Lillian Petersen

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EDUCATION

LOS ALAMOS HIGH SCHOOL
Los Alamos, New Mexico
Sophomore
Cum. GPA: 4.0 / 4.0
currently in precalculus

SKILLS

PROGRAMMING
Python • LaTeX • Github
Unix • vim
Google cloud computing

LANGUAGE
German, two years

COMMUNITY

SCIENCE OUTREACH
Speaker for 6th grade classes
and at environmental center

YOUTH
violin teacher for children
extensive work with foster
and adopted children

INTERESTS

MUSIC
violin • Bavarian zither
orchestra • piano

THEATER
Numerous lead roles
and singing

SPORTS
cross country • track
ultimate frisbee

EXPERIENCE

DESCARTES LABS | Mentorship program
2017 | Los Alamos, NM
- Use Descartes Satellite Platform to retrieve MODIS and LANDSAT data.
- Compute NDVI, NDWI, cloud masks
- Machine learning with sci-kit-learn to classify land types
- Running python code in parallel on the Google Cloud

RESEARCH

MONITORING DEFORESTATION RATES WITH SATELLITE DATA
2017
Using satallite data and machine learning to track deforestation around the world since 2000.

AMERICA'S FARMING FUTURE: THE IMPACT OF CLIMATE CHANGE ON CROP YIELDS 2016 – 2017
Predicted crop yields out to year 2100 for every county in the U.S. for three crops: corn, soybeans, and rice, and two future climate scenarios. Predictions were made with a statistical model of crop yields, which was created by computing correlations between historical temperature measurements and crop data.

  Los Alamos County Best in Show, and five additional awards
  1st Place in Environmental Engineering at County, Regional, and State
  2nd Place Scientific Paper Competition, Regional and State
  American Statistical Association: Best use of Statistics
  American Meteorological Society: excellence in atmospheric sciences
  New Mexico Supercomputing Challenge Finalist and Best Technical Writing
  1st Place New Mexico Junior Science and Humanities Symposium
  National Junior Science and Humanities Symposium finalist, San Diego
  Intel International Science and Engineering Fair (ISEF) finalist, Los Angeles
  3rd Place in Earth and Environmental Sciences at Intel ISEF
  Publication submitted to Agricultural and Forest Meteorology

DETECTING CLIMATE CHANGE THROUGH MEANS AND EXTREMES 2015 – 2016
Detected how the climate was changing in temperature and precipitation means and extremes since 1950 for every weather station around the world. Created an interactive map of results for the public (link)

  County 1st Place Earth and Environmental Science
  2nd Place Paper Competition Regionals
  NOAA's 2016 Taking the Pulse of the Planet Award
  3rd Place New Mexico Supercomputing Challenge
  Publication in 2016 New Mexico Academy of Science Journal: link

WILL IT BE A GOOD SKI SEASON? CORRELATIONS BETWEEN EL NINO AND SNOWFALL 2014 – 2015
Analyzed correlations between historical El Nino indicies and winter weather across the U.S. since 1950. Found that the El Nino index in August can serve as a predictive tool of the following winter's weather.

  Los Alamos County Grand Award Winner
  1st Place in Mathematics at County, Regional, and State
  1st Place Regional Paper Competition
  Publication in 2015 New Mexico Academy of Science Journal: link