Mercedes-Benz has partnered with Nvidia to use the Omniverse platform to create realistic models to test prototype vehicles, provide remote assistance to trainees, and launch VR showrooms to sell cars.

wide sensor deployment to observe trends and troubleshoot issues before deploying more sensors across Cleveland. Additionally, we are working on creating a middle/high school curriculum to empower students with computer science skills while teaching them about air quality.

As an undergraduate team, we have members interested in industry and academia and encourage their growth by having them present their research at various conferences. We presented our pilot deployment research results in Boston at ACM SenSys 2022, Ohio Chapter of Women in Computing (OCWiC 2023), and Cleveland Big Data Meet-Up 2023. Through these presentations, we received lots of great suggestions about how to use our data meaningfully from an audience of data scientists, professionals, students, and academics. We eagerly anticipate sharing further insights at ACM Midwest CCSC 2023 in October and look forward to the feedback and ideas we will gather about our project and research, which will help us as undergraduate students and researchers.

As a research group, we remain dedicated to growing each MOPS student while making meaningful contributions to computer science research. Since we are solely an undergraduate group, we let our researchers dive deep into various areas they are interested in or curious about. We have 22 alums who have excelled in industry and academia, using skills and knowledge gained through their participation in MOPS research. We want MOPS to be a fun, innovative, and meaningful part of the undergraduate experience while building projects that last beyond our undergraduate years.

If you want to learn more, please visit our website at https://mops.bw.edu/.

—*Julia Gersey*

Humanoid Robots in Healthcare:
Synergy of empathy and innovation

Humanoid robots have showcased remarkable utility in physical, occupational, and rehabilitation therapies. Those robots can emulate the appearance and demeanor of healthcare providers to assist patients in numerous ways, such as offering emotional support, guiding recovery exercises, providing medication reminders, monitoring patient progress, and much more.

In the cases of cognitive disease, such as Alzheimer's and dementia, traditional treatment plans predominantly relied on medication and cognitive exercises guided by healthcare experts, which necessitated considerable time and effort to deliver personalized care and companionship. Today, humanoid robots help with cognitive disease management by facilitating memory recall, providing medication reminders, engaging in tailored cognitive exercises, stimulating mental activity, and nurturing self-reliance among patients. They utilize machine learning algorithms to dynamically adjust their responses according to the individual preferences, needs, and progress of each patient. In addition, they employ various technologies, such as natural language processing, computer vision, edge computing and sentiment analysis, to learn insights from previous interactions. These insights enable them to deliver highly personalized support to patients.

Initially, humanoid robots in healthcare faced skepticism regarding its potential dehumanization of care. The adoption of humanoid robots has assisted plenty of healthcare providers and patients, especially during times of healthcare worker shortages. Recent studies also indicate the outcomes of robot-assisted cognitive treatment can be further enhanced by promoting patient's immersion and motivation. While encouraging the broader adoption of this approach has the potential to foster a more accessible, equitable, and inclusive healthcare system for all, it is crucial to perceive the development of humanoid robots as a synergy between human empathy and technological advancement rather than replacements for healthcare providers. Their invaluable experience and human empathy are irreplaceable when it comes to delivering healthcare.

—*Zhongxuan He*