AANDISHAH TEHZEEB SAMARA

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EDUCATION

Doctor of Philosophy in Earth and Environmental Science, **Columbia University, New York, NY. Expected: May 2026**
Committee: Jason Smerdon, Richard Seager & Mingfang Ting

Master of Science in Geographical Information Systems, **Clark University, Worcester, MA.** **May 2022**
Master's Thesis Title: **"***Understanding changes in vertical cloud structure in the Pacific Arctic using reanalysis data"*
Committee: Karen Frey & Abby Frazier

Bachelor of Art, magna cum laude, **Clark University, Worcester, MA.** **June 2021**
Major: Environmental Science (Earth System Science Track) with *High Honors:* Major GPA*: 3.9* **Minor** in Physics
Honors Thesis: **"***Satellite-based Observations in the Response of Cloud Cover Trends to Declining Sea Ice in the Pacific Arctic."*
Committee: Karen Frey & Florencia Sangermano

SKILLS

Programming Languages:	**GIS Software:**	**Laboratory Skills:**	**Programming Software:**
Python, HTML, CSS, JavaScript, R, MATLAB, Leaflet. CLI, jQuery	ArcGIS Pro, ArcMap, Google Earth Engine, GeoDa, QGIS, TerrSet	Protein purification, Gel electrophoresis, Microscopy, and imaging	RStudio, Sublime, Atom, Raspberry Pi, Notepad++, Visual Studio

RESEARCH & TEACHING EXPERIENCE

George Perkins Marsh Institute, Clark University
Research Assistant, **January 2021 – May 2022**
PI: *Lyndon Estes, (Clark University) & Naiara Pinto (NASA Jet Propulsion Laboratory)*
Project: Unlocking the Power of Active Remote Sensing for Ecosystem Services Modeling in the Amazon's Forest-Agriculture Interface.
Funding: NASA/Jet Propulsion Laboratory

Created survey to use sample points identifying regions with and without oil palm using random stratification, volumetric images, and Google Earth Imagery. Interpreted data to calculate agreement metrics using Fleiss' Kappa and find the intra-class correlation coefficient between data samples. Analyzed final dataset with Bayesian classification model to predict probability of oil palm presence for the study site. The overarching goal of this project is to support national efforts to monitor agricultural expansion in the Amazon's economic frontier. Presenting research at session in AGU 2021.

Woodwell Climate Research Center & Science on the Fly
Research Fellow, **June 2021 – September 2021**
PI: *Karen Frey (Clark University), Max Holmes & Greg Fiske (Woodwell Climate Research Center)*
Project: Understanding Drivers of Nitrate Variability in Rivers Across the US with Science on the Fly
Funding: Edna Bailey Sussman Fund Graduate Environmental Fellowship

Generated 253 watersheds and boundaries from sampling points across spanning across the entire North American continent. Cross referenced with the digital elevation model (DEM), collected from the national elevation dataset (USGS), for each respective state to ensure that the watershed was of appropriate size and shape. Analyzed spatial and temporal changes in river biogeochemistry varies based on geography of watersheds and sampling points.

Department of Geography, Clark University
Senior Honors Thesis & LEEP Fellowship Project **May 2020 – June 2021**
Advisors: *Karen Frey (Clark University) & Florencia Sangermano (Clark University)*

Conducted independent research to analyze and identify the nature of the interactions between sea ice and cloud cover data using remote sensing and reanalysis data. Collaborated with field research PhD students to corroborate findings. Utilized Earth Trend's Modeler and ArcGIS Pro to generate regression trends and maps for visualizing sea ice decline's correlation with increasing cloud cover in the Pacific Arctic Region. Presented research at APS CUWIP, Clark University and submitted for session in AMS 2022.

Graduate School of Geography, Clark University
Course Assistant **August 2020 – May 2022**
GEOG 104: Earth System Science Spring 2021
GEOG 393: Introduction to Remote Sensing Fall 2021
GEOG 102: Weather and Climate Spring 2022

Conducted lab sessions to teach core technical skills for course materials. Assisted professors in managing the evaluation of course assignments and feedback related to student performance. Held office hours with students to review materials, answer general questions, and help with assignments.

Department of Physics, Clark University
Ecological Dynamics Research Assistant
Advisor: Alexander Petroff **January – August 2021**

Devised experiments to explain the dynamics and steady states of complex microbial ecosystems in natural sediments. Designed chambers to observe the flow of oxygen through sediment. Collected and analyzed mud samples from salt marshes from Woods Hole. Presented updates of finding in weekly meetings. Supervised lab work of other undergraduate students.

Physics Research Fellow
Advisor: Charles Agosta **May – August 2019**

Used energy from solar panels to power a cellphone charging station in the University's café. Organized research data for creating and presenting the visual diagrams showing charging states and weather conditions. Self-taught various programing languages, including Python and HTML to develop a user-friendly website for the USB Charging Station

Reed Consulting Bangladesh Limited, Dhaka, Bangladesh
Field Research Intern **May – August 2018**

Supported engineers at a Britain-based engineering sustainability firm with large waste producing industries with the optimum methods to improve their wastewater disposal system, air quality and electrical safety. Developed documents for engineering training sessions and online publications for Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

PRESENTATIONS:

American Geophysical Union (AGU) Fall Meeting, New Orleans, LA, December 2021. **Samara, A.,** Pinto, N., Estes, L., ***"****Calibration / Validation Design for Mapping Perennial Crops in the Amazon" (Submitted) (Poster)*

American Meteorological Society (AMS) Annual Meeting, Houston, TX, January 2022. **Samara, A.,** Frey, K., Frazier, A., ***"****Satellite-based Observations in the Response of Cloud Cover Trends to Declining Sea Ice in the Pacific Arctic." (Submitted) (Poster)*

Academic Spree Day 2021., Clark University, Worcester, MA, Samara, A. Frey, K., Sangermano, F., ***"****Satellite-based Observations in the Response of Cloud Cover Trends to Declining Sea Ice in the Pacific Arctic." (Poster)*

American Physical Society Conferences for Undergraduate Women in Physics (APS CUWIP), Virtual, December 2020**. Samara. A**. Frey, K., Sangermano, F. *"Timeseries Analysis of Seasonal Variations of Pacific Arctic Sea Ice-Cloud Cover Feedback" (Lecture)*

Massachusetts Association of Conservation Commissions (MACC), Worcester, MA, February 2020. **Samara. A.** Baker, J., King, R., ***"****Best Management Practices for Forests: Using Conservation Easements" (Poster)*

GRANTS and HONORS:

Edna Bailey Sussman Fund Graduate Environmental Fellowship: $6,300	**2021**
Special Merit Award 2021: $700	
Liberal Education and Effective Practice (LEEP) Summer Fellowship, Clark University: $2500	**2020**
Wisniewski Award for Top LEEP Application 2020: $1000	
Global Scholars Research Award, Clark University: $2500	**2019**
Student Sustainability Fund Award, Clark University: $12,500	**2019**
Dean's List	**2019 - 2021**
Global Scholars Fellowship, Clark University	**2017 - 2021**

ADDITIONAL LEADERSHIP/SERVICE EXPERIENCE

Endpoint Technician, **Information Technology Services, Clark University** **September 2017 – January 2021**

Installed, configured, and maintained data migration of over 1500 workstations and software. Assisted clients in solving computer-related issues and orientation of new equipment deployed. Tracked ticketing system for customer concerns and updated asset database to ensure documents are current. Diagnosed and upgraded hardware to ensure optimum level of performance.

President, **South Asian Students' Association, Clark University** **August 2018 – May 2020**

Chairing and conveying meetings of committees dedicated to organizing events raising awareness about South Asian Culture. Managed funds and correspondence with university administration to control the organization's budget for fifteen annual events. Increased number of events by 40% and raised attendance by 75% in all major events. Used social media such as Instagram, Facebook, to publicize events and increase engagement

***Project Monitoring Coordinator,* Student Sustainability Fund (SSF), Clark University** **June 2018 – May 2021**

Follow up with projects after finances were disbursed to hold recipients accountable to their goals. Set up meetings with project applicants during the semester to process and approve quantitative project milestones to ensure that post-project reports are completed, and educational elements are realized. Conducted advertising and publicity for all SSF meetings, deadlines, and events, and took meeting minutes.

***Sustainability Project Manager*, Sustainable Clark, Clark University** **January 2019 – September 2019**

Awarded a $12,500 grant to spearhead a project involving the deployment of over 1000 recycling bins in residential hall across Clark's campus to incentivize proper disposal of recyclable materials. Coordinated efforts with directors of Residential Life and Housing, Student Leadership and Programing, Facilities Management, Recycling, and third-party organizations to ensure project success.

***Zero Waste Ambassador,* Sustainable Clark, Clark University** **February 2018 – February 2019**

Worked to optimize sustainable efforts and minimize the landfill production by creating awareness and installing proper recycling solutions in campus events which hosted over 2000+ attendees. Advocated for sustainable alternatives to student organization to maximize the opportunity for zero waste in campus events. Collaborated with students, faculty, and staff to conduct audits to determine recycling percentages in campus buildings and promote campus sustainability.

MEMBERSHIPS

Gamma Theta Upsilon (2020-Present)
American Geophysical Union (2019-Present)
American Association of Geographers (2019-Present)
American Physical Society (2018- Present)

Languages:
English (Fluent); Bangla (native); Hindi (spoken fluency); Urdu (spoken fluency)

Creative Software:
Final Cut Pro, Adobe CC - Photoshop, Illustrator, Lightroom, Premiere Pro, CANVA