

The logo for UMass Amherst, featuring the text "UMassAmherst" in a serif font. The "U" and "A" are in a dark red color, while "Mass" and "herst" are in black. A thin vertical line is positioned to the right of the text.

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& Computer Sciences

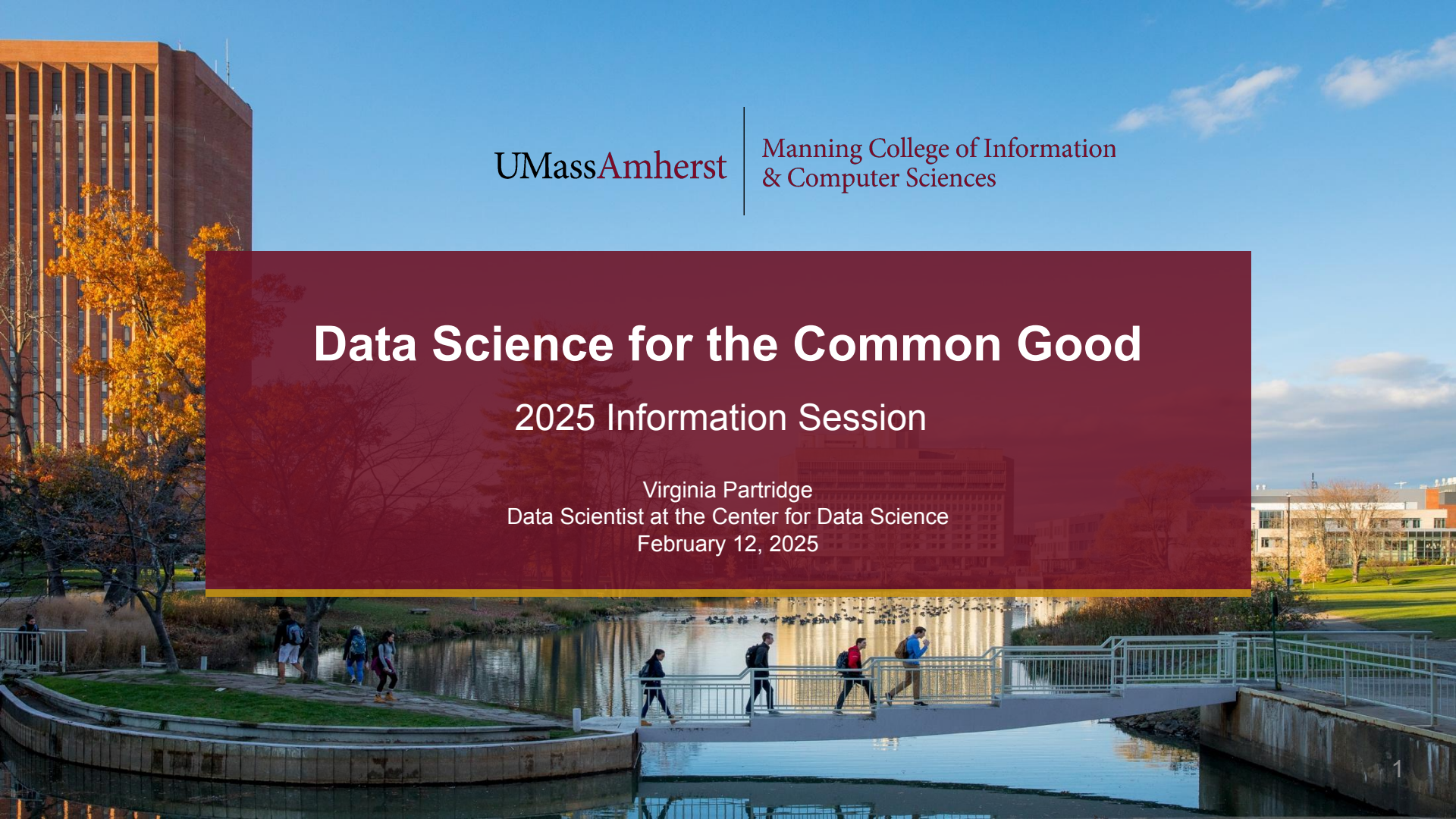
Data Science for the Common Good

2025 Information Session

Virginia Partridge

Data Scientist at the Center for Data Science

February 12, 2025



Agenda

- Program Overview
- Upcoming Projects for Summer 2025
- Program Details for Students
- Application and Interview Process
- Advice/FAQs
- Question and Answer



What is DS4CG?

- 12 week summer program
- Open to undergraduate, Master's & PhD students in CICS who will **graduate August 2025 or later**
- Small teams managed by CDS staff work with public good organizations to solve a data science or machine learning problem
- DS4CG has worked with over 25 partner organizations since the program started in 2019



Why is DS4CG great for students?

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- Work on technically challenging problems to build working prototypes
- Directly apply and develop skills gained in UMass CICS coursework
- Meaningful opportunity to support nonprofit and public-sector organizations
- Gain experience in setting project priorities and communicating with non-technical partners
- Network with colleagues, professors and partners at meetings, trainings and lunch events throughout the summer
- May lead to opportunities for research and employment

Why is DS4CG great for organizations?

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- Get to leverage **YOUR AWESOME SKILLS!**
- Access to computing resources, ideas and tools they wouldn't otherwise have
- Use data and software tools to support day-to-day work, advocacy efforts, grant applications, etc...



Don't take my word for it...

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"It is an **amazing program and a great learning opportunity**. Be sincere and dedicated to the project goals, work as a team towards achieving them and grab every opportunity to learn something new!" - 2024 Student Participant

"It's a great experience to be able to **learn from your teammates and mentors** and **get real experience** on a software project." - 2024 Student Participant

"The Center for Data Science team did an **excellent job under every aspect**: organized tasks and communicated about the project very clearly, updated us in a timely manner, delivered well-documented code." - Partner at Red Cross

Past Partners

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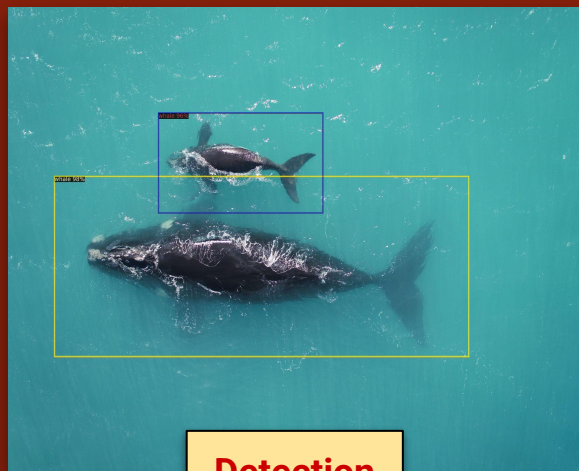
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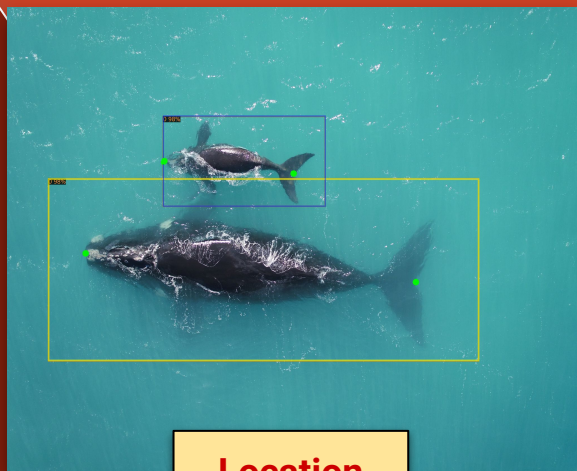
Past Projects: Save the Whales

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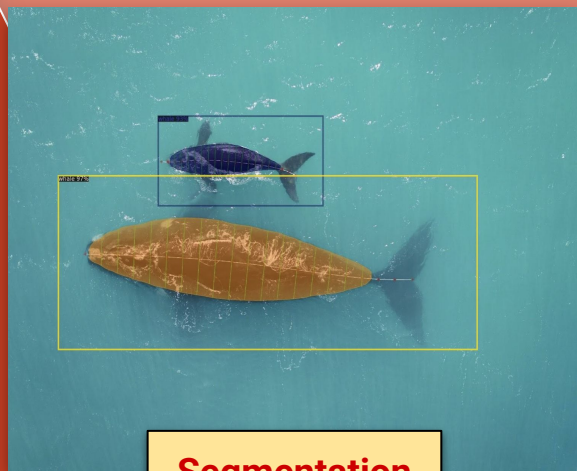
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Detection

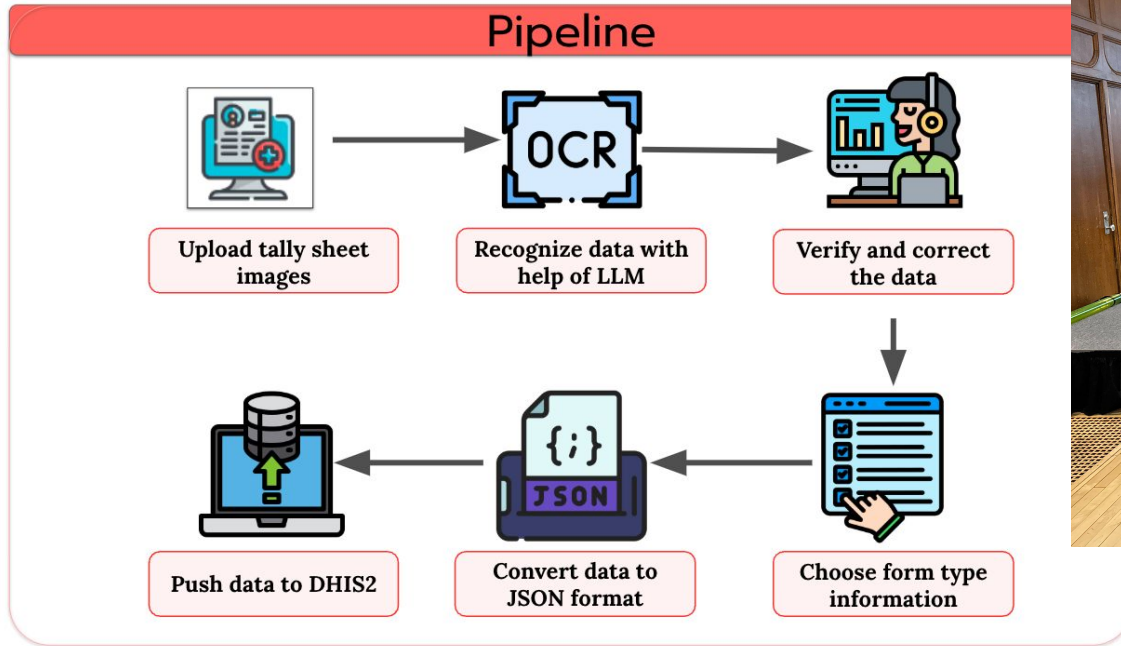


Location



Segmentation

Past Projects: Automated Medical Data Entry with Doctors Without Borders



Courtesy DS4CG Fellows 2025 Anju Santhosh Kumar, Yajie Li, Luna Dziejewitin
Team Lead: Virginia Partridge

Past Projects: iNaturalist GeoModel Annotation Tool

1 Search species by common name or Taxa ID

2 Start annotation from: **Geomodel prediction given a threshold**
Previously saved annotation
Empty map

3 Annotate by selecting and deselecting presence (**green**) and absence (**red**) hexagons, according to your species range expertise

Tools to select or deselect multiple hexagons at the time

Name: Euspira heros
Common name: Northern Moonsnail

presence **Generate Prediction** **Save Annotation** **Load Annotation** **Clear Annotation**

- OpenStreetMap
- World Light Gray Base
- World Imagery
- World Topo Map
- Hexagon Grid
- iNaturalist Observations
- Annotation (Presence)
- Annotation (Absence)
- Prediction Hexagons

4 Once you finish annotating, **save your progress**

absence **Generate Prediction** **Save Annotation** **Load Annotation** **Clear Annotation**

Additional Layers

- iNaturalist Observations
- Prediction Hexagons



In partnership with iNaturalist, Grant Van Horn, Subhransu Maji, Cornell Lab of Ornithology and many others

Courtesy DS4CG Fellows 2025 Angela Zhu, Sergei Pogorelov, Ozel Yilmazel, Paula Navarrete
Team Lead: Virginia Partridge

Past Projects

Posters and demo videos from
past years are on our website at

<https://ds.cs.umass.edu/programs/ds4cg>

Potential Upcoming Projects

With [Media Cloud](#), an open source media analysis platform, students will implement a platform for annotating text data and iteratively updating text classification models.

Natural Language Processing, Data Engineering, Machine Learning Operations, Distributed Systems

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**Projects and their scope are subject to change*

Potential Upcoming Projects

Save The Elephants will partner with us on an initiative to assess the health and characteristics of elephants from drone images. **Computer Vision, Data Engineering, Statistics & Data Analysis**

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**Projects and their scope are subject to change*

Potential Upcoming Projects

California Water Data Consortium would like help organizing data from different sources and developing ways to analyze that data to support water management decisions. **Data Engineering, Data Analysis & Visualization, Statistics, Open Source Development**

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**California Water
Data Consortium**



**Projects and their scope are subject to change*

During the Summer

- Technical and non-technical **training sessions** given throughout the summer: Agile Development, Ethics in Data Science, WEB DuBois as a Data Science Pioneer.
- Students **must attend in-person** trainings, talks and team meetings approximately once a week.
- Projects use **Agile Development** with team lead as scrum master to help foster good collaboration and communication with planning, demo and daily standup meetings.

Work Environment

- All participants will work **8 hours per day Mondays through Thursdays**, totaling 32 hours per week, for the 12 weeks of the program.
- **Daily team check-ins** and **partner check-ins** at least every two weeks.
- On campus work spaces will always be available.
- Other work may be hybrid based on discretion of your team lead and agreement with team members, but this is **not guaranteed**.

Team Structure

- Projects are structured into **teams of 1-2 graduate students and 1-2 undergraduates** with CDS staff as team lead.
- CDS staff lead projects and mentor students throughout the summer.

What's the average day like?

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- Daily stand-up meeting with fellow students and team lead.
- Meetings with partner organization or trainings roughly once a week.
- For the rest of the day, work independently or collaborate with your team in on-campus spaces.
- CDS staff will be available in person or over Slack chat for questions.



Hiring Details

- **Undergraduates** paid hourly rate of **\$25/hr** (~\$9,600 summer total)
- **Graduate students** paid hourly rate of **\$30/hr** (~\$11,500 summer total)
- We are planning to hire 9-12 students total (teams of 3-4 students) split roughly equally between undergraduates and graduate students.
- **Separate application tracks** for undergraduates and graduate students.

Please see the full job description in the application!

More Hiring Details

- **Considered on campus employment** for international students.
- Not a research or teaching assistant position, so does not affect your eligibility to be a grader or RA/TA during the academic year.

Please see the full job description in the application!

Application Process

1. Apply online at <https://bit.ly/ds4cg2025> by March 23rd
 - Background in terms of skills, coursework and interests
 - 4 Short answer questions (250 words)
 - Resume/CV
2. CDS team members review applications looking for **overall application strength** and **skill/interest match** for projects.
3. Selected students interview with CDS team members and can choose either a remote or in-person interview.
 - Students receive a **final decision within 2 weeks** of the interview.
4. Offers and rejections will be finalized by the end of April.
 - Offer letters must be **returned to CDS within 2 weeks**.

What makes a good application?

- A strong application should demonstrate:
 - Depth of ability in **at least one project critical area** (computer vision, statistical analysis, full-stack development, NLP...).
 - Ability to work on a software development **team** with **minimal oversight**
 - **Teamwork, communication and leadership skills** gained through work experience, extracurriculars or coursework.
- **Thoughtful responses** about problems facing your community that show **creative and critical thinking** about how to apply data science.
 - Use **personal examples** and **your own ideas**
 - **Avoid very short responses** (<50 words)
 - So long as your ideas are clear, don't worry about perfect grammar

Important Skills

- Demonstrated experience in **programming, software engineering best practices** and **project critical technical skills**.
- Data may be messy and questions not well-defined. You'll need **creativity, critical thinking, effort** and **communication** to overcome this.
- **Leadership/soft skills** are a must: two-way communication, setting expectations and priorities, and responding to feedback from peers, mentors, and partners, etc.

What to expect in an interview

- 30 minutes with two CDS staff members.
 - You choose between in-person at the CDS office or remote over Zoom.
- During this interview, you will be asked to:
 - Explain a previous data science project you have worked on in depth and answer questions about your approach.
 - Answer questions about your career goals, collaboration style, and contributions to previous teams.
 - No coding or pseudocode. Technical questions focus on concepts.
- Staff may ask about anything mentioned in your application or resume/CV.
- Applicants will receive a final decision within 2 weeks of their interview.

Past Years' Application Results

- Less than 25% of applicants invited to interview
- Less than 10% acceptance rate
- In 2024:
 - 169 applicants: 22% CICS undergrad, 72% CICS MS, 5% CICS PhD
 - 38 interviews conducted
 - 14 offers given: 5 undergrads, 6 MS, 3 PhD
 - First year of separate undergraduate track
- In 2023:
 - 126 applicants: 86% CICS MS, 6% CICS PhD, 8% other
 - 25 interviews conducted
 - 13 students participated: 11 MS, 2 PhD

Advice/FAQs

- We can't reply to individual questions about application status. Everyone will be notified by email once all positions are filled.
- Have **someone review your application** responses and resume/CV:
 - [CICS Careers](#)
 - [UMass Amherst Writing Center](#)
 - A trusted friend or mentor
- Students can **volunteer for DS4CG only in case of work visa restrictions.**
 - Prospective volunteers have the same application process and work expectations as all other participants.
 - Mention any visa concerns in the "Optional Application Details" section of your application.

Advice/FAQs

- If you graduate in May 2025 and **are not continuing** on to a graduate program at UMass Amherst, you **are not eligible** to participate. We check graduation dates in Spire.
- If you graduate in May 2025, and are **enrolling in a graduate program** at UMass Amherst for the Fall 2025 semester, you **are eligible** to participate.
 - This includes 4+1 Accelerated MS students and current Five Colleges undergraduates going on to a CICS MS or PhD program.
 - Please **select both relevant undergraduate and graduate programs** the corresponding graduation dates in your application.

Advice/FAQs

- I am a MS student, but not in Computer Science. Am I eligible?
 - We accept graduate students from outside of CICS **by invitation only**, which means you must have **a referral or recommendation from CICS faculty**.
- I am an undergraduate minoring in Computer Science or Informatics, but majoring in something else. Am I eligible?
 - Yes.

Advice/FAQs

- **Be honest with CDS staff** about other summer job offers you are considering.
- **Do not renege on offers.** We are in touch with CICS careers and they have guidelines about this. Doing so has negative consequences and reflects poorly on you.
 - Let us know **as early as possible about anything that could impact your participation** in DS4CG. We understand emergencies happen.
 - If you have a decision deadline for a different job, tell us, and we may be able to expedite your interview process.
 - If you decide to accept a different job offer, email us to withdraw your application.

Key Dates

- **March 23, 2025:** Application closes at 11:59pm
- **March 24, 2025 - end of April 2025:** Application review, interviews and offers conducted
- **Monday, June 2, 2025:** Program kick-off
- **Thursday, August 21, 2025:** Last day of DS4CG

Thank you!

Questions?

2025 DS4CG Application: bit.ly/ds4cg2025

<https://ds.cs.umass.edu/programs/ds4cg>

ds4cg@cs.umass.edu

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