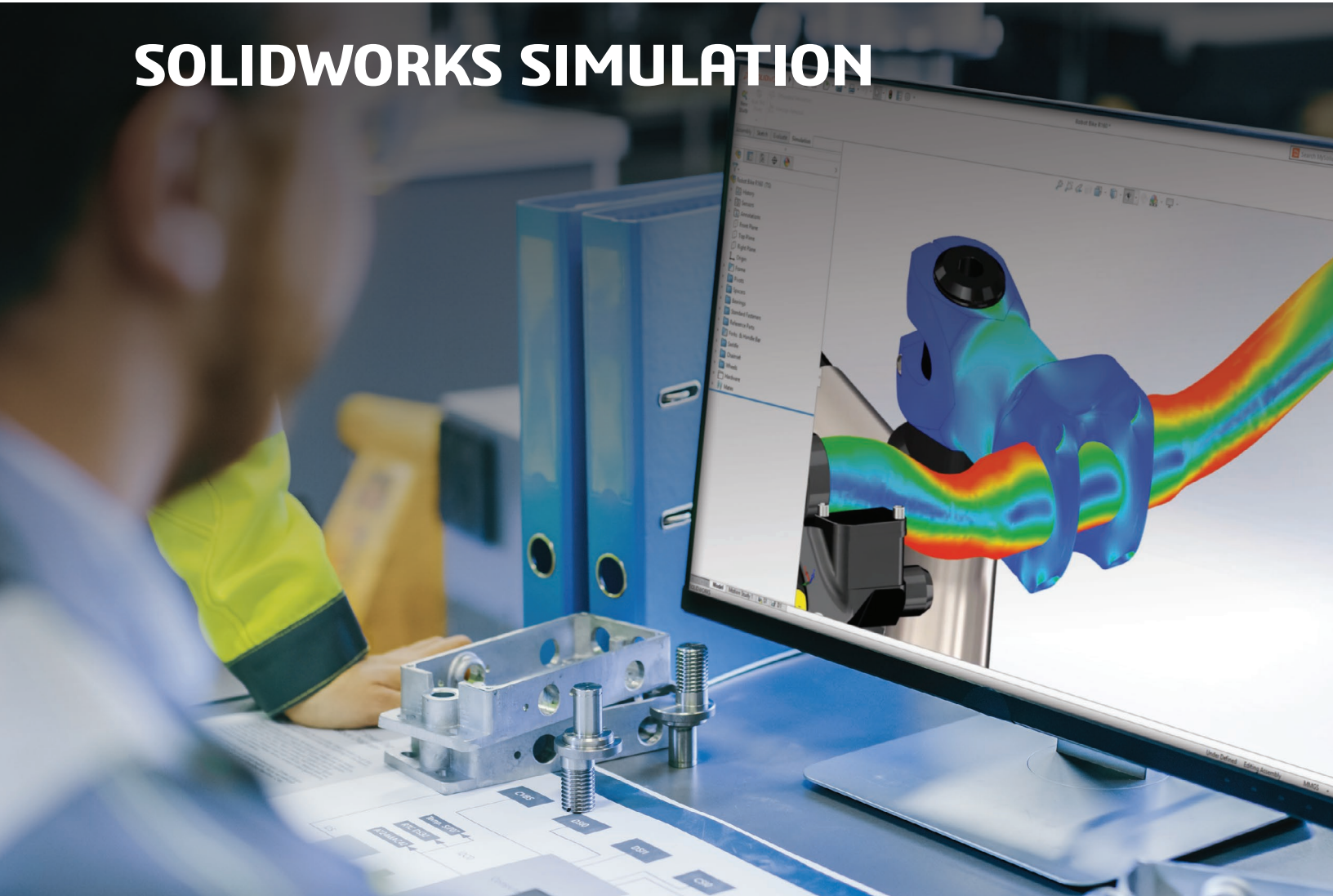# SOLIDWORKS SIMULATION

BRING YOUR PRODUCTS TO MARKET FASTER AND WITH LESS PROTOTYPING

Accurately predict product performance with easy-to-use simulation tools, fully embedded within SOLIDWORKS®, which allow designers to avoid costly overdesign and focus on innovation.

OVERVIEW

SOLIDWORKS Simulation is an easy-to-use portfolio of structural analysis solutions using Finite Element Analysis (FEA) to predict a product's real-world physical behavior by virtually testing CAD models. The portfolio of simulation solutions offers everything designers need—from entry-level to more advanced capabilities—for linear, nonlinear static, and dynamic analysis.

CAPABILITIES

- Is fully embedded in SOLIDWORKS 3D CAD interface

- Supports SOLIDWORKS CAD configurations and materials

- Predicts product performance by calculating component stresses, strains, displacements, and factor of safety (FOS)

- Estimates fatigue life of components subjected to varying loads

- Analyzes complex and nonlinear material behavior (metals, rubbers, and plastics) and accounts for large deflections and sliding contact in nonlinear analysis

- Discovers new minimal material with Topology Study

- Calculates temperature distribution and heat flux with thermal analysis

- Determines natural frequencies and mode shapes

- Calculates the effects of forced vibrations, impact, shock, or any time-varying loads with linear and nonlinear dynamic analysis

- Determines the optimal or most robust design with the parametric ("what if") and optimization analyses

- Simplifies simulation studies by using bolts, pins, springs, bearings, and edge and spot welds

- Simulates product performance of composites

- Offers rigid-body kinematics with time-based motion and event-based motion analysis

- Predicts structural instability with buckling analysis

- Calculates linearized stress with Pressure Vessels

- Exports SOLIDWORKS Simulation results in eDrawings® format

ANALYSIS TYPES

- Linear Static Analysis
- Nonlinear Static Analysis
- Frequency Analysis
- Thermal Analysis
- Topology Studies
- Modal Time History Analysis
- Harmonic Analysis
- Random Vibration Analysis
- Response Spectrum Analysis
- Nonlinear Dynamic Analysis: impact, shock, time
- Varying Loads
- Design Study (Parametric Optimization)
- Fatigue Analysis
- Linear Buckling Analysis
- Submodeling Analysis
- Drop-Test Analysis
- Pressure Vessel Design Simulation
- Time-Based Motion Analysis
- Event-Based Motion Analysis

With access to the **3D**EXPERIENCE® cloud-based platform, you can easily share your CAD data, collaborate with others, and use a growing suite of connected tools to design, manufacture, and manage your products.

Find out more about SOLIDWORKS Simulation solutions at https://www.solidworks.com.