Guestrin, C., VanBriesen, J., Small, M., Fischbeck, P., Pries, A., Propato, M., Piller, O., Trachtman, G.B., Wu, Z.Y., and Walski, T. (2008). "The Battle of the Water Sensor Networks (BWSN): A Design Challenge for Engineers and Algorithms." *J. of Water Resources Planning & Management*, (134)6.
13. Isovitsch, S. L. and VanBriesen, J. M. (2008). "Sensor placement and optimization criteria dependencies in a water distribution system." *J. of Water Resources Planning & Management*, (134)2, 186-196.