Rachel Schweiker

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Curriculum Vitae

DESIRED OCCUPATIONAL FIELDS

Data visualization, human-computer interaction, information management and analysis, computational statistics, data journalism

WORK EXPERIENCE

Oct 2015 – Present
Belmont, MA, USA

VocaliD
Content Developer

Design visualizations and edit text for pitch deck, executive summary, business plan, and email campaigns. Manage interactive data visualization of 10,000+ voice donors. Attend networking and outreach events. Guide message, brand, and direction of this early stage company.

Feb 2015 – Sept 2015
Somerville, MA, USA

Understory Weather at Greentown Labs
GIS Intern

Analyzed spatial data collected by dense networks of small weather stations in Midwestern cities to find weather phenomena of interest to scientists and insurance companies. Published visualizations featured on Boston.com, CBS Boston's WBZ-TV News, and front page of Hacker News. Improved spatial interpolation methods to include geographical variables, calculated accuracy of sensors and found corrections for misaligned stations. Created maps using R, QGIS, and Illustrator, created marketing materials (white papers and brochures), made UI/UX mockups.

June 2013 – Sept 2014
Berlin, Germany

Max Delbrück Center for Molecular Medicine (MDC)
AG Poy: MicroRNA and Molecular Mechanisms of Metabolic Diseases
Lab Technician

Preformed microscopic analysis to quantify the phenotypic effects of the loss or overexpression of certain proteins and microRNAs on pancreatic islets of transgenic mouse models to understand mechanisms of insulin-resistance. Acquired knowledge in the operation of microscopes (widefield, confocal, fluorescent) and various software for image analysis.

June 2012 – May 2013
Boston, MA, USA

Dr. Finnerty's Genomic Biology Laboratory
Undergraduate Research Opportunity Program (UROP);
Undergraduate Researcher

Secured independent research funding through UROP to investigate the differential mRNA expression that causes populations of sea anemones to adapt differently to heat stress based on their latitude of origin.

Project Title: "The Genetic Basis of Local Thermal Adaptation in the Starlet Sea Anemone, *Nematostella vectensis*"

Sept 2010 – Sept 2011
Boston, MA, USA

Dr. Fulweiler's Coastal Biogeochemistry Laboratory
Undergraduate Researcher

Investigated changes in the benthic nitrogen cycle, particularly an increase of the greenhouse gas, Nitrous Oxide, in response to hypoxic water and pollution in New England estuaries.

June 2010 – Aug 2010
Minneapolis, MN, USA

Minnesota Ovarian Cancer Alliance
Office volunteer

Assisted with the operation of fund-raising benefits and galas, recorded inventory of donations and event supplies

June 2009 – Aug 2009
Chaska, MN, USA

University of Minnesota Landscape Arboretum
Science Discovery Zone Aid

Taught children the science theme of the week, such as how to use a magnify glasses, sort types of seeds, identify plant parts, and gardening techniques.

EDUCATION

Sept 2009 – May 2013
Boston, MA, USA

Bachelor of Arts in Marine Science
Minors in Geography and Biology
Boston University; College of Arts and Sciences
GPA 3.92/4.0

Relevant courses: Probability and Statistics, Calculus 2, Physics, Intro to Programming with C++, Digital Image Processing, Geographic Information Systems, Remote Sensing, Marine GIS, Climate and Environment

Jan 2012 – May 2012
Quito, Ecuador

Tropical Ecology and Spanish Exchange Program
Universidad de San Francisco de Quito

Developed, conducted, and presented original research projects titled:

- "Quantifying species richness and maximum plant height along an elevational transect on Volcán Cotopaxi"
- "The influence of leaf orientation, texture, and drip tip length on epiphyll cover"
- "Variability in faunal trail use in the Amazonian rainforest"
- "Species specific group sizes and activity periods of monkeys in Yasuní National Park, Ecuador"
- "Epiphyte species richness in emergent trees in Yasuní National Park"
- "Foraging relationships between blue-footed boobies (***Sula nebouxii***) and the brown pelican (***Pelecanus occidentalis***) near Puerto Lopez"
- "Sea Hare (***Dolabrifera dolabrifera***) camouflage quality and color change in rocky intertidal shores in Puerto Cayo, Montañita, and Puerto Lopez"
- "The ideal habitat of the purple urchin (***Echinometra vanbrunti***) in the rocky intertidal zone near Puerto Lopez, Ecuador"

Sept 2011 – Dec 2011
Boston, MA, and
Wee Wee Caye, Belize

Boston University Marine Semester
BU Marine Program

Developed, conducted, and presented original research projects titled:

- "The effects of tidally driven temporal variation on measuring intertidal cohesive sediment erosion threshold"
- "The ability of ***Fundulus majalis*** to form a school in varying visual conditions"
- "The vile vortex: Does the Bermuda triangle deserve its reputation? An Investigated with ArcGIS"
- "An investigation of seismic fractures of Belizean coral reefs using the SeaView camera"

PUBLICATIONS

Aug 2015 "Capturing strong downbursts from a supercell in Kansas City". Blog Post.
Rachel Schweiker, *Alex Kubicek, Nicole Homeier*

July 2015 "EF1 tornado hits Kansas City, damaging buildings". Blog Post.
Rachel Schweiker, *Alex Kubicek*

July 2015 "Understory sensor data: Weather monitoring networks accurately measuring hail and wind". White Paper.
Nicole Homeier, ***Rachel Schweiker,*** *Alex Kubicek*

June 2015 "Tracking tropical storm Bill through Dallas". Blog Post.
Rachel Schweiker, *Alex Kubicek*

May 2015 "Tracking cold fronts with hyperlocal weather networks". Blog Post.
Rachel Schweiker

May 2015 "Understory captures evidence of temperature inversion in Kansas City". Blog Post.
Rachel Schweiker, *Nicole Homeier, Alex Kubicek*

Aug 2014 "A revised StellaBase enables comparative transcriptomic studies on multiple populations, life stages, and environmental conditions in the model cnidarian, *Nematostella vectensis*"
Tristan Lubinski, Brian Granger, Derek Stefanik, Lauren Friedman, Sarah McAnulty, ***Rachel Schweike****r, John Finnerty*
Submitted to: Nucleic Acids Research, in revision

AKNOWLEDGED CONTRIBUTIONS

July 2015 *miR-184* Regulates Pancreatic β-Cell Function According to Glucose Metabolism. *Tattikota et al.* The Journal of Biological Chemistry.

Nov 2014 Spatial and historic variability of benthic nitrogen cycling in an anthropogenically impacted estuary. *Foster and Fulweiler.* Frontiers in Marine Science.

March 2014 (Nearly) A Decade of Directly Measured Sediment N2 Fluxes: What Can Narragansett Bay Tell Us About the Global Ocean Nitrogen Budget? *Fulweiler and Heiss.* Oceanography.

Jan 2014 "Argonaute2 mediates compensatory expansion of the pancreatic β cell." *Tattikota et al.* Cell Metabolism.

Dec 2012 Impacts of long-term fertilization on salt marsh tidal creek benthic nutrient and N-2 gas fluxes. *Vieillard and Fulweiler.* Marine Ecology

CONFERENCE PRESENTATIONS

Oct 2012 "The genetic basis of local thermal adaptation in the starlet sea anemone *Nematostella vectensis*"
***Rachel Schweiker**, Tristan Lubinski and John Finnerty*
Poster presentation at the Boston Undergraduate Research Opportunity Program conference

Sept 2012 "Investigating the genetic basis of local thermal adaptation in *Nematostella vectensis*"
Talk at second annual *Nematostella* research conference

ACTIVITIES & AWARDS

May 2013 **Excellence in Marine Science Award**
- Valedictorian of undergraduate program

May 2013 **Graduated with Summa Cum Laude Latin Honors**
- Top 5% of graduating class, "with highest honor"

May 2013 **Marine Science Graduation Student Speaker**
- Elected by classmates to speak at graduation ceremony

May 2013 **Phi Beta Kappa Member**
- Oldest and most prestigious honors society in the US

Aug 2012 – May 2013 **Marine Science Association, Treasurer**
- Organized film screenings, community service events, lectures, harbor cruise for 100+ attendees
- Developed club website, designed t-shirts and event posters

Feb 2013 – March 2013 **Boston University Marine Lab Tour Guide**
- Introduced prospective students to science lab equipment

Jan 2010 – May 2013 **College of Arts and Sciences Dean's List** (all semesters)
- Awarded to students with a GPA above 3.5

Sept 2009 – May 2013 **The University Scholarship**
- Awarded over half of tuition (~$13,000/ semester, $104,000 total) due to merit

Sept 2009 – May 2010 **Boston University Honors Program**
- Top 10% of incoming freshman invited to join in special curriculum

June 2009 **International Baccalaureate Certificate and Medallion**
- Passed higher level IB tests for English, Math, Art, standard level Physics, Spanish, and History, and completed 60 hours of community service

April 2006 **National History Day State Champion**
- Traveled to Washington DC to present project about Boston Marathon runner at the national competition

SKILLS

Computer

Adobe Illustrator, Photoshop, InDesign	VocaliD and self-taught
QGIS, R, Mapbox Studio, SQL, Git, Google Maps API	Self-taught, practiced at Understory
Image J, Fiji, Cell Profiler, GIMP, Imaris, Zen	Image analysis at Max Delbrück Center
HTML, CSS, Javascript, and Python	Self-taught and Finnerty Lab
ArcGIS 10, ENVI, C++	Courses at Boston University
Wordpress website development	Marine Science Association and Max Delbrück Center
Microsoft Word, Excel, PowerPoint	High school through present work

Laboratory

Confocal, standard light and fluorescent microscopy; isolation, embedding, sectioning of mouse brain, pancreas, fat, liver; immuno-fluorescence, genotyping, animal handling	Max Delbrück Center
mRNA-seq library preparation, PCR, population management, RNA isolation, spectrophotometry, gel electrophoresis	Finnerty Lab
Gas chromatography, lab sterilization, fieldwork, Millipore, sediment incubations	Fulweiler Lab

Social

Writing	Blog posts and White Paper at Understory, Business Plan at VocaliD
Teaching	Trained 4 new lab technicians at Max Delbrück Center
Public speaking for data presentations	Finnerty Lab, Max Delbrück Center
Collaborating with colleagues	All research and work experiences
Group leadership	Marine Science Association treasurer
Guiding Tours	Marine lab tour guide

Organizational

Maintain efficient schedule to balance projects	Max Delbrück Center, Understory, VocaliD
Inventory and ordering, manuscript editing	Max Delbrück Center
Kept records of heat stress and growth anemone trials	Finnerty Lab
Labeled and organized sediment, water, plant samples	Fulweiler Lab

Language

English	Native Language
Spanish	B1
German	A1