ANNA YEATON

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EDUCATION

New York University, Vilcek Institute of Graduate Biomedical Sciences *September 2017 -*
PhD candidate in Systems and Computational Biomedicine
University of Massachusetts, Amherst *September 2013 - May 2017*
B.S. Biology, iCons (Integrated Concentration in Science) program

EXPERIENCE

New York University, Vilcek Institute of Graduate Biomedical Sciences September 2018 - Present
Graduate Assistant – Co-advised by Dr. Iannis Aifantis and Dr. Aristotelis Tsirigos *New York, NY*

- ***Project: Dissecting drivers of leukemia using single-cell RNA sequencing.***
  - Led collaborative project leveraging large scale single-cell RNAseq datasets of mouse and human hematopoietic cells to dissect the role of TET2 mutation in hematopoietic malignancy (paper in review).
  - Created a single-cell RNAseq analysis package (scooter) and pipeline (scooterRMD) in R, focused on reproducibility and flexibility to expedite routine analysis by providing data-agnostic methods that work with multiple file/object formats.. The scooter framework is used widely in the Aifantis and Tsirigos labs.
- ***Project: Using deep learning to study the spatial dynamics of lung cancer using histopathology images.***
  - Led project interrogating growth patterns in lung histopathology slides using methods engineered by our lab and open-source methods, such as Inception.
  - Engineered new methods in Python and PyTorch for interrogating histopathology slides, leveraging self-supervised methods, graph based methods, and traditional image analysis to explore the relationship between spatial proteomic data and histopathology images (paper in preparation).
  - Solved registration problem between adjacent tissue slices in histopathology.
  - Created a pipeline to evaluate hyper-parameters for deep learning models.
  - Supervised and mentored two Master's students as they completed Master's projects.

Microsoft Research May 2021 - August 2021
Health Futures Intern *Redmond, WA*

- Led project exploring the use of optimal transport to deep learning applications in histopathology (paper in preparation).

Agios Pharmaceuticals June 2017 - August 2017
Bioinformatics Intern *Cambridge, MA*

- Created a pipeline to pull data from multiple publicly available data sources which helped the team ask questions about immune cells.

University of Massachusetts, Amherst September 2014 - May 2017
Research Assistant *Amherst, MA*

- Completed an Honor's thesis studying the role of ATP-Binding Cassette(ABC) transporters in the maintenance of normal function in stem cells of the gut using bioinformatic methods, which was a novel angle for the lab.

University of Georgia May 2016 - Aug 2016
NSF funded Research Assistant *Athens, GA*

- Analysed electrocardiograms using novel data-mining and classification techniques to predict the occurrence of several heart conditions.

SKILLS

Methods: Machine Learning, Deep Learning, Bayesian Statistics
Programming Languages: R, Python, Bash
Machine Learning and Deep Learning Libraries: Caret, PyTorch, Tensorflow
Single-Cell RNA Sequencing Libraries: Monocle, Scran, Seurat
Sequencing Libraries: bamtools, bwa, GATK, samtools, STAR
Imaging Libraries: CellProfiler, QuPath
Languages: English (Fluent), Japanese (Conversational)

SOFTWARE AND PIPELINES

scooter: scRNA-seq analysis package with custom, modular functions.
scooterRMD: scRNA-seq analysis pipeline focused on reproducibility. Designed for novice coders and experienced bioinformaticians.
DL-hyperparameter: Pipeline to evaluate hyper-parameters for deep learning models.
Alu detection: Pipeline to detect retrotranscriptionally active Alu elements.

AWARDS AND SCHOLARSHIPS

TL1 Fellowship - $60,000 August 2019 - August 2021
NYU Clinical and Translational Science Institute

· The TL1 training program is offered through NYU Langone's Clinical and Translational Science Institute to help cultivate predoctoral and postdoctoral scholars' careers in translational research.

Special MacCracken Award $500 May 2019
Vilcek Institute of Graduate Biomedical Sciences

TEACHING

Teaching Assistant – Machine Learning Fall 2018, Fall 2019, Fall 2020, Fall 2021
Vilcek Institute of Graduate Biomedical Sciences

· Created and taught machine learning labs to Masters and PhD level students.
· Gave select lectures to the class on classification and performance estimation.
· Created and graded homework.

Teaching Assistant – Exploratory Data Analysis and Bio-statistics Fall 2019
Vilcek Institute of Graduate Biomedical Sciences

· Created and graded homework for Masters and PhD level students.

PUBLICATIONS

Wang et al., Surface antigen-guided CRISPR screens identify regulators of myeloid leukemia differentiation. *Cell Stem Cell.* (2021).

Quiros et al. Adversarial learning of cancer tissue representations. *MICCAI.* (2021).

Yeaton et al., Dissecting the mechanisms of hematological malignancy driven by TET2 mutation. (in review).

Yeaton et al., Hierarchical Optimal Transport for Comparing Histopathology Datasets. (in review).