AI and Safety – Failure Modes of Automated Systems Picture This



This image clearly demonstrates a grave safety failure during robotic operation. A worker is being injured by an industrial robot whose arm has unexpectedly activated, clamping onto the employee’s arm as he works nearby. The worker was neither shielded from the robot’s range, nor was the robot safely locked out when the incident occurred.

Industrial robots, while highly efficient, carry significant risks if safeguards are

not in place. Failure modes—such as unplanned motion or sudden restarts—can cause crushing injuries, lacerations, or even be fatal. Safe robotics use requires ensuring robot systems are properly de-energized before interaction, using physical barriers or safety-rated enclosures to separate workers from active robots, and providing comprehensive training on robotic hazards and emergency procedures.