ICICLE DEMOCRATIZING AI

NEWSLETTER

ISSUE 11 - JULY 2023

Team Spotlight

PRACTICE AND EXPERIENCE IN ADVANCED RESEARCH COMPUTING (PEARC) 2023 AWARD WINNER

"Insights from the HARP Framework: Using an AI-Driven Approach for Efficient Resource Allocation in HPC Scientific Workflows"

Research paper submitted to the PEARC 2023 Annual Conference by authors Swathi Vallabhajosyula and Rajiv Ramnath selected as the Best Paper in multiple categories:

* Systems & Systems Software Track, Short Overall (Student &/Or Non-Student) Category
* Systems & Systems Software Track, Short Student Category
* Phil Andrews Award for PEARC23 Best Paper Overall from among all tracks/categories!

ICICLE SMART FOODSHEDS THRUST PRESENTS " THE FUTURE OF INFORMATION IS NOW: VISUALIZING PPOD NETWORKS AND THE INTERNET OF CONSERVATION"

Dr. Patrick Huber, Project Scientist at UC Davis presented "The future of information is now: visualizing Persons-Projects-Organizations-Datasets (PPOD) networks and the Internet of Conservation" on July 26 to an international audience at the 2023 International Congress for Conservation Biology in Kigali, Rwanda.

This talk introduced the Smart Foodsheds research thrust and ICICLE in general to scientists, conservation practitioners, and policy makers.

(Presentation Link)

Welcome

Ryan Estanislao

David Lee

SAY HI TO OUR NEW K-12 MEMBERS !

PEARC '23 PLENARY KEYNOTE TALK

Creating Intelligent Cyberinfrastructure for Democratizing AI: Overview of the Activities at the NSF-AI Institute ICICLE

The PEARC23 conference at the Oregon Convention Center in Portland, Oregon, centered around "Computing for the Common Good". PI Dr. DK Panda described the three use cases being explored within ICICLE at the plenary session - AI driven Digital Agriculture, Animal Ecology, and Smart Foodsheds.

Click on links below for details

- Plenary Presentation
- HPCwire article on the plenary session

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NEXTGENS AT PEARC 2023

At PEARC23, a cohort of ICICLE NextGens actively engaged in various activities, connecting with fellow students, researchers, and industry experts through attending paper presentations, tutorials, workshops, and Birds of Feather sessions. They found inspiration in keynote speeches by Dr. Panda (OSU) on the ICICLE Institute and Dr. Pierce (TACC) on Decision Pathways. Additionally, they had the chance to showcase their research through paper presentations, posters, and workshops, receiving valuable feedback from the audience.

ICICLE NextGens being part of PEARC23 Student Volunteer Program

ICICLE NextGens (Michael Ray, Sahil Samar, Swathi Vallabhajosyula, Pouya Kousha) @PEARC23 with Dr. Mary Thomas and Dr. Beth Plale.

Some experiences shared by the NextGens

"We had an amazing time at PEARC! It was great to meet so many people working on the ICICLE project and to hear in detail what they have done and their visions for the future. PEARC23 was the first big conference we attended and the first time we traveled alone on an out-of-state trip. We are grateful to the PEARC student program for creating an environment for us to network with and learn from experts, both in industry and academia. Overall, the conference was a great experience, and we are honored to have represented ICICLE."

Sahil Samar & Michael Ray, K-12 Students with Dr. Mary Thomas (SDSC)

"The PEARC series provided an excellent platform for showcasing the AI4CI research, offering an ideal venue to demonstrate our software components' practical complexities and technical intricacies. I presented our research about the HARP framework in both paper presentations and poster sessions and received valuable feedback on generalizing some parts of our software components. It was truly an honor to be recognized with the Best Paper award for our framework in the Systems & Systems Software Track and the prestigious Phil Andrews Award for PEARC23 Best Paper Overall, across all tracks and categories."

Swathi Vallabahjosyula, Ph.D. student with Dr. Rajiv Ramnath (OSU)

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ICICLE MARKS THE SUCCUESSFUL COMPLETION OF YEAR 2 REVIEW

NSF Year 2 review was successfully completed on July 17 & 18, 2023. Members of the team provided an overview of the Institute, shared several demos and accomplishments across the three use-inspired science domains, research program/thrusts, strategic and broader impact across different communities, other AI Institutes to leverage AI and make next-generation CI accessible, democratized for the larger society. Efforts to strengthen future plans incorporating feedback from the NSF evaluation team is underway as the Institute plans to hold the next All-Hands meeting early November 2023.

SEMINAR SERIES

The following speaker series were organized in July 2023. Recordings are available here

- Dr. Ammar Ahmad Awan, Senior Researcher at Microsoft Corporation presented "Trillion-parameter scale model training and inference with DeepSpeed"
- Pranav Maneriker and Professor Srinivasan Parthasarathy presented “Data and AI Ethics Management: Online Fairness Auditing through Iterative Refinement”, a collaborative effort with NSF AI Institute for Future Edge Networks and Distributed Intelligence (AI- Edge).

ICICLE TIPS ON AI ETHICS

A series of short videos that situates AI Ethics in an accessible, tip-oriented manner. The series is motivated by the belief that ***forethought about ethical implications can create better outcomes.*** Check out the tips listed below -

Tip #1: Remember that AI is not inevitable.
Tip #2: Recognize that our responsibility is to the positive outcomes we work towards
Tip #3: Dimensions of Privacy
Tip #4: Fairness – Focus on stakeholders and use-inspired science
Tip #5: Trustworthiness – What does it take to trust AI and CyberInfrastructure ?

Browse all Tips for AI Ethics here

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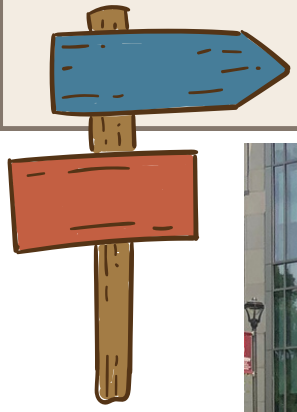

HIGH SCHOOL SUMMER CAMP ON AI ETHICS AT INDIANA UNIVERSITY

A student team from the IU Center of Excellence for Women and Technology developed and delivered an AI Ethics curriculum for 11th and 12th-grade students. Pictured above are the 80 high school students who attended the Pre-College Summer Camp from July 16 - 23, and experienced the curriculum over 5 days. Funded through the ICICLE project, the curriculum was based on the ICICLE Ethics framework.

Each day, the students learned about one of the four AI Ethics principles: Fairness, Privacy, Trustworthiness/Transparency, and Accountability. The team is currently compiling and analyzing data from focus groups, assessments, and individual interviews to gauge the effectiveness of the curriculum on students' knowledge and perception of AI Ethics.

ICICLE TIPS ON ALLYSHIP

The Broader Impact Backbone Network team has created 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

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RECENT PRESENTATIONS & PUBLICATIONS

PUBLICATIONS

- Vallabhajosyula, Swathi, and Rajiv Ramnath “Towards Characterizing DNNs to Estimate Training Time using HARP (HPC Application Resource (runtime) Predictor”, July 2023
- Vallabhajosyula, Swathi, and Rajiv Ramnath, “ Insights from the HARP Framework: Using an AI-Driven Approach for Efficient Resource Allocation in HPC Scientific Workflows”, July 2023

PRESENTATIONS

- Patrick R. Huber, Allan Hollander, Matthew Lange, Courtney Riggle, Han-Wei Shen, Yamei Tu, Xiaoqi Wang, Rui Qui, Thomas Tomich, “The future of information is now: visualizing PPOD networks and the Internet of Conservation”, 2023 International Congress for Conservation Biology, July 2023
- Song Gao, "Geospatial AI and the Future of Mapping", In the National Academies, Geographical and Geospatial Sciences Committee Meeting, May 2023

Click here to view all ICICLE Presentations and Publications

SUBSCRIBE TO ICICLE MAILING LISTS

The following mailing lists are available for ICICLE software and cyberinfrasturucture 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 cyberinfrasturucture 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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