



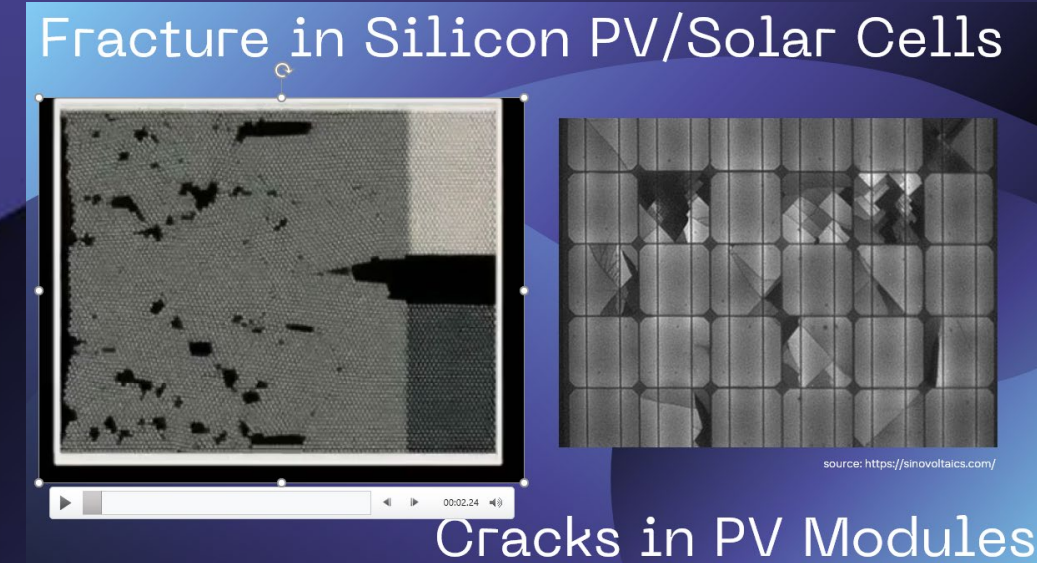
U.S. DEPARTMENT OF ENERGY

Crack Catcher AI

Arrest Crack before It Breaks (the Silicon PV Module Performance)

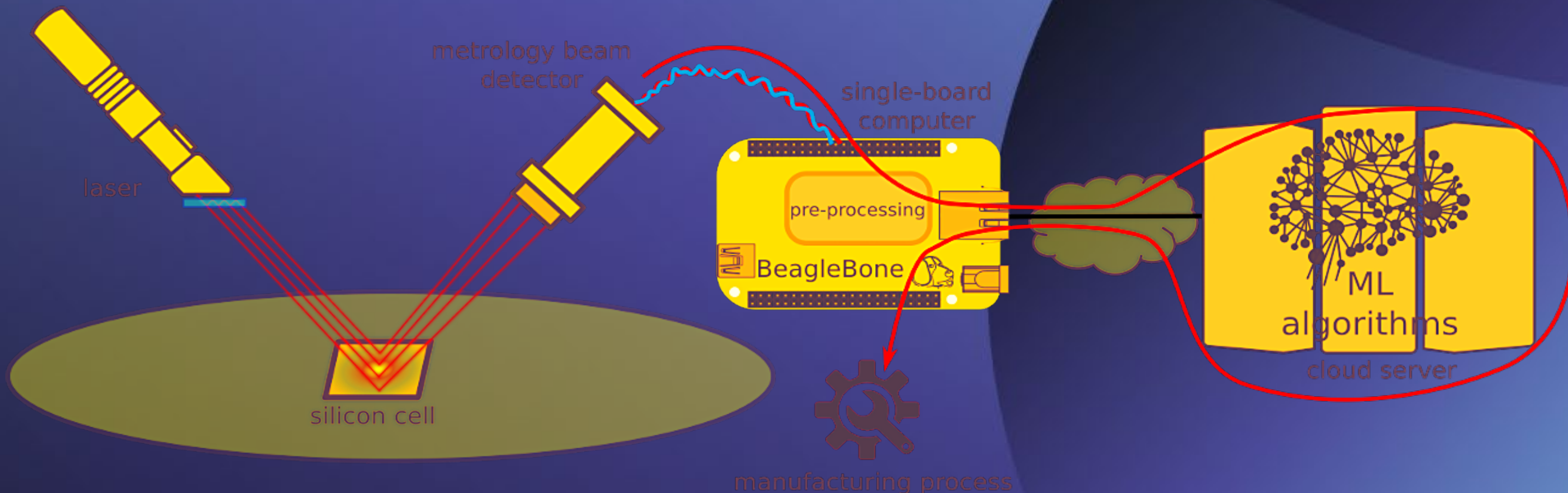
Problem: Silicon solar cells are the most effective solar PV technologies – max power output at the lowest cost. However thin silicon cells crack easily even during manufacturing assembly. Every crack is a defect in any PV manufacturing lines, and if it is let to grow/propagate it will lead to reliability and quality issues with time.

Solution: Our “Crack Catcher AI” uses smart stress sensing and smart fracture sensing and prediction utilizing big data analytics to reduce crack defects (and thus increase manufacturing yield) of USA PV manufacturing, enhance long-term durability of USA PV products and secure the US competitiveness in PV industry globally.



Cracks in PV Modules

Smart Stress Sensing using Novel Laser-based Curvature Methodology for Fast In-Line Stress Metrology in Manufacturing Lines



Smart Fracture Sensing and Prediction using Artificial Intelligence (AI) for Defect Control Metrology and Yield Enhancement in PV Production Lines