Alexander Young

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EDUCATION

Cornell University
PhD Candidate, Civil and Environmental Engineering, August 2020 – present
Environmental Fluid Mechanics and Hydrology

University of California, Berkeley
Master of Science, Environmental Engineering, May 2019

University at Buffalo – State University of New York
Bachelor of Science, Environmental Engineering, Summa Cum Laude, May 2018

PROFESSIONAL HISTORY

09/19–07/20 | *ML-AI Engineer* | **Ag-Analytics Technology Company LLC.**　　　**Ithaca, NY**
- ❖ Developed spatial models for predicting crop yields that incorporate farmer supplied information along with public geographic datasets (e.g., soil data, weather data).
- ❖ Optimized satellite imagery API for retrieving data from Landsat-8 and Sentinel-2. Implemented interpolation routines for cloud covered images.
- ❖ Created and maintained modeling infrastructure used in agriculture sustainability initiatives.

01/19–05/19 | *Intern* | **Green Science Policy Institute**　　　　　　**Berkeley, CA**
- ❖ Conducted research in the field and office on fluorinated substances in consumer products.
- ❖ Worked independently in a small team environment to tackle public health problems related to toxic chemicals.
- ❖ Analyzed laboratory testing data and presented results to external collaborators.

RESEARCH & PROJECTS

06/21–Present | **Real-Time Flood Forecasting**　　　　　　**Cornell University**
- ❖ Developed a framework for forecasting levee-breach floods in real time with a high-resolution flood model.
- ❖ Application of Bayesian statistical methods to efficiently condition the flood model parameterization on flow depth observations, thus providing enough forecast lead time for localized emergency planning and evacuation.

01/19–05/19 | **Wildfire Smoke Model Validation**　　　　　　**UC Berkeley**
- ❖ Investigated the utility of low cost air sensor networks for validation of smoke plume models.
- ❖ Compared outputs from the HRRR Smoke model to atmospheric and meteorological observations to determine the accuracy of smoke plume forecasts.

08/17–05/18 | **Disinfection Byproducts from Algae Blooms**   **University at Buffalo**
- ❖ Investigated the effects of disinfection byproduct formation from chlorination of algal compounds.
- ❖ Synthesized and visualized data, eventually compiling findings into an extended report on the experiments. Findings were then presented to a group of peers and professors.

TEACHING EXPERIENCE

05/23–02/24 | **Engineering TA Training Consultant**   **Cornell University**
- ❖ Developed a training workshop on fair and effective grading with another consultant.
- ❖ Presented to PhD, master's and undergraduate TA trainees at multiple training workshops.
- ❖ Gained research-backed pedagogical skills and collaborated with a group of other TA trainers.

Fall 2021 & 2022 | **Teaching Assistant for Fluid Mechanics**   **Cornell University**
- ❖ Taught discussion sections and held office hours to bolster students' understanding of course concepts.
- ❖ Guided student laboratory experiments using flumes, pipe networks, and pressure vessels for gaining hands-on fluid mechanics experience.

Spring 2022 | **Teaching Assistant for Physical Hydrology**   **Cornell University**
- ❖ Aided with course organization and gave a guest lecture on the surface energy balance.

Fall 2017 | **Student Leader for Solid Mechanics**   **University at Buffalo**
- ❖ Worked as a student leader for a sophomore year statics class in the Department of Civil Engineering.
- ❖ Spent time with students in a one-on-one setting to answer questions and issues that they had with the assigned class work.

HONORS AND AWARDS
- ❖ 1st Place Graduate Student Research Symposium Poster Presentation | April 2023
- ❖ Joseph H. DeFrees Fellowship | Summer 2022
- ❖ John E. Perry Outstanding TA Prize | Academic Year 2021-22
- ❖ Joseph H. DeFrees Fellowship | Summer 2021
- ❖ Cornell University Fellowship | 2020-2021

TECHNICAL SKILLS
Software: QGIS, SWMM, EPANet
Programming Languages: Python, MATLAB, R

SERVICE & ENGAGEMENT

05/21–05/22 | **President of Cornell Civil & Environmental Engineering Graduate Student Association**

- ❖ Collaboration with fellow officers to develop social, professional, and community events for graduate students in the Civil and Environmental Engineering department.

09/20–05/21 | **Social Chair for Cornell Civil & Environmental Engineering Graduate Student Association**

- ❖ Planned virtual social events to foster a sense of community within the department during the COVID pandemic.

PUBLICATIONS

1) High-resolution smoke forecasting for the 2018 Camp Fire in California. (2021). High-resolution smoke forecasting for the 2018 Camp Fire in California. *Bulletin of the American Meteorological Society*. https://doi.org/10.1175/bams-d-20-0329.1

RESEARCH SUPPORT

02/24 | NYS Water Resources Institute. "Anticipatory Detection and Characterization of the Hydraulic Signatures of Urban Flood Risk." $29,747. 02/24 – 12/24. PI: John Albertson.

PRESENTATIONS

04/18/23 | **Environmental Fluid Mechanics and Hydrology Research Seminar.** *Estimating Rainfall from Doppler Radar*. CEE Department, Cornell University.

12/15/22 | **Real-time Flood Forecasting Poster Presentation.** American Geophysical Union Conference**.** Chicago IL.

04/16/22 | **Environmental Fluid Mechanics and Hydrology Research Seminar.** *Forecasting floods in real time*. CEE Department, Cornell University.

10/28/21 | **Guest Lecture on Smart Stormwater Management.** Smart Cities CEE 4800/6800 at Cornell University.

08/31/21 | **Environmental Fluid Mechanics and Hydrology Research Seminar.** CEE Department, Cornell University.