Modeling and Simulation of Ergonomic Impact of Fastening Operation

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Funding Source:
Air Force Research Laboratory, CAMT Industrial Consortium (Missouri S&T), Siemens Corp., Spirit Aerosystems

Project Description:
The aim of this research is to analyze the ergonomic impact of fastening operation on the operator hand-arm system. This involves measurement and modeling of the dynamic response of the operator hand-arm to the impact force generated due to fastener shear-off at the end of fastening operation. Acceptability on the duration of loading and hand-arm displacement at different postures are experimentally determined. The research results are used to develop a simulator that enables aircraft designers to simulate the fastening operation with various types of fasteners and fastening tools, and enables industrial engineers to perform ergonomic analysis of fastening operation with consideration of both static and dynamic forces for purpose of injury prevention. This is useful to assembly design, workplace layout design, and selection of fasteners and fastening tools. More details of the project description is available on the weblink: http://web.mst.edu/~vram/projects.htm.

Publications: