Women in Data Science Welcome Remarks
April 27, 2023

Thank you, Jaideep, and welcome everyone gathered here for this critical conversation as part of the global initiative of WiDS! As you all know, this annual conference started in 2015 at Stanford as an effort to shine a much-needed light on the potential power of women, of data science, and of women in data science, to shape not only this field but our knowledge economy and our world more broadly. And wow, has it grown, with programs reaching over 100,000 participants annually, and regional conferences like this one, all over the world! And we are truly thrilled for our Rutgers Institute for Data Science, Learning, and Applications (in collaboration with the Center for Women in Business) to host this event, especially today, April 27th, which the UN has declared International Girls in Information and Communication Technology (ICT) Day.

How fitting for this convening to take place on this day of celebration, and you'll excuse my bias, but I also see it as very fitting that it take place here at RBS and Rutgers-Newark, as we are an institution dedicated to bringing the power of diverse voices to bear in innovating in the service of equitable growth. Yes, we count on the next generation of change-makers sitting right here to fulfill our mission as an active anchor institution in partnership with our collaborators in industry and economic development, in the arts and civic voice, in educational pathways, in public health and public safety, in government and public affairs, in our home city of Newark and our state of NJ, showing the world how local solutions can resonate globally.

And what better way to demonstrate this commitment than in the ever-expanding arena of data science broadly defined – we see the energy for innovation in this field every day, in the diversity of voices enrolling in our new Data Science minor in Arts & Sciences (yes, as you all know, this is a broadly interdisciplinary field) and the many programs here at RBS; in the variety of our corporate partnerships, including with Apple creating a high school pipeline of new generation code-aficionados and with FISERV, in our new joint program to drive inclusive innovation in the ever-exploding field of fintech, and, of course, in the cutting-edge, publicly-engaged research of Jaideep and his colleagues at I-DSLA. Their role as founding members of the NJ Big Data Alliance, and their work as critical innovators right here in Newark, is so important to the future of our city and state and beyond. They are tirelessly working, for example, to use predictive analytics and develop trusted tools to smooth the way for Newark residents interacting with City Hall (doing everything from optimizing the route for city crews to take in fixing potholes to developing a crowdsensing app for COVID-19 that guarantees privacy) – and I do have to say that their collaborative work absolutely exemplifies what it means for higher education to be a public good!

In fact, I believe that the data science field broadly defined, and in collaboration with humanists, social scientists, artists, and other cross-sector partners, can open up the world of talent in our midst if we bring down the digital divide—just as our new grant from the Department of Commerce's "Connecting Minority Communities" Program intends to do in Newark, in collaboration with local tech entrepreneurs, Rutgers-Newark faculty and staff, and our city-wide partners. If we can spread digital access and equity and expertise throughout a city

like Newark and prepare community members for digital economy jobs, for example, we will position ourselves for innovation that understands the world, as it unfolds on the ground, day in and day out, sometimes fairly and sometimes not.

In this regard, I was very struck by the words of Dr. Cecilia Aragon, who delivered a keynote address on "The Rigorous and Human Life of Data" at the Stanford WiDS conference last year, and wrote an opinion piece in *Newsweek* in which she said that we need data scientists with "a deep understanding of both the technical and human sides of their work…data scientists must have a thorough understanding of the social and ethical implications of what they do…" and she went on to urge us all to: "train the next generation of data scientists to have a nuanced understanding of how their algorithms can impact society."

As a social psychologist, I cannot reinforce enough the importance of Dr Aragon's emphasis on embedding the technical side of data science within the full social ecosystem in which the tools and discoveries will be used. However, her call for an expansive approach to data science also reminds us that we can't fulfill that broad mission unless we hear the voices and experiences of the full social ecosystem and make sure they actually are represented at the innovation table, and that includes bringing more women to that table. This push to expand all kinds of representation and engagement is especially relevant today as we see our talent pool literally diversifying before our very eyes – what demographer William Frey referred to as the *Diversity Explosion*.

In turn, the diversity explosion not only provides a challenge to double down on representation, it also provides an opportunity to increase the collective intelligence at the table of data science and indeed of all of our knowledge work. In particular, we know more and more now about how to capitalize on what systems theorist Scott Page characterized as the *Diversity Bonus*, that is the ways in which cognitive complexity and good solutions arise in lock step with the diversity of the teams doing the innovation. Hence, to reap this bonus, we need to do what the late organizational theorist Kathrine Phillips taught us and that is to optimize our collective intelligence by listening to and learning from the variety of insights and lived experiences that can be brought together when we truly value diversity over homogeneity in our classrooms, workplaces, and communities.

And to value diversity over homogeneity, we need to do what our RBS colleague, Distinguished Professor Nancy DiTomaso urged, and that is to stop hoarding opportunities for some and overcome our own in-group biases. It is the very tendency to surround ourselves with familiar others that perpetuates the homogeneity of our disciplines and workplace teams and, in the case of data science that tendency would perpetuate the centrality of men in a field where currently women make up only 28% of the workforce according to a 2020 report from the *National Center for Women and Information Technology*. So, until we reset the tables up and down the corridors of power and across the workplace tables with a critical mass of diverse women, we will not hear the full range of our voices; we will not see the within-group variation that inspires a collectively intelligent team to innovate.

Which brings me to my final point as to why what you are talking about today is so important to our future – to the health and well-being of our communities – and that is, without

women (and the range of identities and cultures and languages and experiences we bring to the table of innovation), I will wager that data science will miss its potential to genuinely change the world in the public's interest, precisely because it will have a skewed and all-too limited view of what indeed is the public's interest.

Having served for several years on the Committee on Equal Opportunity in Science and Engineering at the National Science Foundation and witnessed the glacial pace at which STEM fields, including data science, have diversified, I can say that it is about time that we shake up this world for real, so we can release the true potential of data science, and of all of us! And that is why, in my humble opinion, the work of WiDS and your conversation here is so spot on and timely. As data scientist Weiwei Pan wrote in a piece for *Fortune* in 2022, "There are so many ways data scientists can contribute to solving our most important challenges, from climate change to healthcare, education, and political polarization. My hope is that more data scientists can find opportunities to use their skills and expertise for social good." I couldn't agree more, and I know that in this room is the hope for making that a reality!