Industrial & Systems Engineering
Seminar Announcement

Modeling human performance and designing systems considering individual differences

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Abstract: As the world becomes more globalized, industries are focusing on the increased diversity of users' interests, suggesting that it is crucial to consider employees and consumers as distinct individuals rather than as homogenous groups. One exemplifying factor I considered was individual differences in pacing styles in the face of approaching deadlines. Deadlines are known to increase productivity by helping companies and workers to manage time efficiently, although many unaddressed questions remain regarding individual differences in workers' performance under deadlines and appropriate deadline policies. The presentation will show factors that affect individual work rates as deadlines approach as well as better methodologies for quantitatively measuring and estimating individual behaviors under deadlines; it will also propose new designs for online learning systems and new policies for time management based on these individual differences. In addition to the individual differences in pacing styles, considerations related to different ages of the population and different levels of expertise of users when designing healthcare and manufacturing systems will be introduced. This presentation highlights the importance of considering these individual differences in the work systems by modeling, estimating, and providing operational policies based on several experimental, field, and simulation investigations.

Bio: *Ji-Eun Kim* is an Assistant professor in the Industrial and Systems Engineering Department at the University of Washington. She holds a Ph.D. degree in Industrial Engineering from the Pennsylvania State University and a M.S. degree in Cognitive Psychology from Korea University. Her primary research focuses on measuring, modeling, and designing human performance considering individual differences by employing statistical, physiological, and psychological measurements. She is also interested in the application of the individualized performance to transportation, healthcare, operations research, and engineering education. Her work is rooted in her previous study of cognitive neuroscience which was funded by government agencies and industry partners. Before joining Penn State, she worked for the Korea Institute of Science of Technology on a project to develop biomedical robots that automatically respond to users' muscular signals.

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