Lillian Petersen

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EDUCATION

Harvard University | *Class of 2024* | Applied Math & Molecular Biology | GPA: 3.99/4.0

Relevant Classes:

Machine Learning	NLP	Algorithms	Statistics & Inference
Systems Programming	Vector Calculus	Linear Algebra	GWAS
Cellular Biology	Epigenetics	Immunology	Microscopy

PROGRAMMING SKILLS

Python C++ R git vim unix PyTorch Systems Programming Parallel Computing LaTex

EXPERIENCE

Buenrostro Lab, Harvard | *2023* | Engineering Transcription Factors *Cambridge, MA*

- Fine-tuning protein language models on transcription factor effector domains to enable the creation of more potent transcription factors for therapeutic use.

Liang Lab, HSPH | *2021-2023* | Genetic Analysis of Polycystic Ovarian Syndrome *Boston, MA*

- Created the largest to-date GWAS meta-analysis for polycystic ovarian syndrome (PCOS).
- Created GWAS meta analyses of 138 inflammation biomarkers, enabling huge advancements in the genetic understanding of inflammation.
- Studied how inflammation mediates the relationship between PCOS, obesity, and sex hormones.
- Paper in submission

CATALOG DNA | *2021* | Building a DNA platform for data storage & computation *Boston, MA*

- Computationally analyzed CATALOG's DNA data encoding scheme to enable more reliable DNA-based data storage.

McVicker Lab, Salk Institute | *2019* | Understanding Dysfunctional Gene Regulation *San Diego, CA*

- Computationally studied methods of gene activation using HiC, ATAC-seq, and RNA-seq data.
- Reproduced the Activity-by-Contact model of gene activation, then applied this model to study oncogene activation in Leukemia patients.

Descartes Labs | *2017-2018* | Early Warning System for Crop Failures *Santa Fe, NM*

- Created an early warning system to predict crop yields in every country in Africa 3–4 months before the harvest using satellite imagery.
- I processed 15 terabytes of daily satellite imagery, conducted a thorough validation, and have presented this work around the world.
- Peer-reviewed publication: doi.org/10.3390/rs10111726

Independent Research | *2017* | Effect of Climate Change on Crop Yields *Los Alamos, NM*

- Predicted crop yields to 2100 for every US county based on historical relationships between yields and heat extremes. Predictions are for three crop types and two emissions scenarios.
- Peer-reviewed publication: doi.org/10.3390/cli7030040

HONORS & AWARDS

Regeneron STS First Place | Cameron Impact Scholar | 3 ISEF Placements | ACM Cutler-Bell Prize

PRESENTATIONS

ASHG Annual Meeting | Poster Presenter | 2022
CGIAR Data in a Crisis Climate | Panelist | 2020
USAID | Hour Seminar | November 2018
FEWS NET | Hour Seminar | December 2018
AGU | Invited Oral Presenter | 2018
CGIAR Annual Meeting | Oral Presenter | 2019 & 2018
USDA | Hour Seminar | May 2018
IFPRI | Brown Bag Seminar | May 2018

PEER-REVIEWED PUBLICATIONS

Real-Time Prediction of Crop Yields From MODIS Relative Vegetation Health: A Continent-Wide Analysis of Africa
Impact of Climate Change on Twenty-First Century Crop Yields in the U.S.