

# Neuroergonomics and Its Relation to Psychophysiology

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**Abstract:** Psychophysiology measures operators' physiological activities, originating from the autonomic nervous system, such as eye movement, heart rates, electromyography, and skin conductance resistance, while operators conduct behavioral tasks. Researchers have distinguished psychophysiology from neuroergonomics, which focuses on neural activities in brain functions using brain imaging techniques. Psychophysiology has served as a supplementary measure to represent indicators of the levels of neural activities of physical and cognitive work. However, it is not easy to depend solely on neuroergonomics' techniques in industrial task settings to quantify and predict human performance due to temporal and special constraints. In this talk, I will review and compare the strengths and weaknesses of methodologies in psychophysiology and neuroergonomics as well as their applications to work systems from the current projects conducted in my lab.

**Bio:** Ji-Eun Kim is an assistant professor in the Industrial and Systems Engineering Department at the University of Washington, Seattle. Her research covers several areas within the fields of human performance modeling, neuroergonomics, and cognitive engineering, with a primary goal of designing work systems that better accommodate individual differences. Current projects in her lab include human factors considerations for healthcare systems, cyber learning, and operations research. She holds a Ph.D. degree in Industrial Engineering from the Pennsylvania State University, a M.S. degree in Cognitive Psychology from Korea University, and a B.S. degree in Biology from Sogang University.