



Twiner

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THE PROBLEM

- A loading arm exhibited cracks in multiple locations.
- Cracks appeared to be the result of fatigue.
- Fatigue-induced cracks compromised the structural integrity of the arm.
- Failure if not addressed promptly.

OUR SOLUTION

- Identify the most significant loading and unloading sequences.
- Characterize the dynamics of the arm's motion.
- Determine critical stress points.
- Estimate the fatigue life of the arm.
- Redesign the arm to extend its lifespan by a factor of two.

OUR METHODS

- Finite Element simulation using multi-bodies.
- Hybrid mesh of shells, rigid solids, beams, bars, and mechanisms.
- Quasi-static analysis with large displacements and rotations.
- Fatigue life assessment using cycle counting techniques.

