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SUMMARY:

I am a senior at the University of Pennsylvania studying Earth and Environmental Science. I have research experience in a variety of environmental fields, and I have developed a strong interest in the application of remote sensing technologies to environmental and social problems. I am currently excited to be seeking opportunities to improve my technical abilities and apply my skills to real-world issues.

EDUCATION:

University of Pennsylvania, School of Arts and Sciences | Philadelphia, PA *2016 – 2020*
Candidate for B.A in Earth Science, Concentration in Environmental Science

- *Cumulative GPA*: 3.93/4.0
- *Extracurricular:* Epsilon Eta Co-Ed Environmental Fraternity; Isla Urbana; Stamped Magazine Design; The Daily Pennsylvanian Design
- *Honors & Awards:* Dean's List 2016-2017, 2017-2018, 2018-2019; University Scholar Research Program
- *Selected Coursework:* Modeling Geographical Space (GIS); Microbiology; Ecology, Management and Advocacy of Urban Forests; Global Climate Change; Biology; Chemistry; Calculus; Freshwater Ecology

University of Edinburgh, School of Geosciences | Edinburgh, Scotland *September – December 2018*

- Study abroad during fall semester of 2018
- *Coursework:* Principles and Practice of Remote Sensing; Conservation Science; Development and Decolonization of Latin America

Phillips Academy | Andover, MA *2012 – 2016*

- NITARP (NASA/IPAC Teacher Archive Research Program) - worked with several high schools to publish new research related to the identification and classification of young stellar objects
- *Extracurricular:* Co-Founder and Layout Editor of BOSS Magazine; Biology Tutor
- *Selected Honors & Awards:* Marsh Prize in Biology
- *Relevant Coursework:* AP Computer Science; Computer Graphics; AP BC Calculus; AP Spanish

PROFESSIONAL DEVELOPMENT:

Forest Mapping and Monitoring with SAR DATA, NASA Applied Remote Sensing Training Program *May 2020*

- 8 hour course covering the use of SAR data for forest monitoring, including practical trainings using Google Earth Engine

Fundamentals on REDD+, United Nations Institute for Training and Research *May 2020*

- 12 hour course covering the basics of REDD+ from requirements to implementation at the national level

An Inside Look at how NASA Measures Air Pollution, NASA Applied Remote Sensing Training Program *May 2020*

- 4 hour web-based course covering the remote sensing of Nitrogen Dioxide and Aerosols

Advanced Spanish Classes, Peruwayna Spanish School | Lima, Peru *December 2019 – January 2020*

- Completed over 30 hours of Spanish classes at the advanced C1 level

RESEARCH EXPERIENCE:

***Assistant Center Lead,* NASA DEVELOP, NASA Marshall Space Flight Center** | Huntsville, AL *June – August 2020*

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***Urban Forestry Research Assistant,* Pennsylvania Horticultural Society** | Philadelphia, PA *April – May 2020*

- Designed a virtual street tree monitoring protocol utilizing Google Street View, CycloMedia, and Azavea's TreeTective tool
- Cleaned and prepared a database of citizen science tree planting records for use in the summer monitoring program
- Produced training materials on the virtual monitoring protocol for summer monitoring interns

***Geospatial Analyst,* NASA DEVELOP, NASA Marshall Space Flight Center** | Huntsville, AL *Jan– April 2020*

- Collaborated with team members, NASA SERVIR, and the SERVIR hub in Eastern Africa to develop a Combined Drought Indicator for the Kenya National Drought Management Authority
- Designed appropriate methodology and coordinated tasks among a four-person team, both in person and while working remotely
- Wrote Python scripts to convert outputs from a hydrologic model (the Regional Hydrologic Extremes Assessment System) and satellite data from MODIS and Suomi NPP VIIRS into drought indices, performing statistical analyses to find correlations between indices and combine into a single combined drought indicator
- Validated the Combined Drought Indicator for five case study counties across Kenya
- Produced several deliverables and communication materials, including a technical paper, poster, presentation, and an ArcGIS StoryMap for an international audience

***Researcher,* U.S. Forest Service** | Philadelphia, PA *August 2019 – Present*
- Tracked spatiotemporal changes in forest cover in select Philadelphia parks between 1959 and 2018 using aerial photography and ArcGIS and conducted background research on urban forestry concepts and methods
- Managed my time independently and collaborated with professionals from research and city park backgrounds

***Intern,* U.S. Geological Survey, Canyonlands Biological Station** | Moab, Utah *May – July 2018; May – August 2019*
- Worked with other scientists and interns on a variety of projects (vegetation response to extreme drought; biological soil crust's ability to withstand wind and water erosion; restoration techniques for grazing land)
- Gained experience with lab protocol (processing soil moisture samples) and field sampling techniques (plant identification, soil collection, aggregate stability, vegetation cover estimation etc.)
- Responsible for collecting neat, organized data; worked happily in difficult conditions for long hours

***Research Intern*, U.S. Forest Service** | Philadelphia, PA *January 2018 – May 2019*
- Researched ecological legacy of street tree plantings in Philadelphia
- Assessed motivations for planting specific tree species using Philadelphia city and horticultural archives
- Maintained and organized a large collection of sources related to Philadelphia horticulture and urban forestry

***Visiting Researcher,* Alliance for a Sustainable Amazon** | Madre De Dios, Peru *July – August 2018*
- Designed and executed a remote sensing analysis of land use change along Interoceanic Highway in Peru
- Self-managed research project, including writing a grant proposal and applying for research permit from the *Servicio Nacional Forestal y de Fauna Silvestre* (SERFOR) of Peru
- Collected ground truth data to be incorporated into classifications of the region with Landsat and Sentinel data within Google Earth Engine
- Worked independently in physically challenging, remote conditions of the Amazon

***Research Assistant*, Sediment Lab, University of Pennsylvania** *May – August 2017*
- Worked with PhD student to design experiment on sediment dynamics of turbidity currents
- Used Python and OpenCV to analyze data collected from experiments
- Conducted background research on physics of turbidity currents

***Intern,* Columbia University Department of Civil Engineering** | New York, NY *June 2013*
- Intern with Shiho Kawashima, Ph.D., Assistant Professor of Civil Engineering and Engineering Mechanics
- Helped with experiments measuring the rate cement hydration by monitoring heat evolution under controlled temperatures to advance studies on how nanomaterials and additives influence rate of hydration

SCIENCE COMMUNICATION EXPERIENCE:

***Biology Tutor,* University of Pennsylvania** | Philadelphia, Pennsylvania *August 2019 – Present*
- Selected to serve as the Biology tutor for the University of Pennsylvania's tutoring center
- Worked with several students at a time to review and practice course material

***Teaching Assistant*, Biology 101** | University of Pennsylvania *January – May 2018*
- Worked collaboratively with professors and other teaching assistants to improve class content and help students with material in lectures

***Secretary*, Epsilon Eta, Co-Ed Environmental Fraternity** | University of Pennsylvania *January – May 2018*
- Managed communication between Epsilon Eta's executive board and members

***Instructor*, Computer Adventures** | Mt. Kisco, NY *July – August 2016*
- Designed and taught courses in HTML/CSS and App Development to 2nd - 8th graders

***Intern*, Adirondack Public Observatory** | Tupper Lake, NY *July – August 2015*

- Taught public Friday night stargazing sessions
- Delivered presentations for public audiences at The Wild Center using NOAA's "Science on a Sphere" technology
- Taught and created activities and lesson plans for students still in use at observatory today
- Produced outreach material for events at the observatory

***Volunteer Counselor*, Cary Institute of Ecosystem Studies** | Millbrook, NY *June 2013*

- Worked with ecology campers to collect data and led groups on short hikes

ADDITIONAL EXPERIENCE:

***Member,* Isla Urbana at Penn** | Philadelphia, PA *August 2019 – May 2020*

- Raised $653 in two months of personal and community fundraising to install water harvesting systems in Mexico City

***Non Profit Representative* (Fundraiser), Ruffalo Noel Levitz, LLC** | Philadelphia, PA *May 2017 – May 2018*

- Reach out to University of Pennsylvania alumni to encourage participation in annual giving fund
- Often awarded top caller for achieving highest alumni participation rate
- Raised over $70,000 to date

***Layout Associate*, The Daily Pennsylvanian** | Philadelphia, PA *January – May 2017*

- Formatted layout of articles in University of Pennsylvania's daily student-run newspaper
- Designed graphics and headlines for the newspaper using Adobe InDesign and Adobe Illustrator

GRANTS & AWARDS:

University Scholar Grant *May 2019*
University Scholar Committee of the University of Pennsylvania

- Wrote proposal to conduct independent research with the USDA Forest Service on spatiotemporal changes in Philadelphia's forest cover
- Received a grant of $4,740 to conduct this research during the fall of 2019

Dean's List 2016 – 2017; 2017-2018; 2018-2019 *May 2017; May 2018; May 2019*
University of Pennsylvania

- For maintaining a high GPA during each academic year

University Scholar Grant *May 2018*
University Scholar Committee of the University of Pennsylvania

- Wrote an independent research proposal involving one week of remote sensing work at a university in Lima and three weeks of "ground truth" field work in Puerto Maldonado, Peru.
- Received a grant of $3,500 to conduct this research during the summer of 2018

University Scholar Grant *May 2017*
University Scholar Committee of the University of Pennsylvania

- Wrote a proposal for $4,500 to conduct research in a Sediment Dynamics lab at the University of Pennsylvania during the summer of 2017.

Abbot Grant *May 2016*
Abbot Academy Association Board of Directors

- Wrote a grant proposal for $2,250 to purchase a solar spectrograph for astronomy classes and public outreach at Phillips Academy.

Marsh Prize in Biology *May 2015*
Phillips Academy Andover

- For excellence in Biology

SKILLS:

Research

- Completed two terms as a Geospatial Analyst with the NASA DEVELOP program, involving conducting a literature review, designing appropriate methodology, and carrying out a feasibility study to be implemented by decision-makers in the Earth Science field (January – August 2020).
- Designed appropriate research methodology and protocol to virtually monitor street trees in Philadelphia utilizing Google Street View and CycloMedia Imagery (April-May 2020).
- Working on independent research project involving remote-sensing research and field-based ground observations in Puerto Maldonado, Peru (Summer 2018).
- Experience working alongside research ecologists at the USGS Southwest Biological Station in Moab, Utah (Summer 2018, Summer 2019).
- Worked as research assistant in an Earth Science Laboratory at the University of Pennsylvania (Summer 2017).
- Worked with a team of students and teachers to publish four astronomy papers in high school; Attended conferences to present this research during senior year of high school

ArcGIS

- Graduate-level coursework in raster-based ArcGIS (Spring 2018)
- Conducting research on spatiotemporal changes to forest cover in Philadelphia's Fairmount Park using GIS to manually delineate tree cover polygons on historic aerial photos (Fall 2019 – 2020)
- Utilized GIS as a Geospatial Analyst in the NASA DEVELOP program in research calculating drought indices across Kenya (2020)

Remote Sensing

- Worked on independent research project using remote sensing data to analyze land-cover change near Puerto Maldonado, Peru (2018-2019)
- Utilized remote sensing technologies (satellite data from Aqua MODIS, Terra MODIS, and Suomi NPP VIIRS) combined with hydrologic model outputs to calculate drought indices and create a Combined Drought Indicator across Kenya as a Geospatial Analyst in the NASA DEVELOP program (2020)
- Coursework:
    - Graduate-level coursework in raster-based ArcGIS – University of Pennsylvania (Spring 2018)
    - Graduate-level coursework in Remote Sensing – University of Edinburgh (Fall 2018)

Computer Science and Coding

- Experienced with Java, Python, HTML/CSS, WebGL, OpenCV
- Coursework:
    - AP Computer Science using Java (2014-2015)
    - College-level in Computer Graphics using Python and WebGL (Winter 2016)
- Analyzed experimental video data with Python and OpenCV as research assistant in Sediment Dynamics Lab
- Designed and taught classes in HTML/CSS, Website Design and App Development to 2nd-8th graders
- Utilized Python as a Geospatial Analyst in the NASA DEVELOP program to process model and satellite data and calculate drought indices across Kenya (2020)

Google Earth Engine

- Used google earth engine extensively in independent remote sensing research while studying land-cover changes near Puerto Maldonado, Peru (2018)
- Coursework:
    - Utilized Google Earth Engine in 8-hour NASA ARSET training series "Advanced Webinar: Forest Mapping and Monitoring with SAR Data" (2020)

ERDAS Imagine Remote Sensing Software

- Coursework:
    - Used ERDAS Imagine Remote Sensing software in weekly practical sessions for graduate level remote sensing course at the University of Edinburgh (Fall 2018)

Outdoor Experience

- Experienced backpacker and hiker; comfortable working in remote locations
- Field research experience in Moab, Utah and Puerto Maldonado, Peru (Summers 2018 and 2019)

Teaching Experience and Science Communication

- Worked as teaching assistant for introductory biology class at the University of Pennsylvania

- Created and delivered science presentations to audiences at The Wild Center in Tupper Lake, New York for position at Adirondack Public Observatory
- Designed and taught computer science classes to children at Computer Adventures

Spanish

- Conversational Spanish
- Score of 5 on AP Spanish Exam
- Achieved level of CEFR B2+ (High Intermediate Plus) after 76 hours of classes during 5 weeks of study abroad in Buenos Aires, Argentina
- Conducted remote sensing analysis of a region in the Peruvian Amazon, often involving conversations and informal interviews with local farmers (2018)
- Coursework:
    - Completed over 30 hours of advanced Spanish coursework at the Peruwayna Spanish School in Lima, Peru (2019-2020)
    - Completed three semesters of advanced Spanish classes at the University of Pennsylvania (2017-2020)

Graphic Design

- Comfortable using Adobe Photoshop, Adobe InDesign and Adobe Illustrator
- Used Adobe Illustrator and Adobe InDesign to do layout and graphic design for: The Daily Pennsylvanian (University of Pennsylvania student-run newspaper); Stamped Magazine (University of Pennsylvania travel magazine); BOSS Magazine (Phillips Academy student-run magazine)

Microsoft Office

- Created course and outreach material for Adirondack Public Observatory and Computer Adventures using Microsoft Office
- Used Microsoft Excel extensively to analyze environmental data in courses and for independent research

PUBLICATIONS AND CONFERENCES:

- "Finding the Lightcurve and Rotational Period of Minor Planet 13003 Dickbeasley" *May 2015*
  Minor Planet Bulletin Vol. 42, No. 4
- "Finding the Lightcurve and Rotational Period of Minor Planet 7694 Krasetin" *March 2016*
  Minor Planet Bulletin Vol. 43, No. 3
- "Finding Young Stars in IC417" *January 2016*
  227th Annual American Astronomical Society Meeting
- "Identification and Classification of Infrared Excess Sources in the Spitzer Enhanced Imaging Products (SEIP) Catalog" *January 2015*
  225th Annual American Astronomical Society Meeting