

Phillip Nicholas Turman-Bryant

EDUCATION

Ph.D. Candidate in Systems Science

Graduate Certificate in Computer Simulation and Modeling

Portland State University, Portland, OR

M.S. in Energy, Technology, and Policy

Humboldt State University, Arcata, CA

B.S. in Mathematics, Minor in Comparative Sociology

University of Puget Sound, Tacoma, WA

WORK EXPERIENCE

Data Analyst at the Sustainable Water, Energy and Environmental Technology Lab - sweetlab.org

- Analyze data from remote sensors on a variety of development technologies, including latrines, water pumps, water filters, improved cookstoves, and sanitation stations; over one thousand low powered, cellular enabled sensors have been deployed in fifteen countries
- Develop machine learning algorithms to predict pump failure, decrease pump downtime, and improve monitoring and evaluation of water pump projects
- Develop models to simulate health impacts from development interventions (e.g., clean water consumption, latrine adherence, improved indoor air quality)
- Explore the information and development technology nexus: how real-time data from remote sensors can be used to influence end-user behavior, facilitate financing, and measure impact

Renewable Energy Research Engineer at the Schatz Energy Research Center – schatzlab.org

- Design and conduct research related to off-grid energy access, solar energy, off-grid energy system testing and evaluation, and stakeholder engagement with the leading technical organization in the field of off-grid solar energy
- Conduct market intelligence research to map the flow of products, information, and finance through the off-grid lighting supply chain in Kenya.
- Investigate pay-as-you-go (PAYG) financing and information and communication technology (ICT) capabilities for promoting energy access
- Perform product testing for solar lanterns and solar home systems according to International Electrotechnical Commission (IEC) minimum quality standards

Co-Director of New Earth Works at Tierra Nueva – tierra-nueva.org

- Core leader and administrator of a small non-profit with a half million-dollar budget and a staff of twenty in Burlington and six national staff in central Honduras
- Skagit Valley: Establishing organizational structure, facilitating communication and conflict resolution, and helping oversee and coordinate staff responsibilities
- Honduras: Research, plan, and execute sustainability proposals related to water purification, preventative health, and micro-credit and micro-enterprise development
- Manage three social enterprises that provide supportive employment for people in recovery from addiction, former jail inmates and gang members, and recent immigrants

Head Coordinator of New Earth Farm – farm.newearthworks.org

- Manage a 60 member CSA on five organically certified acres of vegetables, fruit, and pasture
- Coordinate four part-time workers, over fifteen volunteers, and inmates and youth from juvenile detention completing community service hours

Renewable Energy Intern with Lopez Community Land Trust

- Assist with construction of eleven net-zero energy homes for families with limited resources
- Training in conventional and sustainable building design, solar hot water system design and installation, photovoltaic system design and installation, and energy conservation

AWARDS

Link Foundation Energy Fellowship at Portland State University – \$57,000

Graduate fellowship for PhD students pursuing innovative research related to the societal production and utilization of energy

National Science Foundation Integrative Graduate Education and Research Traineeship Fellow (NSF IGERT) at Portland State University – \$100,000

Graduate fellowship for PhD students pursuing interdisciplinary research in ecosystem services in urbanizing regions

Ryoichi Sasakawa Young Leaders Fellowship at Portland State – \$14,000

Graduate program to nurture future leaders who will transcend geopolitical, religious, ethnic, and cultural boundaries in the world for the peace and well-being of humankind

Schatz Energy Fellowship at Humboldt State University – \$20,000

Graduate fellowship awarded to a student pursuing studies related to renewable energy or energy efficiency; also provides an opportunity to work at the Schatz Energy Research Center

Au Sable Graduate Fellow – \$1,000

Graduate fellowship for students with exceptional abilities, interests, and leadership potential in environmental stewardship and Christian commitment

Krista Colleague through the Krista Foundation for Global Citizenship – \$1,000

Trustee Scholar at the University of Puget Sound – \$60,000

A merit-based scholarship for exemplary academic achievement

Bakke Scholar at the University of Puget Sound – \$40,000

A four-year scholarship program awarded to four freshmen each year for demonstrated Christian commitment, academic excellence, and leadership

Collier Institute Scholar at the University of Puget Sound – \$4,000

Awarded to one upper-level undergraduate student with a demonstrated commitment to and achievement in multidisciplinary studies

Carol Read Scholar for Summer Research at the University of Puget Sound – \$2,500

One of two recipients of a grant from the university to research and give a public presentation on an issue addressing a public need

Edward Goman Memorial Scholarship at University of Puget Sound – \$1200

An endowed scholarship awarded to selected students majoring in mathematics and computer science

Washington State Scholar

One of three high school seniors from Pierce County recognized for academic achievement, community service, and leadership

PUBLICATIONS

Turman-Bryant, Nick, Peter Alstone, Dmitry Gershenson, Dan Kammen, Arne Jacobson. (2015) *The Rise of Solar: Market Evolution of Off-Grid Lighting in Three Kenyan Towns*. Lighting Global Website.

Turman-Bryant, Nick, Peter Alstone, Dmitry Gershenson, Dan Kammen, Arne Jacobson. (2015) *Quality Communication: Quality assurance in Kenya's off-grid lighting market*. Lighting Global Website.

Alstone, Peter, Dmitry Gershenson, Nick Turman-Bryant, Dan Kammen, Arne Jacobson. (2015) *Off-grid Power and Connectivity: Pay-as-you-go financing and digital supply chains for pico-solar*. Lighting Global website.

Jacobson, Arne, Ga Rick Lee, Meg Harper, Nick Turman-Bryant, Asif Hassan. (2014) *Current Status of Off-Grid Solar Primer*. Internal Report for World Bank Africa Energy Practice.

Jacobson, Arne, Ga Rick Lee, Meg Harper, Nick Turman-Bryant, Peter Alstone, Asif Hassan. (2014) *Trends in Off-Grid Solar*. Internal Report for World Bank Africa Energy Practice.

PRESENTATIONS

Turman-Bryant, Nick. (2016) *Predicting Failure: Leveraging Data to Improve Development*. NSF IGERT Symposium at Portland State University.

Turman-Bryant, Nick. (2016) *Using Sensors to Improve Cookstove Monitoring and Financing*. InStove Summit at Cottage Grove, Oregon.

Hackett, Steven, Turman-Bryant, Nick. (2014) *The Economics of Energy and Climate Policy*. Public Presentation to Sierra Club North Group in Eureka, California.

Bryant, Nick. (2004) *Academic Motivation and Critical Consciousness at a Local High School*. Public Presentation at Henry Foss High School.

RESEARCH EXPERIENCE

Optimizing Sanitation Collection Services in Nairobi, Kenya

In fulfillment of a GSMA contract, our team partnered with Sanergy to demonstrate how in-situ sensors could improve sanitation services for latrines located in informal settlements. Near-time feedback from forty sensors were combined with machine learning algorithms to estimate latrine fill levels and facilitate dynamic collections. Outcomes were compared against a control group in a difference-in-differences experimental design.

Quality Assurance for Pico-Solar Products in Off-Grid Markets

In fulfillment of my master's thesis and a deliverable for an International Finance Corporation (IFC) contract with the Schatz Energy Research Center, our team investigated the appropriate policies, regulations, and market-support mechanisms needed to provide quality assurance for pico-solar products in off-grid lighting markets. This included over three hundred surveys and semi-structured interviews with key informants in the off-grid lighting supply chain in Kenya.

Trends in Off-Grid Solar

In fulfillment of a World Bank contract with the Schatz Energy Research Center, our team investigated technology trends associated with solar home system components (photovoltaic modules, batteries, charge controllers, LEDs, and appliances).

Modeling the Price Elasticity of Demand for Pico-Solar Products

In partnership with SolarAid, the largest distributor of pico-solar products in Africa, and researchers at the University of California, Berkeley, I analyzed the price elasticity of demand associated with pico-solar products in Africa. This research will be used to make policy recommendations regarding value-added taxes (VATs) and import duties on pico-solar products.

PAYG Financing for Pico-Solar Products

In partnership with researchers at the University of California, Berkeley, we investigated trends and technologies associated with pay-as-you-go financing for household energy products.

Educational Inequality at a Public High School

In partnership with the Tacoma Public School District, I collected one hundred surveys and conducted ten semi-structured interviews to analyze the factors that influence students' participation in different academic tracks.

SOFTWARE PACKAGES

R statistical computing package

eQUEST building energy modeling software

OpenRefine data cleaning package

NetLogo agent based simulation

Vensim dynamic systems modeling software

Arena discrete event simulation software

ACADEMIC SOCIETIES

Phi Beta Kappa Honor Society

Phi Kappa Phi Honor Society

VOLUNTEER EXPERIENCE

Certified Foster Care Provider with Morrison Child and Family Services
Portland, Oregon

Juvenile Detention Chaplain for Skagit County Youth and Family Services
Mount Vernon, Washington

Teacher's Assistant for a course on urban sociology and the church
Trinity Lutheran College, Issaquah, Washington

English Teacher with Corporación El Encuentro
Peñalolen, Santiago, Chile

Young Adult Mentor with Young Life
Tacoma, Washington

Classroom Assistant with Lowell Middle School
Oakland, California

LANGUAGES

English: Excellent in listening, speaking, reading, and writing

Spanish: Good in listening, speaking, reading, and writing