# 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

**SPORTS**
cross country • track
ultimate frisbee

## EXPERIENCE

**INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS** | Internship
Summer 2018 | Vienna, Austria

**DESCARTES LABS** | Mentorship program
2017 | Los Alamos, NM

- Use Descartes Satellite Platform to retrieve MODIS and LANDSAT data.
- Compute plant health indices and cloud masks
- Machine learning with scikit-learn to classify land types
- Running python code in parallel on the Google Cloud

**JAHN RESEARCH GROUP** | Group Member

## RESEARCH

**PREDICTING FOOD SHORTAGES IN AFRICA FROM SATELLITE IMAGERY** 2017 – 2018
Created an early warning system of crop yields three months before the harvest from relative plant health that can be applied anywhere in the world.
1st Place in Environmental Engineering at County, Regional, and State
1st Place New Mexico Junior Science and Humanities Symposium (JSHS)
National JSHS finalist, Maryland
Intel International Science and Engineering Fair (ISEF) finalist, Philadelphia

**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 between historical temperature measurements and crop data.
1st Place in Environmental Engineering at County, Regional, and State
1st Place New Mexico JSHS
National JSHS finalist, San Diego
Intel ISEF finalist, 3rd Place in Earth and Environmental Sciences, Los Angeles
Publication submitted

**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 around the world, shown on an interactive map: (link)
County 1st Place Earth and Environmental Science
2nd Place Paper Competition Regionals
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