The vision of AI2ES is to create trustworthy Artificial Intelligence (AI) methods for diverse environmental science (ES) users that will revolutionize our understanding and prediction of high-impact atmospheric and ocean science phenomena and create new educational pathways to develop a more diverse AI and environmental science workforce.

AI2ES News

Edited by Raven Reese, Dr. Amy McGovern, and Jennifer Warrillow

March 2023 Edition

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AI2ES Industry Partners

This month's edition of the AI2ES Newsletter features interviews with AI2ES industry partners MyRadar and TruWeather Solutions. We extend a special thanks to Mike Linden of MyRadar and Lisa Tinnesz from TruWeather Solutions for their contributions to this edition. Our continued partnership with industry collaborators is extremely valuable to projects and operations conducted by the NSF AI2ES Institute.

Lisa Tinnesz,
DIrector of Marketing,
TruWeather Solutiosns

TruWeather Solutions

TruWeather Solutions is a strong industry collaborator with AI2ES. Lisa Tinnesz, Director of Marketing at TruWeather, elaborates that they are a "leading innovator in micro-weather sensing, modeling, and decision insights for weather-sensitive government activities, industries, and companies" across the United States, Canada and regions across the globe. The company began in 2015 with the goal of "accelerating the transition of trustworthy weather science and technology into commercial systems." Don Berchoff, CEO and co-founder of TruWeather Solutions, recognized that the extensive network of science and technology experts within the weather community has the ability to address real-world weather challenges and pain points. TruWeather aims to provide solutions for the commercial sector with relevant metrics of success such as greater productivity or revenue generation. For this reason, TruWeather Solutions maintains a "working relationship" with University of Oklahoma, University of Albany, DisasterTech, MyRadar, NCAR, NOAA, and the NSF AI2ES Institute.

TruWeather Solutions is a facilitator between the scientific and commercial sector, tackling the "practical challenges and hurdles" in integrating new technology, such as AI, across businesses dealing with meteorological impacts. Their team of scientists and commercial specialists work with AI2ES to introduce the Institute's "expansive network of science and technology" to private sector companies. Much of this work relies on public advocacy for AI as a valuable tool for businesses who are trying to avoid environmental hazards.

Don participated early this year at the AI2ES at AMS 2023 event, where his appearance on the Career panel allowed students, postdocs, and early career researchers within the institute an opportunity to ask questions and explore different career paths from a private sector and commercialization perspective. Through partners such as TruWeather Solutions, emerging scientists familiar with AI can envision a future where industry and academia work in conjunction to discover "feasible execution and impacts" to avoid increasingly severe environmental changes.

Mike Linden,
Director of Video & Social Media Content, Meteorologist
MyRadar

MyRadar

One industry partner that demonstrates the necessity of communicable AI research is MyRadar. Mike Linden, Director of Video and Social Media Content for the MyRadar weather app, described their company's success as a 24-hour meteorological tool available to the public. "When severe/significant weather strikes" detailed Linden, "we are able to stream live in the app and provide supplementary coverage to our millions of users around the world." The company's employment of a full-time team of digital meteorologists constantly processing weather data allows the MyRadar app to deliver accurate and comprehensible updates in real time. At the heart of their work, MyRadar prioritizes their continuous search for meteorological innovation. In collaborating with AI2ES, they aim to act as a "beacon for getting the word out to shed some light on this amazing research."

In the past year, MyRadar compiled two videos detailing the projects under the NSF AI2ES Institute: one featuring Dr. Amy McGovern and her work with AI for Weather Prediction, and another highlighting AI models developed by Texas A&M University- Corpus Christi to predict sea turtle cold-stunning conditions along the Texas Gulf Coast.

The sea turtle video was produced in both Spanish and English, with the goal of increasing access to a more diverse audience who want to learn about AI for environmental sciences. By speaking to the top researchers in the field, like the researchers at AI2ES, Linden and his team "can put together compelling stories for our users to educate them on the major advancements in the field."

In the world of AI, responsible and compelling representation is vital to "not only shed light on the (sometimes complicated) work being done but to also show how AI is being used 'for good' purposes!" said xx. MyRadar emphasizes the power of AI through their video series for many reasons relevant to their application; most importantly, AI's ability to condense research which would otherwise take an incredible amount of time provides industry researchers with opportunities to achieve more accurate and timely weather reporting not yet possible for standard tabular meteorology. By shifting the narrative of AI through their video series, MyRadar opens avenues for the acceptance and utilization of AI more broadly across many fields of environmental science.

Andrew Justin
Graduate Research Assistant
University of Oklahoma

Student Spotlight

This month's Student Spotlight highlights a phenomenal presenter and graduate researcher working under Dr. Amy McGovern at the University of Oklahoma. Andrew Justin recently received First Place for his oral presentation titled "Operational Analysis of Frontal Boundaries using U-Nets" at January's 2023 AMS AI Conference. "I wasn't expecting at all to win" Justin stated. He delivered a near-perfect rundown of his recent work on frontal boundaries, but when Justin heard of his success, he "was really surprised." This was his first time presenting in-person at the AMS AI conference. Last year he presented virtually, without the pressure created by a large audience in a big conference center. Though the new landscape was intimidating, Justin is not afraid of embracing chaos in the field. He already learned to confront this challenge with confidence and preparation, based on the skills built up by his hobby of storm chasing across the unpredictable fields of Oklahoma.

"I've always been obsessed with weather since I was a kid," Justin declared. He never doubted his love for extreme weather events and fed his curiosity by "watching tornado videos on YouTube." However, his first trip into an actuall storm didn't occur until April 2019, when a low-grade hailstorm appeared on one of his many weather apps. "I had only one class in the morning, so I said, 'You know what? I'm just going to dive out there and see what happens.' Then I got hit with baseball-sized hail." Justin, chuckling at the memory of his first unprepared trip into the field, couldn't get enough of the excitement in chasing storms. "It was such an adrenaline rush!" he enthused. Over his 34 tornado observations, Justin developed his personal philosophy to stay safe and out of the way of hazards (such as baseball-sized hail): "Always have an out. That's my one rule: always have a Plan B. Or a Plan C if things go wrong."

Now at AI2ES, Andrew Justin has many more means of viewing these weather events and working with the data they produce. Since he started working on this fronts project with his team at OU, Justin finds ample opportunity to sit and watch weather events unfold before him. In terms of advice that Justin offers to other students presenting "in the field" at another large conference like AMS 2023, he reminds us that "no one is judging you as hard as you judge yourself at the podium." Though no one could see his lifelong love for meteorology, much of the knowledge and experience Justin gained while chasing his passion shone through his presentation because he squashed that initial self-doubt. By giving himself credit for his continuous dedication to the study of meteorology, Justin didn't need a Plan B or C this time. His plan A, with the right balance of confidence and preparation, brought him a success he hadn't imagined achieving this year.

Opportunities and Updates

The NSF STC LEAP Center invites applications from Doctoral students in data science (Computer Science, Stats, and related fields) to become a 2023 LEAP Momentum Summer Fellow. LEAP Summer Momentum Fellows are US Doctoral students who are interested in having a summer research immersion in climate data science, applying their data science/machine learning skills in climate modeling, and developing research interests in climate data science. The 10 week (June 5, 2023 - August 11, 2023), 25 hour-per-week program awards an $8,000 summer stipend for each Fellow. The review of applications will start on April 1, 2023 and continue until positions are filled. Please review the project descriptions before submitting your application. Applications can be submitted via the Google Form here.

Disaster Tech is currently recruiting for their paid internship positions in Summer 2023. Interns will work closely with a small team to conduct independent research to support the company's innovation objectives. Upon completion, interns will give a final company-wide presentation. This position is a 10-week paid internship of up to 20 hours per week starting in June. Pay is between $18 and $25 an hour based on skills and experience. This internship is fully remote.
To apply, send a cover letter and resumé to Dr. Jason Shafer (jason@disastertech.com) by April 7, 2023.

The Rosenstiel School and the Institute for Data Science and Computing (IDSC) at the University of Miami are soliciting applications for tenured or tenure-track faculty positions in the Atmospheric Sciences and Ocean Sciences departments. Applications will be considered at all ranks. Review of applications is ongoing, and each appointment is expected to start as soon as feasible. To be eligible, candidates must hold a Ph.D. or terminal degree with a focus on data science in their field by the appointment start date. The application material can be submitted via the UM Careers website and should include a letter of interest that describes your anticipated contributions to scholarship, teaching, and service in the Rosenstiel School (suggested limit of 2 pages); current CV; research statement (2 pages); teaching statement (2 pages); a statement of commitments and contributions to diversity, equity, and inclusion (1 page); and the names of three colleagues who can provide a reference. Visit the Rosenstiel School of Marine, Atmospheric, and Earth Science for more information.

Vaisala is offering two paid student internship opportunities this summer! Vaisala would love for students to join the internship program near their Louisville, CO office (near Boulder), though their program is flexible for different locations. Both student projects involve direct collaboration with AI2ES. One project involves better understanding the role of lightning during storm lifecycles and the likelihood of hail using the prototype hail prediction model developed at the AI2ES Institute. The second project is targeted toward undergraduates to develop road weather applications using improved precipitation type forecasts also developed at the AI2ES Institute. Send your application, including CV and salary request, soon, as Vaisala will close the application process once they have a suitable number of qualified candidates. Visit the site for the Graduate and Undergraduate Summer Trainee program at the hyperlinks above.

Q&A

Do you think that the public perception of Artificial Intelligence is changing, and how?

Submit answers, resources, and questions for next month in the AI2ES Slack #general channel!