Professor Rantanen trained as an airline pilot and worked as an air traffic controller before going back to school and into an academic career. Before joining the psychology faculty at RIT in 2007, Professor Rantanen was in the faculty of Institute of Aviation of the University of Illinois at Urbana-Champaign.

Professor Rantanen's theoretical research interests lie in the areas of human factors in complex and dynamic systems, human performance measurement and modeling, mental workload, decision making, and human error and reliability. His primary research focus is on the role of time and temporal mental models in human performance. Professor Rantanen is currently pursuing research in three applied domains: Air traffic control (air traffic controllers' situation awareness), healthcare (human error in medicine), and process control (control room displays).