



Faculty Member

Timken Foundation Center for Precision Manufacturing

Contact Information



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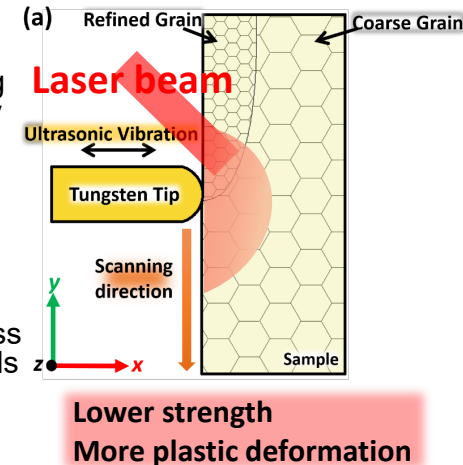
Research Interests

- Surface engineering and tribology
- Computer vision for automation
- Machine learning for data analysis
- Fluid and solid materials Modeling

Sample Research I:

Laser-assisted ultrasonic peening for durable metals

- Dr. Dong's lab is equipped with coating, nitriding, laser shock peening, and ultrasonic peening techniques to improve durability of metals for extreme environment applications.
- As an example, laser-assisted ultrasonic peening is a novel technique to use thermal-mechanical coupling effect to further improve surface hardness and integrity of hardened metals including bearing steel and Ti alloys.



Sample Research II:

Computer vision for automatic defect detections

- Deep-learning-based computer vision system can be used to replace human quality inspector for manufacturing automation.
- The figures show defect detection system deployed in a textile factory.
- The vision model can run on a low-cost, portable computational device.

