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DATA SCIENCE INSTITUTE

Experiential Learning at UChicago

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Outline

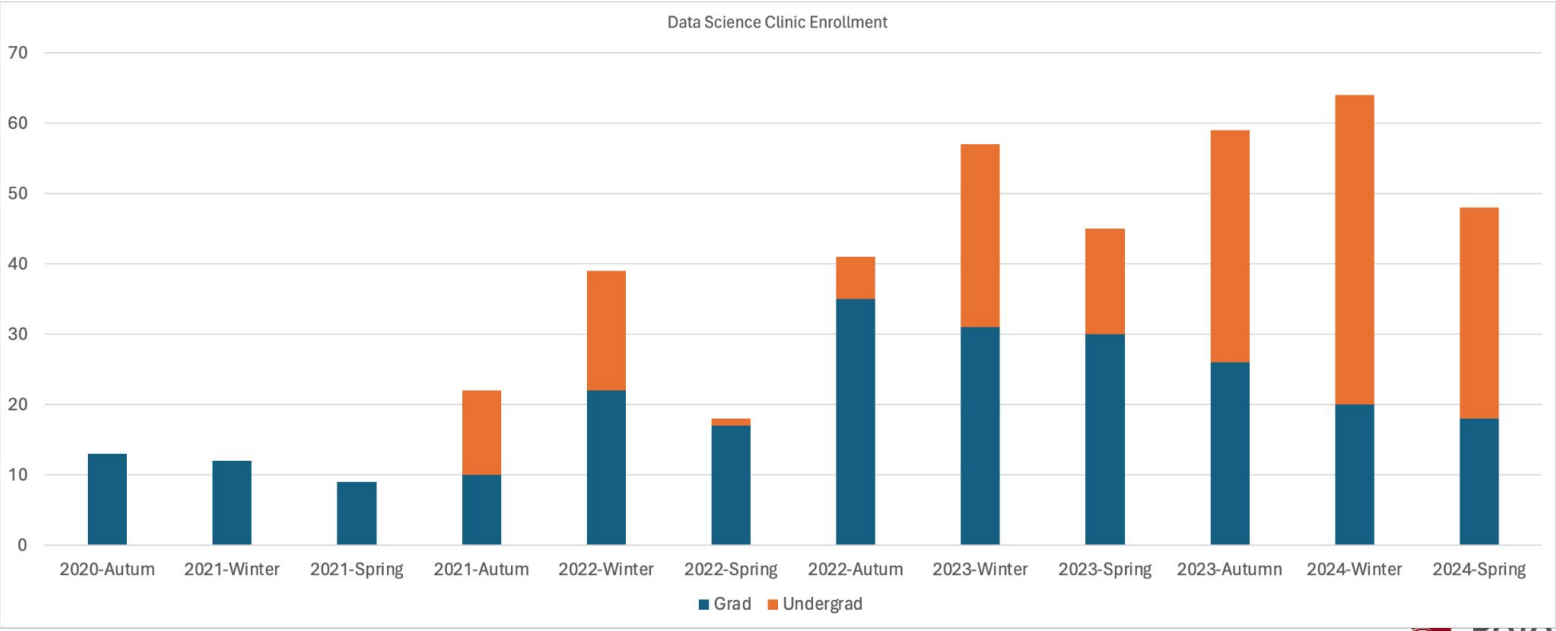
- The Clinic as Experiential Learning
- Project lifecycle
    - Inside and Outside
- RAFI Case Study
- Informing the curriculum

The Clinic

- Learning Objective:
  - Give students a unique, real-world, data science experience.
  - Use modern DS tools (git/docker/python/notebook)
- How:
  - Small groups (~4 students)
  - Mentorship and oversight (TA + Faculty Mentor)
  - Administration to scope, find and define projets

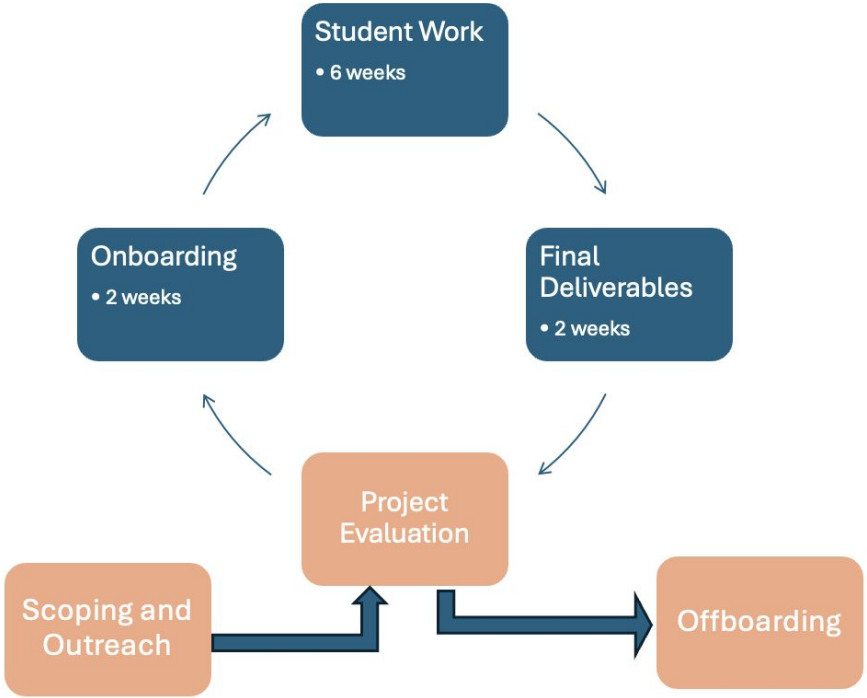
The Clinic

- Students come from *all* levels, required for DS undergraduate majors.
- There is an application (65% acceptance)



Project lifecycle

- Most administrative work *outside of* the quarter
- Onboarding/offboarding starts 6 weeks before the quarter.



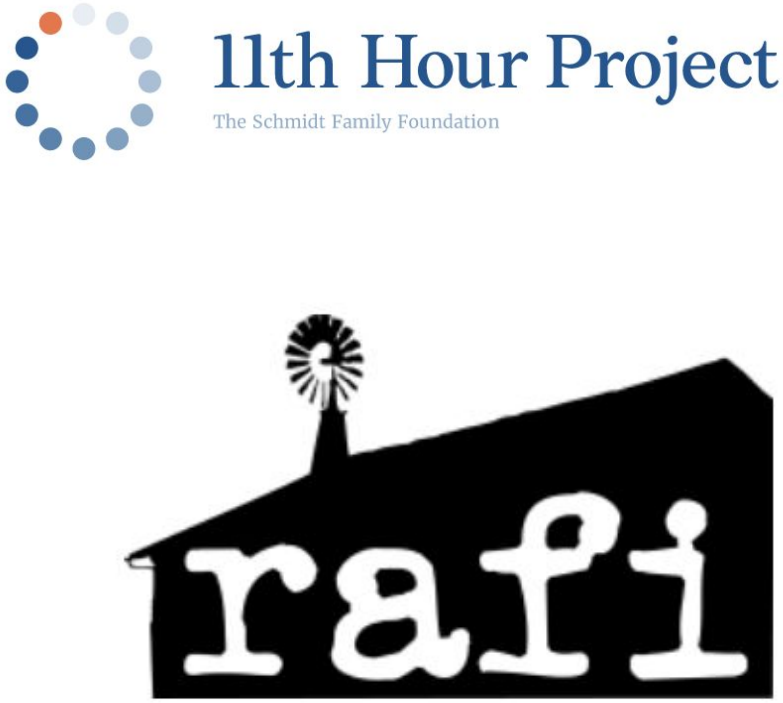
Where do projects come from?

- Mission Driven Orgs:
  - 11th hour foundation
  - Other outreach
- Research Labs:
  - Argonne, Fermi, UChicago
- Industry Affiliates Program:
  - Outreach

- How do we evaluate/scope:
  - Technology
  - Ethical Considerations
  - Scope / size of project
  - Domain Knowledge
  - Importance to Org.

RAFI

- 11th Hour foundation
- “Rural Advancement Foundation International” focused on issues affecting farmers
- What is the effect of consolidation in the poultry processing industry?
- Two parts:
  - Computer Vision Model
  - Dashboard



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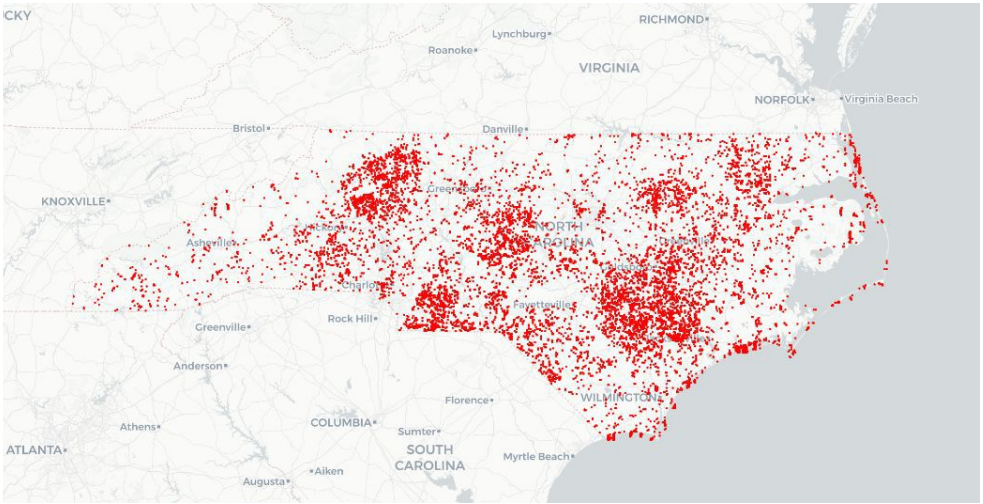
RAFI - Computer Vision

- Computer Vision to find poultry barns
- Requirements:
  - Deep Learning model running on our HPC cluster
  - Update a pre-trained Microsoft model



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RAFI - Dashboard

- Identify locations of poultry processing locations
- Provide filters and other functionality (HHI)
- Make this “hit home” in an advocacy fashion

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RAFI – Students vs. IC

- Students are learning:
    - For these more complex projects starting from scratch really is not possible
- Even with the support (TA + Mentor) – code needs to be turned over to someone who is experienced before being considered reliable.
- For these type of projects we “bake in” a return time / evaluation before returning.

Informing the curriculum

- Experiential learning is really powerful when it also informs the curriculum:
  - Are students *prepared*?
  - What does it mean to be prepared?
    - Technology?
    - Professionalism?
    - Other technical skills?
- Are we (as admin) thinking critically about the requirements for these projects?

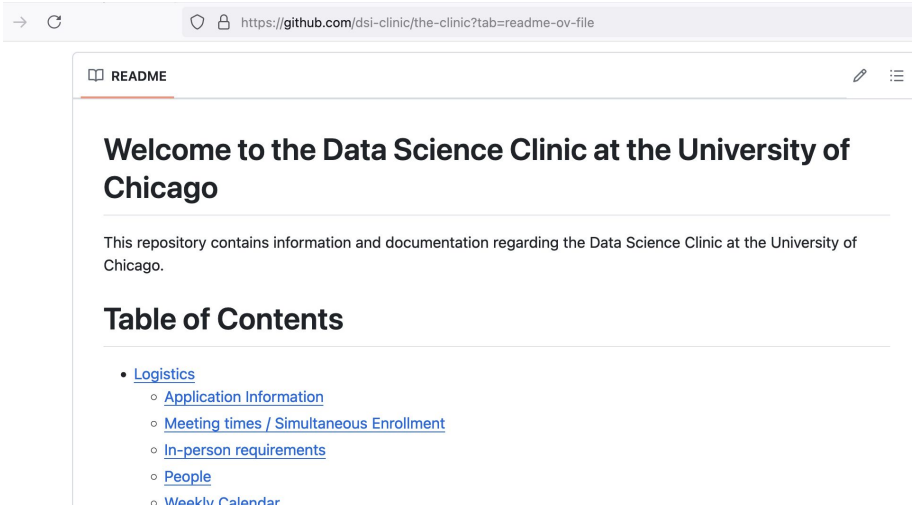
Informing the curriculum

- How do we balance:
  - Meeting the students where they are?
  - Pushing the students to learn on their own?
  - Providing instruction to the students?

Finally…

- Additional information about the clinic:
  - Rubrics
  - Required reports, assessment metrics, etc.
- All can be found on our github page:

https://github.com/dsi-clinic/the-clinic



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