Rowan Callahan

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Objective

Develop data analysis skills with a special emphasis on unsupervized learning and large datasets. I would like to find new areas to apply these skills in a way that is relevant to human health.

Education

Cornell University, College of Agriculture and Life Sciences, Ithaca, NY
B.S. Biological Engineering, awarded May 2018

Experience and Interests

Academics

Took classes in Machine Learning for Biomedical Research, Immunology, Calculus-Based Statistics, Biochemistry, Linear Algebra, Comparative Physiology, and Calculus-Based Physics: Electricity and Magnetism.

Research Experience

Fall 2018 - present. Research Technician, Dr. Ilana Brito Lab, Cornell University, Ithaca, NY – Worked with genomic and metagenomic datasets exploring patterns of Antibiotic Resistance genes, also provided assistance with mouse experiments and lab maintenance.

Spring 2017 – Spring 2018. Research Assistant, Dr. Ilana Brito Lab, Cornell University, Ithaca, NY – Assisted in microbiome data processing by creating OTU tables and summary files from sequence data. Performed data analysis using machine learning techniques: elastic net regression, random forest regression, and Bray-Curtis PCA. Looked at differences in the microbiomes of mice with and without certain disease traits.

Summer 2017. Intern, Dr. Noah Sather Lab, Center for Infectious Disease Research, Seattle, WA – Transfected and cultured cells with novel plasmids to increase serum expression of HIV surface proteins. Worked in Bio Safety Level 2+ facility.

Spring 2016 – Spring 2017. Research Assistant, Dr. Minglin Ma Lab, Cornell University, Ithaca, NY – Worked with micro contact printing to develop a technique to study cell curvature. Assisted with implants of micro devices in animal models. Trained in Bio Safety Level 1 sterile cabinets.

Software Experience

Snakemake: 1 year – Familiar with creating and running pipelines for data analysis.
Python: 3 years– Familiar with packages such as Scikit-Learn, Scikit-Bio, Numpy, Pandas, and Keras.
Java: 1 year – Took Cornell ENGRD 2110: Intro to Object Oriented Programming.
R: 2 years – Comfortable with R studio and basic tidyverse usage e.g. dplyr, reshape2, ggplot2, purrr.

Papers

Guss JD, Ziemian SN, Luna M, Sandoval TN, Holyoak DT, Guisado GG, Roubert S, **Callahan RL**, Brito IL, van der Meulen MCH, Goldring SR, Hernandez CJ. The effects of metabolic syndrome, obesity, and the gut microbiome on load-induced osteoarthritis. (2018) Osteoarthritis and Cartilage. https://doi.org/10.1016/j.joca.2018.07.020

Posters

Early Joint Degeneration After Mechanical Overload is Not Sensitive to Obesity. Marysol Luna; Jason D. Guss; Laura S. Vasquez-Bolanos; Adrian J. Alepuz; Jasmin Strong; **Rowan Callahan**; Ilana L. Brito; Marjolein C.H. van der Meulen; Steven R. Goldring; Christopher J. Hernandez. Poster session presented at: February 3rd 2019, ORS Annual Meeting

Varsity Athletics

Cornell Lightweight Rowing Team (IRA Division I): Varsity athlete, 2014 to 2017