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Women In Leadership

Dr. Ayanna Howard-

"An American Roboticist: A Dream Fulfilled"

Chair of the School of Interactive Computing, Endowed Chair in Bioengineering and Director of the Human-Automation Systems Lab at Georgia Tech

Summary: A self-described Type A personality and a consummate life-long problem solver, Dr. Howard captivated the WIL audience with her upbeat presentation and her inspiring personal and professional journey (and she's nowhere near done!) At the age of 18, she got a position as a NASA summer intern near her home in Pasadena, CA, having no idea whether this was accidental or her destiny. As it turned out, NASA became a huge part of her life, especially after she received her PhD in Electrical Engineering at the age of 27. Among her many problem solving contributions, Ayanna's work in robotics at NASA's Jet Propulsion Laboratory earned her international acclaim along with her SnoMote robots designed to study the impact of global warming on the Antarctic ice shelves.

Circumstances at NASA, government funding, as well as broad changes taking place in the world presented Dr. Howard an opportunity to shift her career path and ultimately that led her to Georgia Tech. Clearly she's continued to take on more roles, more projects, and more responsibilities wearing many "hats" but always looking to work with others to solve problems. In 2013 she founded Zyrobotics focusing on therapy and educational products for children with special needs. Her research interests include human-robot interaction, Artificial Intelligence and much more.

The fact that Ayanna would turn her interest to using AI and robotics to help children with disabilities isn't a stretch or surprise at all. She's always worked with kids and is just merely taking her involvement to a much higher level. She pointed out that the children disability population is at least 150 million worldwide and the adult numbers represent 19% of the population in the U.S. Sharing some of her work using gaming robots ("gamifying therapy"), robots with "emotional intelligence," and robots designed to make mistakes in order to improve outcomes for children (e.g., mobility, accessibility, etc.), it's very clear that Dr. Howard is dedicated to making a difference in the world by improving the quality of life for as many people as possible.

And if that weren't enough, she's also teaching "Ethical AI classes!" This is extremely important, she said, to prevent scientists and engineers from imposing their biases on others. At the end of her presentation, Dr. Howard left everyone in AWE of her talent, her dedication, and her amazing impact. She's an American roboticist, indeed, and a SHEro as well!

Background – Personal & Professional plus Expert Insights:

- Grew up in California, parents engaged in math and engineering.
- Received B.S. in Engineering from Brown University in 1993 and her M.S. and Ph.D. in Electrical Engineering from the University of Southern California in 1994 and 1999, respectively.
- Today she lives in ATL with her husband, a chef and three teenagers.
- Her hobby: Zumba instructor.
- Her classes at Tech are extremely diverse and she revels in challenging them to share their ideas and solve problems.
- What excites her the most? Research in early childhood development and diagnosis (learning from babies as young as 6 months old from their kicking patterns)
- What about the future of robots in our homes? Possibly 30 years for pervasive use.

Key Comments & Take-Aways from Attendees:

- "Fail fast, fail often"
- "Even Artificial Intelligence (AI) has bias – because it's created by humans."
- "Be cognizant that your biases are not imposed on others."

- "What you create today you may need tomorrow."
- "When I'm not the smartest person in the room there's an opportunity to learn."
- "My job is not to be the expert but rather to get the information from the expert and code it into the robot."
- "Journey from NASA to accountability."
- "Find a 10 year problem to captivate your brain."
- "Group think – one personal throws out a problem and everyone throws out ideas."
- "Group think – I'll be using this concept to brainstorm with my team."
- "Awesome presentation re allowing kids to see mistakes and figure out the solution."
- "Keep at it, take risks."
- "So encouraging, incredible story."
- "Stay engaged making sure you're always learning."
- "Great approach to problem solving – tips on sparking creativity."
- "Radical candor."
- "Feedback for my manager on the reaction to new ideas."