PEOPLE-CENTRIC BUILT ENVIRONMENTS THAT SUPPORT SAFETY, PRODUCTIVITY, WELL-BEING, AND LEARNING

With the recent advancements in data science and artificial intelligence, we will have different experiences with our built environments. This inevitable change will impact our everyday experiences, causing novel interactions between humans and the built environment. Built environments (e.g., transportation hubs, office buildings, homes, learning environments) will become interactive entities that provide "user-centered" and "dynamic" spaces for their inhabitants to perform a range of social functions. These environments will provide unique opportunities to their users, sensing user data, modeling user behavior, reasoning, interacting with their users, learning user preferences/needs, and providing a user-centric environment. iLAB's (Innovation in Integrated Informatics LAB, http://i-lab.usc.edu/) research aims at building interactive and intelligent environments with the end goal of impacting both human and building behavior to fulfill the goal of sustainable, resilient, healthy, and comfortable built environments. The group investigates how to adapt to the needs of the users of built environments through the use of machine learning, artificial intelligence, automation and data science. The goal is to innovate novel approaches for enabling environments that are not only aware of and make use of their users' locations, processes, activities, or preferences but also create environments that learn, predict, and respond to what is going to happen in the foreseeable future. The focus of the research is on establishing people-centric environments that collaborate directly with users in a dynamic and informal way and provide context aware, personalized, and timely services for supporting decision-making, collaborative problem solving, management of resources and learning. This talk will focus on our recent work on intelligent work environments that improve worker productivity while supporting well-being. We will cover a range of topics on the changing world of work including intelligent buildings that sense user data, model user behavior, reason and interact with their users through the applications of AI and human-machine collaborations.

DR. BURCIN BECERIK-GERBER

PROFESSOR AND CHAIR OF SONNY ASTANI
CIVIL ENVIROMENTAL ENGINEERING
FOUNDER AND DIRECTIOR CENTIENTS

During the last 15 years, her research focused on advanced data acquisition, modeling, visualization for design, construction, and control of user-centered responsive and adaptive built environments. She pioneered a new field: Human-Building Interaction (HBI), which is a convergent field that represents the growing complexities of the dynamic interplay between human experience and intelligence within built environments. She published her work in more than 150 peer-reviewed journal and conference papers. Her work has received support worth over $12 million from a variety of sources, including the NSF, DoE, DHS and DoT and corporate sponsors. In 2012, she was named by the MIT's Technology Review as one of the top 35 technology innovators under the age of 35 (first civil engineering faculty to receive this recognition). She received the FIATECH Celebration of Engineering and Technology Innovation Award in 2018. The same year, she was awarded the Rutherford Visiting Fellowship by the Alan Turing Institute, UK's national data science and AI institute. Between 2012-2019, she held the inaugural Stephen Schrank Early Career Chair. In 2020, she was appointed as a USC Viterbi Dean's Professor. In 2021, she was elected to the National Academy of Construction. Since 2021, she serves on the Board on Infrastructure and the Constructed Environment of the National Academies of Sciences, Engineering, and Medicine. She received mentoring and leadership recognitions such as the Mellon Mentoring Award (2017) and an Executive Leadership in Academic Technology, Engineering and Science (ELATES) Fellowship (2021), which speak to her commitment to education and leadership in academia. In 2022, she received an Emmy Award as a co-producer of the documentary, "Lives, Not Grades," which told the story of a novel course, she co-designed and co-taught, that focused on engineering innovation for global challenges.

DECEMBER 1, 2023 | **ZOOM MEETING** | **11:30 AM – 12:20 PM**

PURDUE UNIVERSITY | Division of Construction Engineering and Management