

LAUREN M BUTLER

EDUCATION

Columbia University | New York, NY 2017

M.S.E. Earth and Environmental Engineering

- Notable classes: Environmental Data Analysis and Modeling, Global Assessment with Remote Sensing, Development and Management of Water Systems
- Notable Projects: Statistical analysis of contamination plume trends at Bingham Canyon Mine, impacts of abandoned mine disasters and liability, wastewater treatment optimization for Rio de Janeiro, measurement and trend analysis of gas fluxes from urban bioretentions

University of Minnesota | Minneapolis, MN 2012

Bachelor of Arts in Dance

Bachelor of Mechanical Engineering

- Notable Projects: Optical technology to count surgical instruments, knee biomechanics measurement for injury prevention, measurement of airborne viruses and bacteria, residential solar thermal design

EXPERIENCE

Self-employed | New York | Part time Jan 2018-Present

- Ergonomic movement educator for postdoc research scientists at Columbia University
- Financial consulting for an arts-related not-for-profit organization
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Education Consultant | **EcoMoves** | New York | Part time Sept 2017-Present

- Taught middle school students about the environment using dance and creative movement
- Developed “The Nature Games” in which students embody ecosystem risks and feedback loops

Staff Research Associate | **Columbia University** | New York | Part time Feb 2017-Jan 2018

Columbia Water Center, Earth Institute

- Analysis of temporal and spatial trends in water quality data, in Peru and the U.S.
- Created a decision-making framework for field measurement options in developing regions
- Studied interaction between long-term environmental monitoring and short-term climate risks
- Compared sources for water quality and mining production data and compiled database
- Trained environmental monitoring committee in Peru on water quality testing
- Developed international research partnerships with government, communities, mines, not-for-profits

Artistic Director | **Resonant Dance** | New York | Part time Dec 2016- Present

- Founded and directed a dance company, choreographed science and environmental collaborations
- Partnered with NGOs, researchers, and community stakeholder groups for public dance presentations

Graduate Research Assistant | **Columbia University** | New York | Part time May-Dec 2016

Columbia Water Center, Earth Institute

- Analyzed trends in concentrations of heavy metals, spatial and temporal variation in Peru
- Compared to environmental quality standards to identify violation trends, explored attributions
- Statistical modeling of metal concentrations, with flow and mine production as predictors

Project Coordinator | **Fundación Ingenieros en Acción** | Bolivia | Full time Sep 2012-Jun 2015

- Managed field work for rural water, energy, sanitation, and research projects
- Tested pilot in-situ, scalable water quality measurement methods compared to existing tech
- Developed field test method for coliform and E. coli and calibrated to lab results
- Built, calibrated apparatus from local materials for deep well characterization and diagnosis

- Calculated increase in potable water use due to transition from decentralized to centralized sanitation
- Evaluated rural locations to monitor wind pump performance and use for small-scale irrigation

Consultant | University Opera Theater | Minneapolis MN | Part time Feb-July 2012

- Designed, built, and programed a wearable Internet of Things sensor system
- Choreographed with system integration enabling dancers' movement to control music in real-time

PUBLICATIONS AND PRESENTATIONS

Butler, L.M., Lall, U., Bonnafous, L. **2018.** Cumulative heavy metal contamination in mining areas of the Rimac, Peru basin. *Journal of Cleaner Production.* *In review.*

Butler, L. 2018. Dance and Mixed-Media Performance for Building Scientific Understanding and Environmental Respect. *Consilience: The Journal of Sustainable Development.* Vol 19 Iss. 1

Knowledge was power, now data is: case studies of water resource development in Latin America, 2017
International Sustainable Development Conference | Poster presentation

Butler, L. 2018. Dance and Mixed-Media Performance for Building Scientific Understanding and Environmental Respect. *Consilience Journal of Sustainable Development,* Vol. 19, Iss. pp183–195

Asset-Based Methodologies for Water Infrastructure and Technology, 2013
International WaTER Center Conference, University of Oklahoma | Oral Presenter

Mazzola, G., Walsh, D., **Butler, L.,** Polukeyev, A. **2013.** Visualization Technologies for Music, Dance, and Staging in Operas. *Leonardo Journal,* Vol 19 Issue 3

CHOREOGRAPHY

Seahorse Suite in Sea	Resonant Dance	Lilac Steamboat, Hudson River	Oct 2017
Creative Destruction	Resonant Dance	Gowanus Canal, Brooklyn	Jun 2017
Water, water everywhere	Global Water Dances	Red Hook Pier, Brooklyn	Jun 2017
After Nature	231 Projects	Chelsea galleries, NYC	May 2017
Girls Wanna	She is Free Conference	Playstation Theater, NYC	Oct 2016
Earthaven	HATCH Presenting Series	Jennifer Muller/The Works NYC	Apr 2016
Unbounded	U. of Columbia CoLab	Latham Playhouse, NYC	Dec 2015
sin nombre	HATCH Presenter Series	Jennifer Muller Studio, NYC	Oct 2015
sin-ella excerpt	Wayruru Dance Company	Espacio Nuna, La Paz	May 2015
El Agua es de Genero	ArteMóvida	Kinesfera, La Paz	Dec 2014
El Agua es Valiosa	Independent short film	Salt Flats, Bolivia	Dec 2013
Voices of Fire	Self-produced concert	TekBox Theater, Minneapolis	May 2012

PROFESSIONAL MEMBERSHIP

Cancer ART-SCI Network	2018-Present
Engineers Without Borders-USA	2007-Present
American Society of Mechanical Engineers	2009-Present
American Society of Civil Engineers	2016-Present
American Society of Heating and Air-Conditioning Engineers	2011-2012
Society of Women Engineers	2008-2010

PROFESSIONAL SERVICE

Board of Directors, Engineers In Action, Tulsa, OK	2016-present
Professional Mentor, Engineers Without Borders, Columbia University	2017-present

Mentored water-focused student group Aquanauts, Columbia University	2015-2016
Planned panel “Water: Tipping the Scale from Conflict to Cooperation”, Columbia University	2016
Nepal Sanitation Ideation Lab mentor, Archimedes Project at Columbia University	2016
Wrote for blog “Engineering partnership in Bolivia for community development”	2012-2015

SKILLS

Rstudio | ArcMAP | ENVI | AutoCAD | SolidWorks | Pro/ENGINEER | LabVIEW | Minitab | HTML C/C++
Max 6 multimedia | Arduino | Sensors | Audiovisual Technology for Performance
Ballet | Horton, Limón, Alexander | Acting | Classical Piano | Yoga, Pilates | Cuban salsa, Bachata, Rumba, Tango
Education | Performance production | Wilderness Medicine | Spanish Fluency