In his remarks, Penn State Executive Vice President and Provost Nick Jones discussed the importance of equity and fairness within the context of Penn State initiatives, especially related to the digital innovation component of the University’s strategic plan. He also emphasized the importance of all Penn State researchers to be part of discussions about fairness in the digital realm, and to think about the digital research platform as part of the discussion.

Good afternoon, everyone.

On behalf of the University, I thank you, Jenni [Evans, ICDS Director], and everyone involved with our Institute for Computational and Data Sciences for hosting this symposium and for leading initiatives – along with our faculty – that bring issues of equity to the forefront.

I thank all of you, as well, for participating in this two-day event. Your work will facilitate new collaborations and endeavors to ensure fairness is a fundamental and requisite attribute of effective data science.
As Penn State’s computational research hub, the ICDS has become increasingly integral to our research enterprise, which exceeds $1 billion in annual expenditures.

Rapid advances in high-performance computing are enabling us to take “big data” and make positive impacts in many areas of daily life, from energy, communications, and medicine to infrastructure, finance, and manufacturing, among others.

However, as we use data science and artificial intelligence to benefit society and conduct related research, we know that the models relying on data and algorithms must align with and support core human values.

To achieve “fairness” in the data sciences, models must support and advance data security and privacy, scan for unintentional biases, and ensure that results are reproducible.

And we wouldn’t be convening this week if such things were quickly and easily achievable.

At Penn State, we continue to believe strongly in the power of computational research to create positive social impacts. So, we’re putting in the work and committing to making a difference in this meaningful area of scholarship.

The importance of equity and fairness is reflected in countless Penn State initiatives. We also address it throughout our University’s strategic plan through 2025, titled “Our Commitment to Impact.”

One of the plan’s five thematic priorities is “Empowering Through Digital Innovation.” To that end, we assert that Penn State will be a recognized leader in this realm among institutions of higher education. We will extend our impact and respond to the potential of technologies to help us enable learning, facilitate research, and serve communities – not only in Pennsylvania but around the world.
The ability to use data and computational tools to solve significant global problems has never been greater. But the innovations and solutions emerging from data science and AI research have the potential to both improve and disrupt our lives.

So, we can’t blaze ahead without considering many critical issues, including the future of digital fairness.

More broadly, these considerations are part of an evolved and heightened focus on diversity, equity, and inclusion.

At the start of his tenure in 2014, Penn State President Eric Barron identified six imperatives to be a truly modern University, one of which was called “Diversity and Demographics.” Since then, Penn State’s commitment to diversity, equity, and inclusion has become a moral, educational, and business imperative across the institution.

In conjunction with these efforts, we integrated the “Framework to Foster Diversity” into our University-wide strategic plan as one of its six foundations, and we published the Penn State Statement on Diversity, Equity, and Inclusion to make clear our intents and responsibilities.

And, two weeks ago, we announced the creation of the University’s Center for Racial Justice. This new center is housed in the Social Science Research Institute. Like ICDS, the SSRI is one of the University-wide research institutes led Senior Vice President for Research Lora Weiss.

So, we’re doing a lot of meaningful work in this space. But how and where do data science, AI, machine learning, and high-performance computing come in with regard to equity? Pretty much everywhere.

In society, we’ve seen high-profile examples that spotlight the importance of data fairness for individuals and groups.
When the new Apple Card was issued in 2019, some women said they were getting lower lines of credit or even rejected for Apple’s credit card while their male partners, with whom they had commingled finances, were accepted for credit, often with larger credit lines. In this case, the algorithm’s individual fairness was brought into question.

Meanwhile, researchers at MIT discovered that facial recognition software could have significantly higher gender identification errors when analyzing images of dark-skinned women, revealing a deficiency in model effectiveness and fairness related to gender and skin tone.

In academia, we’re increasingly aware of the ethical challenges of using data science to inform interventions, reforms in the hiring and retention of women in academia, and data science approaches to increase the enrollment and graduation of students, particularly those from underrepresented populations.

Many colleges and universities, including Penn State, are using data to inform innovative approaches for increasing diversity, the importance of growth mindsets for student success, and critical considerations for ensuring health equity.

Also, as enrollments at some U.S. colleges and universities continue to decline, we’re learning how AI can help drive student enrollment and engagement, as well as increase operational efficiencies.

I’m proud that Penn State and its people are so invested in exploring and working with big data, machine learning, and AI to address issues like these. But even our well-intentioned endeavors can be questioned.

A paper published last month by the Brookings Institution suggests that, despite their many benefits, widely used enrollment management algorithms in higher education could have negative impacts on some students.
Ultimately, AI and machine learning systems are being used more and more across all sectors and societies. So, all researchers at Penn State and other universities must be part of discussions about fairness in the digital realm and think about the digital research platform during those conversations.

Thank you again for taking part in this symposium and for working together to make a difference in this critical area of study. The future of digital fairness is in your hands.

In closing, I’d like to mention that last month, Penn State announced the creation of a Carbon Emissions Reduction Task Force. The group will identify and evaluate short- and long-term operational strategies for lowering carbon emissions on all of Penn State’s campuses.

So, it’s timely and fortuitous that I’ll be handing things over to Helen Greatrex, an assistant professor of geography and statistics and a faculty co-hire of our Institute for Computational and Data Sciences.

Helen will be leading a panel discussion on energy, data, and justice, focusing on opportunities to incorporate advanced computing into holistic carbon-free and renewable energy solutions, while also supporting the fight for climate justice and equitable societal impact.