SIDDHARTHA ROY Ph.D.

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EXPERTISE SUMMARY

Siddhartha Roy is an environmental engineer with 10 years of engineering, research, and consulting experience in the areas of drinking water (chemistry, treatment, & infrastructure), public health (WASH, contamination, citizen monitoring, & exposure modeling), and environmental justice. He and his team's scientific and humanitarian relief work, with residents of Flint Mich, helped uncover the Flint Water Crisis.

ACADEMIC HISTORY AND LICENSES

Virginia Tech, Blacksburg, VA
- 2018 *Ph.D. in Civil/Environmental Engineering*
- 2015 *M.S. in Environmental Engineering*

Nirma University, Ahmedabad, India
- 2010 *B.Tech. in Chemical Engineering*

State of Virginia, Engineer in Training (EIT)
- 2020 *Environmental Engineering License #0420072931*

EXPERIENCE

2012+ **Virginia Tech Department of Civil and Environmental Engineering** – Blacksburg, VA
Research Scientist (10/2020-present)
Postdoctoral Research Associate, US Water Study Team founding co-leader (2018-20)
Student Leader and Communications Director, Flint Water Study Team (2015-18)
Graduate Research and Teaching Assistant, Laboratory of Dr. Marc Edwards (2013-18)
Head Grant Writer/Researcher, Guatemala project, Engineers Without Borders USA (2013-15)

- Project Manager for multiple water infrastructure and treatment, waterborne metals and pathogens, emergency response, sustainability impact, and environmental modeling projects.
- Mentor to 14 advisees in conducting research, publishing, and winning awards.
- We used citizen science, open data sharing, field sampling, lab experiments, investigative journalism and social media to expose the Flint, MI Water Crisis (2014-15). Our efforts led to declaration of a national "Public Health Emergency" by President Obama, garnered over $1.2 billion in relief, and informed President Biden's 2021 $1 Trillion Infrastructure Bill (HR 3684).
- Used lead in sewage and children's blood datasets to estimate timing and magnitude of water lead exposure during the Flint crisis and ran bio-kinetic models to estimate fetal deaths.
- Led water sampling campaigns in 300+ homes in Chicago, IL and 3 suburbs; these datasets revealed harmful and persistent lead in drinking water issues (*Chicago Tribune* front page)
- Contributed to the design of and raised $26,450 from Boeing, Bechtel, Pratt & Whitney, and crowdfunding to sponsor a septic tank system for a Guatemalan boarding school.
- Grants from EPA ($10K), WRF ($60K), industry ($16.2K), and philanthropy ($3 million+$25K)
- *PhD Dissertation:* Interplay of water chemistry and entrained particulates in erosion corrosion of copper and nonleaded alloys in potable water systems
- *Coursework:* Water and Wastewater Treatment, Aquatic Chemistry, Environmental Statistics, Environmental Microbiology, Env. Engineering Principles, Public Health Fundamentals, Electrochemistry/Corrosion, Water Resources Policy & Econ., Politics of Developing Areas

2010-12 **Cognizant Technology Solutions** – Pune, India
Programmer Analyst, Innovation Lead
- Business Intelligence and Data Analytics: Merck Europe, Middle East & Africa Project

Sponsorship: Not required. US Permanent Residency (EB-1A) approved 03/22; Green Card expected 07/22.

AWARDS

2021   Wunderkind 2021 *(early career heroes of science and medicine; national)*, STAT News/Boston Globe
2020   IWA Young Leadership Award 2020-22 *(global prize)*, International Water Association
2019   New Face of Civil Engineering Professionals *(national)*, American Society of Civil Engineers
2019   Early Career Award for Public Engagement with Science Finalist (*global*), AAAS
2017   Graduate Student of the Year (*university-wide*), Virginia Tech
2015   Water Is Life Award, ACLU Michigan
2014   Engineers Without Borders-USA Global Leadership scholarship (*national*), Black and Veatch

SKILLS

General: project planning and management, technical writing, grant writing, budgeting, fundraising, leadership, mentoring, client communication, intercultural communication, public speaking, outreach
Scientific: experimental design, hypothesis-driven research, interdisciplinary collaborations, surveys, bench-scale experimentation, laboratory probes, spectrophotometers, sample characterization
Statistical software: R, Excel, SPSS Statistics, Qualtrics, QDA Miner, Minitab
Programming languages: WordPress, HTML, C, C++, Pascal, SQL, Markdown
Languages: English, Hindi, Bengali, Gujarati

PEER-REVIEWED SCHOLARSHIP

Total peer-reviewed publications = 17 (835 citations); Conference talks = 31; Technical reports = 4.
Select list (all first author):

1. Are there excess fetal deaths attributable to waterborne lead exposure during the Flint Water Crisis? *Journal of Exposure Science and Environmental Epidemiology.* 2021.
2. Citizen science chlorine surveillance during the Flint, MI water emergency. *Water Research.* 2021.
3. Efficacy of Corrosion Control and Pipe Replacement in Reducing Citywide Lead Exposure during the Flint Water System Recovery. *Environmental Science: Water Research & Technology.* 2020
4. Lead Release to Potable Water during the Flint, Michigan Water Crisis as revealed by Routine Biosolids Monitoring Data. *Water Research.* 2019.

PUBLIC UNDERSTANDING OF SCIENCE

- *TED Talk*: Science in service to the public good (https://go.ted.com/Cyoj), over 1 million views
- *Documentaries:* PBS NOVA 'Poisoned Water' (on Netflix), Discovery®, BBC
- *Media coverage (60+):* BBC, Chicago Tribune, NPR, The Guardian, The New York Times, WIRED
- *Public talks (85+):* World Health Organization, MIT, Northwestern, Princeton, Stanford, Georgetown, Middlebury, Tufts, Wesleyan, Notre Dame, UCLA, Science Museum of Virginia, E.U. SAFEWATER
- *Opinion essays:* CNN, American Scientist, Aeon Magazine, Undark
- *Research/data websites curated:* www.uswaterstudy.org, www.flintwaterstudy.org (1M+ visits)
- *Producer:* The Public-inspired Science Podcast (on iTunes), US Water Study documentary series

SERVICE

- US EPA "Social and Community Science" *Federal committee Expert Member* (2022-present)
- Heterodox Academy moderator (2020-22) for webinars "*The Science and Politics of Journal Retractions*" and *"Responding to COVID-19: Environmental Engineering approaches"*
- *Co-organizer:* US-Jordan forced displacement/Syrian refugee crisis conference session (2019)
- *Instructor:* Six courses for water plant operators sponsored by Virginia Dept. of Health (2018-21)
- *Tutor:* Math and Science – 4th Grade, Kipps Elementary, Blacksburg Refugee Partnership, 2018
- *Reviewer (2020-21)*: National Science Foundation grants, AAAS Kavli Science Journalism awards

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