SIDDHARTHA ROY Ph.D.

Blacksburg, VA/Chapel Hill, NC (United States)
cell: 540.521.6193; e: sidroy@vt.edu;
w: www.siddhartharoy.org

PROFILE SUMMARY

Siddhartha Roy is an environmental engineer with 10 years of engineering, research, and consulting experience in drinking water (chemistry, corrosion, treatment, & hydrodynamics), 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.

Nationalities: United States (Lawful Permanent Resident: EB1-A "Extraordinary Ability"); India (Birth).

ACADEMIC HISTORY AND LICENSES

Virginia Tech, Blacksburg, VA
2018	*Ph.D. in Civil Engineering (emphasis: Environmental Engineering)*
2015	*M.S. in Environmental Engineering*
2014	*Interdisciplinary Water and Health Sciences Graduate Certificate*

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

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

EXPERIENCE

2022+ **University of North Carolina, UNC Water Institute** – Chapel Hill, NC
Research Associate (10/22 – present)
- To lead research and projects related to drinking water safety – in particular, issues related to testing, monitoring, and management of under-recognized contaminants in drinking water in low- and middle-income countries in West Africa, with an emphasis on lead and toxic metals.

2012-22 **Virginia Tech, Department of Civil and Environmental Engineering** – Blacksburg, VA
Research Scientist (10/20 – 10/22)
Postdoctoral Research Associate (04/18 – 09/20)
Graduate Research and Teaching Assistant (11/12 – 02/18)
- Project Manager on multiple water infrastructure and treatment, corrosion (control), disinfection, waterborne metals/pathogens, sustainability impact, and health risk modeling projects.
- Student Leader and Communications Director, Flint Water Study Team (2015-18): We used citizen science, open data sharing, field sampling (metals, inorganics, pathogens, disinfectant residuals), lab experiments, investigative journalism and social media to expose the Flint, MI Water Crisis (2014-15). Our efforts led to declaration of a "Public Health Emergency" by President Obama, garnered over $1.2 billion in relief, and informed the 2018 Michigan Lead and Copper Rule and the 2021 $1 Trillion federal Infrastructure Bill (HR 3684).
- Exemplar water, health (disparities), environmental justice, and survey-based research projects:
  a. estimated timing and magnitude of childhood water lead exposure during the Flint crisis using sewage, water and blood datasets;
  b. ran bio-kinetic models and analyzed Vital Records to estimate fetal deaths (overall and race-specific) and fertility trends from maternal lead exposure in Flint;
  c. led water sampling campaigns in 300+ homes in Chicago, IL and 3 suburbs, which revealed harmful and persistent lead in drinking water issues (*Chicago Tribune* front page);
  d. Large scale surveillance of chlorine residuals in Flint's distribution system using citizen science and a decision-making tool for homeowners to control waterborne pathogens like *Legionella*;
  e. Quantifying adverse educational outcomes and psychological health harm in Flint children following the Flint Water Crisis through a retrospective cohort study;
  f. Survey of public school teachers' health perceptions of water lead exposure in Flint children and impacts on learning and special education;

g. National survey of US NSF fellows' (n=244) perceptions and experiences on incentives, research misconduct and scientific integrity in STEM academia.
- Engineers Without Borders-USA: Contributed to the engineering design of and raised $26,450 to sponsor a septic tank system for a Guatemalan boarding school (2013-15).
- Mentor to 16 advisees in conducting research, publishing, and winning state/national awards.
- Course instructor for water treatment, math, chemical contaminants for water utility operators
- Executive producer of the US Water Study podcast (two seasons) on Apple iTunes and original documentary series on YouTube.
- Grants led/won: WaterRF ($60K), USEPA ($10K), industry ($16.2K), philanthropists (>$425K)
- PhD Dissertation: Interplay of water chemistry and entrained particulates in erosion corrosion of copper and nonleaded alloys in potable water systems (Advisor: Dr. Marc Edwards)
- Coursework: Water/Wastewater Treatment and Design, Aquatic Chemistry, Environmental Statistics, Environmental Microbiology, Env. Engineering Principles, Public Health Fundamentals, Electrochemistry/Corrosion, Water Resources Policy & Economics, Politics of Developing Areas

2010-12 **Cognizant Technology Solutions** – Pune, India
Programmer Analyst, Innovation Lead (10/10 – 05/12)
- Business Intelligence and Data Analytics for Merck Pharma

AWARDS

2021 Wunderkind 2021 *(early career heroes of science and medicine in North America)*, STAT/Boston Globe
2020 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, American Assoc. for Adv. of Science
2017 Graduate Student of the Year (*university-wide*), Virginia Tech
2015 Water Is Life Award, American Civil Liberties Union Michigan
2014 Engineers Without Borders-USA Global Leadership scholarship (*national*), Black and Veatch Foundation

SKILLS

Professional: 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 experiments, lab probes, spectrophotometers, sample characterization (assisted with ICP-MS, ESEM, XRD, XRF)
Statistical software: R, Excel, SPSS Statistics, Qualtrics, QDA Miner, Minitab
Programming languages: WordPress, HTML, C, C++, Pascal, SQL, Markdown

SCIENTIFIC AND POPULAR SCHOLARSHIP

- Total 17 peer-reviewed articles (902 citations), including in *Water Research, Journal of Exposure Science and Environmental Epidemiology, Environmental Science: Water Research and Technology, Environmental Science and Technology, CORROSION,* and *Journal of Water and Health.* Total conference talks = 31.
- *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, Undark, Scientific American, Retraction Watch
- *Research/data websites launched and curated:* www.uswaterstudy.org, www.flintwaterstudy.org (1M+ visits)

SERVICE

- U.S. EPA "Social and Community Science" *Federal committee Expert Member* (2022-present).
- 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, US Stockholm Junior Water Prize judge.
- *Referee for journals (2016+)*: American Journal of Public Health, Environmental Science and Technology, Environmental Science and Technology Letters, Journal of Water and Health, PNAS, Water Research.