

Task Analysis Toolkit for Jack

Keeping the workplace safe with virtual humans

fact sheet

Siemens PLM Software

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► Summary

With the Jack Task Analysis Toolkit, ergonomic analysis can be performed early in the design stage, before hazards become difficult and costly to correct.

Benefits

- Reduce risk of injury
- Improve workcell layout and efficiency
- Improve assembly quality
- Compress time to launch
- Predict worker performance
- Lower worker's compensation costs

Features

An add-on to Jack, the Task Analysis Toolkit provides tools for:

- Low-back spinal force analysis
- Strength prediction
- National Institute of Occupational Safety and Health (NIOSH) lifting analysis
- Predetermined time analysis
- Rapid upper limb assessment
- Metabolic energy expenditure
- Manual handling limits
- Fatigue/recovery time analysis
- Working posture analysis
- Low-back spinal force analysis

What is the Task Analysis Toolkit?

Designing better work areas and improving the execution of industrial tasks for workers can be a challenge. The Task Analysis Toolkit (TAT) for Jack addresses this challenge by providing analytical tools that help you design workplaces for optimal performance.

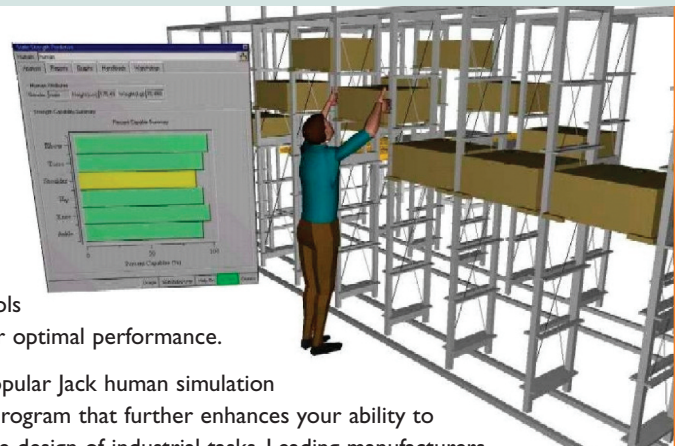
TAT is an add-on module to the popular Jack human simulation and ergonomics analysis software program that further enhances your ability to analyze human factors issues for the design of industrial tasks. Leading manufacturers in the automotive, aerospace and heavy equipment industries are currently using Jack to design safer, ergonomically sound workplaces and processes more quickly and for less cost.

Business value

Across industries the importance of considering human performance in products, workplaces and production processes is paramount. When workers build ergonomically sound products in safer, more productive environments, organizations achieve dramatic improvements in quality, cost, time-to-market and worker morale. With Jack TAT, design teams can place virtual humans into almost any environment to see how people will perform assigned tasks. TAT assesses risk of injury based on posture, muscle use, load, task duration and frequency, and provides intervention guides to reduce risk.

TAT shows you how much workers can lift, lower, push, pull, twist and bend when performing their jobs. The TAT tools can help identify nonproductive actions and tasks that put the worker at elevated risk of injury or fatigue. It also identifies tasks that require the most recovery time and even shows which muscle groups are under the most strain.

With the Jack Task Analysis Toolkit, ergonomic analysis can be performed early in the design stage, before hazards become difficult and costly to correct.

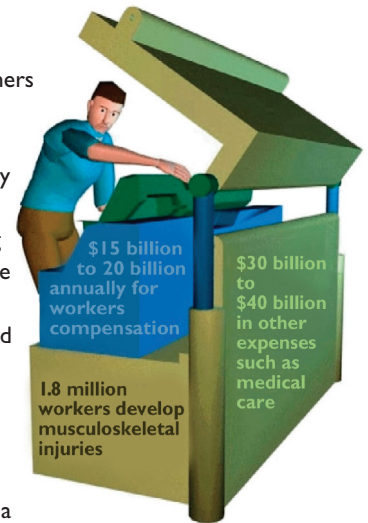


Hardware platforms supported

Windows 2000/XP
Hewlett-Packard HP-UX
Silicon Graphics IRIX

Overview

As industrial workplaces and manual tasks are being developed, designers can bring human factors into the design process sooner to ensure worker safety and maximum productivity. Users can interactively evaluate the ergonomics of designs. TAT helps reduce the risk of injury by reporting the worker's risk of upper limb disorders as well as displaying the strain on the lower back under any posture and loading condition. Productivity can be improved because TAT predicts the time required to perform certain tasks based on the methods time measurement (MTM-I) system. Furthermore, worker fatigue is avoided by predicting energy expenditure requirements for the prescribed task, and assessing whether enough recovery time is available for a given task to avoid worker fatigue. With TAT, you can develop better, safer and more productive workplaces.



Low-back spinal force analysis tool. Evaluates the spinal forces acting on a virtual human's lower back under any posture and loading condition.

Static strength prediction tool. Evaluates the percentage of a worker population that has the strength to perform a task based on posture, exertion requirements and size.

NIOSH lifting analysis tool. Evaluates lifting tasks based on NIOSH lifting equations.

Predetermined time analysis tool. Predicts the time required to perform a job based on the methods time measurement (MTM-I) system.

Rapid upper limb assessment (RULA) tool. Evaluates the exposure of workers to the risk of upper limb disorders.

Manual handling limits tool. Evaluates and design manual handling tasks involving lifting, lowering, pushing, pulling and carrying for reduced risk of low back pain.

Working posture analysis (OWAS) tool. Provides you with a simple method for quickly checking the comfort.

Metabolic energy expenditure tool. Predicts the energy requirements of a job based on worker characteristics and the tasks that comprise the total job.

Fatigue and recovery time analysis tool. Assesses whether enough recovery time is available for a given job to avoid worker fatigue.

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