

Lillian Kay Petersen

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EDUCATION

HARVARD COLLEGE

Cambridge, Massachusetts
INCOMING FRESHMAN

LOS ALAMOS HIGH SCHOOL

Los Alamos, New Mexico
Cum. Unweighted GPA: 4.0
Cum. Weighted GPA: 4.23

SKILLS

PROGRAMMING

Python • R • \LaTeX
Github • Unix • vim
Google cloud computing

LANGUAGE

German (AP class + immersion)

HONORS

Regeneron STS First Place Winner
Three ISEF Placements
Cameron Impact Scholar
LANL Gold Scholar

COMMUNITY

SCIENCE OUTREACH

Peer review scientific papers.
Elementary science fair judge.
Science speaker at community organizations

YOUTH

Violin teacher for children
Extensive work with foster and adopted children

INTERESTS

CLUBS

Science Bowl:
National Qualifiers
Eco Club (President)

MUSIC

Violin • Bavarian zither
Guitar

SPORTS

Cross Country • Track
Skiing • Ultimate Frisbee

EXPERIENCE

SALK | INTERNSHIP: ANALYZING EPIGENETIC ALTERATIONS IN LEUKEMIA

PATIENTS
2019 | San Diego, California

IIASA | INTERNSHIP: ESTIMATING POVERTY IN AFRICA WITH MACHINE LEARNING

Summer 2018 | Vienna, Austria

DESCARTES LABS | MENTORSHIP IN REMOTE SENSING AND DATA ANALYSIS

2017 | Los Alamos, NM

RESEARCH

ACTIVITY-BY-CONTACT MODEL TO PREDICT ENHANCER-GENE CONNECTIONS

Salk (McVicker's Lab) 2019 - 2020
Created an Activity-by-Contact model of gene activation based on the 3D structure of the genome, then applied this model to study oncogene activation in Leukemia patients.
Regeneron International Science and Engineering Fair (ISEF) qualifier
National Junior Science and Humanities Symposium (JSHS) qualifier
* Note: Most competitions were canceled or disrupted due to COVID-19

A COMPUTATIONAL TOOL TO INFORM COST-EFFECTIVE NUTRITION INTERVENTIONS IN SUB-SAHARAN AFRICA

2019
Predicted prevalence of malnutrition, developed novel specialized nutritious foods, and optimized a supply chain for malnutrition treatments to support sustainable development.
Intel ISEF 3rd Place in category
Intel ISEF: 3 special awards for international development, teamwork, and applicability

REAL-TIME PREDICTION OF CROP YIELDS FROM MODIS RELATIVE VEGETATION HEALTH: A CONTINENT-WIDE ANALYSIS OF AFRICA

2018
Created an early warning system to predict crop yields in every country in Africa 3–4 months before the harvest using satellite imagery.
Regeneron STS First Place Winner
Intel ISEF 1st Place in category
Intel ISEF: USAID Award for International Development
National JSHS 1st Place in category
Davidson Fellows Honorable Mention

IMPACT OF CLIMATE CHANGE ON TWENTY-FIRST CENTURY CROP YIELDS IN THE U.S.

2017
Predicted crop yields to 2100 for every US county for three crops and two future climate scenarios, based on historical relationships between yields and heat extremes.
Intel ISEF 3rd Place in category
National JSHS finalist

DETECTING CLIMATE CHANGE THROUGH MEANS AND EXTREMES

2016
Detected how the climate is changing in temp. and precip. means and extremes since 1950 for every weather station in the world, shown on an interactive map : (link).

EFFECT OF EL NINO ON NORTH AMERICAN WINTER WEATHER

2015
Analyzed correlations between El Nino and winter weather across the U.S. in order to predict the following winter's weather.

PUBLICATIONS

Peer-Reviewed Publications

Petersen, L.K. Real-Time Prediction of Crop Yields From MODIS Relative Vegetation Health: A Continent-Wide Analysis of Africa. Remote Sensing. 2018, 10, 1726.

Petersen, L.K. Impact of Climate Change on Twenty-First Century Crop Yields in the U.S. Climate. 2019, 10, 1726.

Student Publications

Petersen, L.K. Detecting Climate Change through Means and Extremes. New Mexico Academy of Science. 2016, 50, 26–46.

Petersen, L.K. Will it be a Good Ski Season? Correlation between El Nino and U.S. Weather. New Mexico Academy of Science. 2015, 49, 103–118.

INVITED TALKS

CGIAR Big Data Convention | Oral Presenter | Hyderabad, India, October 2019

Los Alamos National Labs | Seminar | Los Alamos, NM, May 2018

AGU | Invited Oral Presenter | Washington DC, December 2018

FEWS NET | Hour Seminar | Washington DC, December 2018

USAID | Hour Seminar | Washington DC, November 2018

Geo4Dev | Oral Presenter | San Francisco, November 2018

CGIAR Big Data Convention | Oral Presenter | Nairobi, Kenya, October 2018

Burney Research Group | Hour Seminar | UCSD, August 2018

USDA NASS | Hour Seminar | Washington DC, May 2018

IFPRI | Brown Bag Seminar | Washington DC, May 2018

GEOGLAM | Hour Seminar | UMD, May 2018

LINKS

Website: <http://lillianpetersen.github.io>

GitHub: <https://github.com/lillianpetersen>

Publons: <https://publons.com/researcher/1642637/lillian-kay-petersen/>