



## Team Spotlight

### AI EXPLORATION DAY AT HUDSON MIDDLE SCHOOL, OHIO



# Welcome

**ROBERT DANHI (IC-FOODS)**

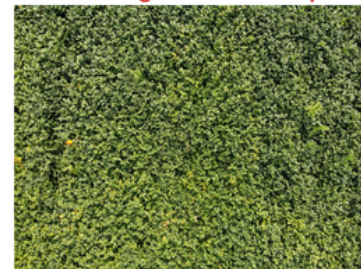
**WENDY MICHEL (OSU)**

**SAY HI TO OUR NEW MEMBERS !**



Dr. Christopher Stewart, Dr. Hari Subramoni, Carlos Guzman and Neelima Savardekar attended the AI Exploration Day at Hudson Middle School, in Hudson, Ohio. This event was organized to raise AI awareness, emerging technologies and how AI is used to solve problems across various fields. Students were excited to learn about Digital Agriculture and enjoyed playing fun trivia using a drone. Describing their experience, one of the school teachers said "We could not be more pleased with how well our event turned out today. It is in large part to the experts like yourselves that helped make it possible. We heard so many positive comments from our students".

### Agriculture-Inspired AI



Is this a soybean healthy field?

Image from Molly Caren Agricultural Center, OSU's 2100 -acre facility

Zichen Zhang, Sami Khanal, Amy Raudenbush, Kelley Tilmon, Christopher Stewart, Assessing the efficacy of machine learning techniques to characterize soybean defoliation from unmanned aerial vehicles. Computers and Electronics in Agriculture, 2022. Funded, in part, by the Ohio Soybean Council

## CONFERENCE ON ETHICAL AND RESPONSIBLE DESIGN IN THE NATIONAL AI INSTITUTES

Dr. Beth Plale, Dr. Alfonso Morales, Sadia Khan, a Ph.D. student at Indiana University & Neelima Savardekar participated in the AI Institute Conference on Ethical and Responsible Design held at Georgia Institute of Technology. Providing a high-level overview, Sadia talked about "Governing Ethical AI in ICICLE" and discussed how the ICICLE AI Ethics working group worked through a framework to operationalize democratization in a way that has impact on the team, its work, and the current and future stakeholders who will use ICICLE cyberinfrastructure.



Click [here](#) for presentation details.



**ICICLE FELLOWSHIP PROGRAM ANNOUNCES  
THE 2023 COHORT OF EDUCATIONAL FELLOWS**

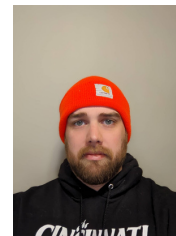
The Intelligent Cyberinfrastructure with Computational Learning in the Environment (ICICLE) Educational Fellowship Program is thrilled to announce its 2023 cohort, highlighting the continuous efforts to democratize artificial intelligence (AI) by making it more accessible and beneficial to all. The inaugural cohort – Ashish Hingle, Brandon Alston, Chinasa T. Okolo, Collin Lucken, and Tim Elmo Feiten – showcases an impressive array of academic scholars and researchers committed to enhancing knowledge in AI and cyberinfrastructure.

“The 2023 program theme is all about democratizing artificial intelligence and making it more accessible to a wider range of potential users,” said Dr. Beth Plale, Executive Director of IU’s Pervasive Technology Institute and Michael A and Laurie Burns McRobbie Bicentennial Professor of Computer Engineering at Indiana University, Bloomington. Through the ICICLE Educational Fellows Program we want to enable an environment that incentivizes a diverse range of people, with different expertise, to get involved in the design of AI, something that we expect will translate into potential benefits for everyone down the line.

The Fellows will undertake a range of activities throughout the course of the nine-month fellowship experience.



**Hingle, a Ph.D. student from George Mason University**, will create a set of narratives to highlight the complexities of the interconnected systems within ICICLE.



**Okolo, a Ph.D. Candidate at Cornell University**, will conduct a mixed-methods study to construct an AI literacy framework to upskill secondary school students, making AI more understandable and accessible to the younger generation.

**Lucken, a Ph.D. candidate at the University of Cincinnati, and Feiten, a fellow Ph.D. candidate at the University of Cincinnati**, will initiate a dialogue between ICICLE members and the Center for Public Engagements with Science to devise strategies for deepening stakeholder involvement in agricultural and ecological AI systems.



**Alston, an Assistant Professor at The Ohio State University**, plans to delve into privacy and accountability, leveraging his expertise in sociology and social intervention strategies.

The ICICLE Educational Fellowship is devoted to furthering the educational and outreach objectives of the institute by providing successful fellows with real-world, high-impact projects and the opportunity to participate in a nine-month fellowship under the guidance of the collective action working group within ICICLE, called the Broader Impacts Network. This year's program will kick off with a cohort-building orientation workshop, June 2023 in Bloomington, Indiana, followed by the presentation of results at the annual Fall ICICLE All-Hands Meeting. Fellows receive a stipend of \$6000 along with expense-paid travel to key ICICLE events where they will interact with ICICLE principals and subject matter experts. Fellows submit a final report following the conclusion of their fellowship.

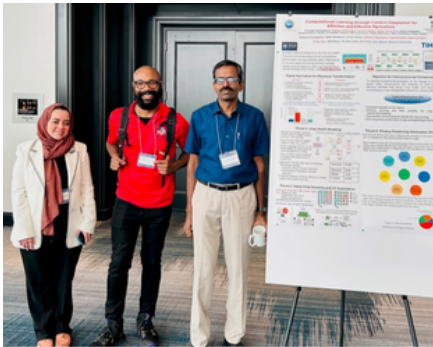
Led by The Ohio State University, ICICLE is dedicated to fostering diversity and inclusion, welcoming applications from all backgrounds and encouraging applications from underrepresented populations that reflects its strong commitment to pushing the boundaries of AI research and ensuring its benefits are accessible to all. Committed to advancing AI, cyberinfrastructure, and education through innovative research and training programs, its annual Educational Fellowship Program provides early-career educators and researchers with unique opportunities to shape the future of AI. For more information about the ICICLE Educational Fellowship Program, visit <https://icicle.osu.edu/education-and-outreach/icicle-educational-fellows-program>



## NSF/TECHNICAL INNOVATION HUB (TIH) MEETING AND WORKSHOP

Several members of the ICICLE team Dr. Christopher Stewart, Hadeel Almainani, Neelima Savardekar and TIH members from the Indian Institute of Technology (IIT) Bombay, namely Prof. Arpita Sinha, Prof. Rajbabu Velmurugan, Dr. Paramane Sachin Bhimarao, Prof. Vachhani Leena and Dr. Gajarushi Ashwini Shrikant attended the NSF- TIH Meeting and Workshop held at Baltimore. The purpose of this meeting was to review the technical status of all 35 funded projects, examine ways to improve remote collaboration and effectiveness of joint research, and explore opportunities for enhancing research and collaborations.

Dr. Christopher Stewart & Prof. Rajbabu Velmurugan provided a lightning talk on "Computational Learning through Context Adaptation for Effective and Efficient Agriculture" and discussed joint efforts on how to develop fundamental principles on the design of context aware cyberinfrastructure, employing AI and machine learning methods to sense crop health and recommend conceptualized crop management practices to boost yield.



Hadeel Almainani, a Ph.D. student at Case Western Reserve University presented a poster on "Privacy Preserving and Information Sharing in Agriculture" discussing the technique to secure data by adding "noise" to public datasets and relying on epsilon-differential privacy.

TIH team from IIT Bombay also visited The Ohio State University and met staff at the Department of Computer Science and Engineering and other ICICLE members. In an invited talk, Prof. Rajbabu Velmurugan presented his team's research on using machine learning for crop disease detection and classification. This research relates to Onion and Tomato crops grown in India, looking at the plant images (mainly leaves), classifying them to detect if they are diseased or not and identifying the stage of the disease progression. Seminar recording available [here](#) .





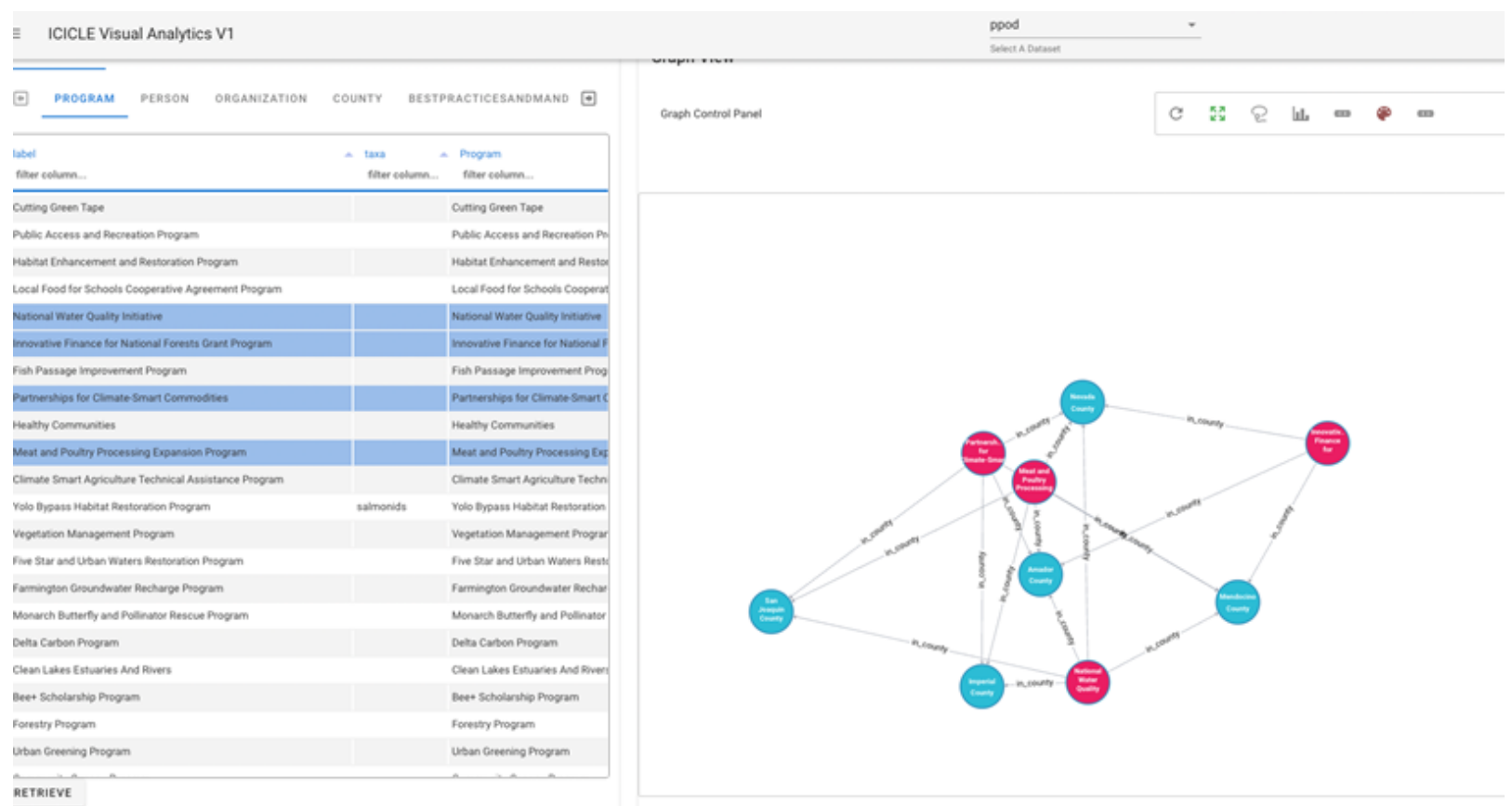
# ICICLE COMPONENT - SMART FOODSHED VISUAL ANALYTICS (VERSION 1)

A visual analytics system built for Smart Foodshed, especially for Persons-Projects-Organizations-Datasets (PPOD) and Cold Chain data, offers a dynamic and engaging way to explore graph data.

It is equipped with three main views, the Graph View, Table View, and Map View, providing a comprehensive and multi-perspective analysis of the data.

- The Graph View is designed to provide an intuitive understanding of the relationships and patterns within the graph data.
- The Table View and Map View offer alternative ways to view the data, providing different insights and perspectives.

The system also allows for bi-directional interaction between the Graph View and the other two views, enabling users to seamlessly switch between the different perspectives and gain a deeper understanding of the data.



label	taxa	Program
Cutting Green Tape		Cutting Green Tape
Public Access and Recreation Program		Public Access and Recreation Program
Habitat Enhancement and Restoration Program		Habitat Enhancement and Restoration Program
Local Food for Schools Cooperative Agreement Program		Local Food for Schools Cooperative Agreement Program
National Water Quality Initiative		National Water Quality Initiative
Innovative Finance for National Forests Grant Program		Innovative Finance for National Forests Grant Program
Fish Passage Improvement Program		Fish Passage Improvement Program
Partnerships for Climate-Smart Commodities		Partnerships for Climate-Smart Commodities
Healthy Communities		Healthy Communities
Meat and Poultry Processing Expansion Program		Meat and Poultry Processing Expansion Program
Climate Smart Agriculture Technical Assistance Program		Climate Smart Agriculture Technical Assistance Program
Yolo Bypass Habitat Restoration Program	salmonids	Yolo Bypass Habitat Restoration Program
Vegetation Management Program		Vegetation Management Program
Five Star and Urban Waters Restoration Program		Five Star and Urban Waters Restoration Program
Farmington Groundwater Recharge Program		Farmington Groundwater Recharge Program
Monarch Butterfly and Pollinator Rescue Program		Monarch Butterfly and Pollinator Rescue Program
Delta Carbon Program		Delta Carbon Program
Clean Lakes Estuaries And Rivers		Clean Lakes Estuaries And Rivers
Bee+ Scholarship Program		Bee+ Scholarship Program
Forestry Program		Forestry Program
Urban Greening Program		Urban Greening Program

Download Instructions are available here  
[https://github.com/ICICLE-ai/Smartfoodshed\\_VA\\_VC1](https://github.com/ICICLE-ai/Smartfoodshed_VA_VC1)  
 (ICICLE Release 2023-04)



## NEXTGENS STUDENT COMMUNITY MEETING WITH FEATURED STUDENT SPEAKER: JENNA KLINE

**Topic: Use of drones with ICICLE and specifically fieldwork in Kenya.**

This talk focused on Jenna's recent fieldwork conducting UAV missions in Kenya to study the behavior of zebras and giraffes. "My research is focused on building resilient edge architecture and intelligent navigation models for autonomous, unmanned aerial vehicles (AUAVs) for applications in ecology and agriculture" said Jenna. In her presentation, Jenna provided detail on her fieldwork and its nuances of working with drones to study animal behavior in its own environment. She also shared the multiple papers that have come from this research and how she has worked with animals so far and is hoping to work with UAVs in other industries, such as Forestry.

If there are any connections regarding Forestry, please reach out and we will connect you with Jenna. Here's a link to the research center website in Kenya where Jenna worked: <https://mpala.org/>. Additional information about the project on Jenna's personal site: <https://jennamk14.github.io/portfolio/imageomics/>. Learn about WildMe, which uses Machine Learning and AI to identify individual animals - more species constantly added: <https://www.wildme.org/>

Any questions regarding the NextGens Student Community, please contact Victoria directly at [debella@wisc.edu](mailto:debella@wisc.edu).

**Be on the lookout for upcoming events from the NextGens Student Community!**

## ICICLE'S TIPS ON ALLYSHIP

The Broader Impact Backbone Network team sends out tips in video format on how we, here at ICICLE, can become better allies

**TO PROMOTE AN AWARE, INCLUSIVE, AND MORE DIVERSE COMMUNITY**

Browse all Tips for Allyship [here](#)



## RECENT PRESENTATIONS & PUBLICATIONS

### PRESENTATIONS

- Sadia Khan, Beth Plale, Alfonso Morales, "Governing Ethical AI in ICICLE", Conference on Ethical and Responsible Design in the National AI Institutes, May 2023
- Hadeel Almainani, Erman Ayday, Rajbabu Velmurugan, Maryam Shojaei, "Privacy Preserving and Information Sharing in Agriculture", NSF-TIH PI Meeting, May 2023
- Rajbabu Velmurugan, Maryam Shojaei, Arpita Sinha, G. S. Sesa Chalapathi, Dhabaleswar K. Panda, Christopher Stewart, Raghu Machiraju, Vipin Chaudhary, Erman Ayday, "Computational Learning through Context Adaptation for Effective and Efficient Agriculture", NSF-TIH PI Meeting, May 2023

### PUBLICATIONS

- Yu Gu, Xiang Deng, Yu Su, "Don't Generate, Discriminate: A Proposal for Grounding Language Models to Real-World Environments", May 2023
- Tianshu Zhang, Changchang Liu, Wei-Han Lee, Yu Su, Huan Sun, "Federated Learning for Semantic Parsing: Task Formulation, Evaluation Setup, New Algorithms", May 2023

Click [here](#) to view ICICLE Presentations and Publications



**ICICLE**  
DEMOCRATIZING AI

## SUBSCRIBE TO ICICLE MAILING LISTS

The following mailing lists are available for ICICLE software and cyberinfrastructure releases, future updates and miscellaneous questions regarding installation/build problems, performance issues.

- **icicle-announce**: This is an announcement list only. If you would like to get information about future updates, software and cyberinfrastructure releases, publications, etc. related to the ICICLE project, you may subscribe to this mailing list. This list is open to public. You are welcome to subscribe to this mailing list yourself.
- **icicle-discuss**: This is a discussion list. This mailing list is meant for users to discuss all installation/build problems, performance issues, features and other miscellaneous questions related to the different software and cyberinfrastructure components of the ICICLE project. In order to post your questions and suggestions to this mailing list, you need to be a registered user of ICICLE with an organizational e-mail address and be a member of this list by subscribing to it with the same e-mail address. If you are not a registered user, please follow the procedure indicated under Download tab in the top menu to get registered.

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