Lillian Kay Petersen

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EDUCATION

LOS ALAMOS HIGH SCHOOL
Los Alamos, New Mexico
Senior
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)

COMMUNITY

SCIENCE OUTREACH
Speaker for 7th grade classes, environmental centers, and other community organizations.
Elementary science fair judge.
Peer review scientific papers.

YOUTH
Violin teacher for children
Extensive work with foster and adopted children

INTERESTS

MUSIC
Violin • Bavarian zither
Orchestra

SPORTS
Cross Country • Track
Skiing • Racquetball

CLUBS
Eco Club (President)
National Honors Society
Mu Alpha Theta (Math Honors Society)

EXPERIENCE

SALK | Internship: Analyzing genetic mutations 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

JAHN RESEARCH GROUP | Group Member: LINK
UW-Madison

RESEARCH

ANALYZING GENETIC MUTATIONS IN LEUKEMIA PATIENTS
Salk (McVicker's Lab) 2019
Created a model to predict which open chromatin regions (regulatory regions in the genome) control the expression of different genes, and used this model to analyze chromatin mutations in leukemia patients.

A NOVEL COMPUTATIONAL TOOL TO INFORM COST-EFFECTIVE NUTRITION INTERVENTIONS IN SUB-SAHARAN AFRICA 2018 – 2019
Predicted prevalence of malnutrition, developed novel specialized nutritious foods, and optimized a supply chain for malnutrition treatments to support sustainable development.
- Intel International Science and Engineering Fair (ISEF) 3rd Place in category
- Intel ISEF: 3 special awards for development, teamwork, and applicability

PREDICTING FOOD SHORTAGES IN AFRICA FROM SATELLITE IMAGERY 2017 – 2018
Created an early warning system to predict crop yields in every country in Africa 3–4 months before the harvest using satellite imagery.
- Intel ISEF 1st Place in category
- Intel ISEF: USAID special award for development
- National Junior Science and Humanities Symposium (JSHS) 1st Place in category

AMERICA'S FARMING FUTURE: THE IMPACT OF CLIMATE CHANGE ON CROP YIELDS 2016 – 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
2015 – 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).

WILL IT BE A GOOD SKI SEASON? CORRELATIONS BETWEEN EL NINO AND SNOWFALL 2014 – 2015
Analyzed correlations between El Nino and winter weather across the U.S. in order to predict the following winter's weather.

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.

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

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**