

# JOIN OUR TEAM!

## Undergraduate Internship Opportunity: Precision Agriculture and Crop Yield Modeling

The Nutrient Management Spear Program (NMSP) at Cornell University is seeking an undergraduate intern to contribute to our ongoing research on crop yield estimation using machine/deep learning approaches using crop and soil data collected from New York dairy farms and cash grain operations.

### Project Summary

Precision agriculture relies on accurate yield maps, typically generated from yield monitor sensors. However, these datasets often contain errors and gaps, leading to lost yield insights. This project tackles these challenges by leveraging remote sensing platforms, such as satellite and drone imagery, and machine/deep learning approaches to assess their potential for yield estimation. The findings will enhance our understanding of the reliability of remote sensing data and enable in-season yield estimation, allowing for timely management decisions rather than waiting for end-of-season yield monitor data collected at harvest. Ultimately, this supports data-driven strategies to optimize crop inputs, improve soil health, and boost farm profitability.

### Position Summary

The intern will be an integral part of the team, assisting with data wrangling and contributing to the development of prediction models. The student intern will work directly with a post-doctoral associate in our team.

### Key Responsibilities

- Process and analyze satellite imagery to extract relevant features for crop yield estimation using machine learning and deep learning techniques.
- Assist in preprocessing, cleaning, and managing large datasets, ensuring high-quality inputs for predictive modeling.
- Assist in developing and implementing AI-based models for crop yield estimation.
- Collaborate with team members to refine model performance, validate results, and generate insights for practical farm applications.

### Preferred Qualifications

- Strong proficiency in Python and R, with experience in data processing, and AI model development.
- Prior experience with machine learning and deep learning frameworks (e.g., Scikit-learn, TensorFlow, PyTorch) for predictive modeling.
- Familiarity with remote sensing techniques and geospatial tools (e.g., Pix4D, QGIS, Google Earth Engine).
- Experience with data visualization using ggplot, Plotly, Leaflet, and Tidyverse.

### Interested?

Email Dr. Quirine Ketterings at [qmk2@cornell.edu](mailto:qmk2@cornell.edu). Please include your resume and explain why you are interested in pursuing this opportunity. We are looking for a student to join us right away (work around class schedules) or for a full-time summer internship.



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