American Society for Precision Engineering

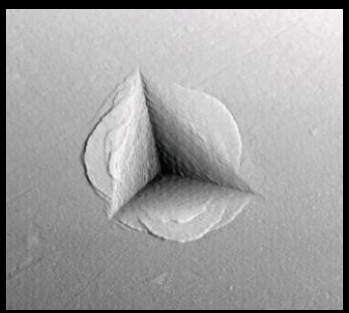
October 26, Norfolk, Virginia
Registration deadline: August 15

DESIGN
BUILD
COMPETE
LEARN
NETWORK

aspe.challengecommittee@gmail.com

ASPE Student challenge 2026

Design and build a **flexure-based Berkovich nanoindenter** capable of generating millinewton-scale forces and measuring displacement with nanometer accuracy to characterize the mechanical properties of a **copper thin film on a silicon wafer substrate**.



Why Participate?

- Solve an hands-on precision engineering challenge
- Showcase your creativity, technical skills, and teamwork
- Network with industry professionals

Who can Participate?

A team of at least three currently enrolled graduate or undergraduate STEM students

MSC BUILT TO MAKE YOU BETTER

ASML

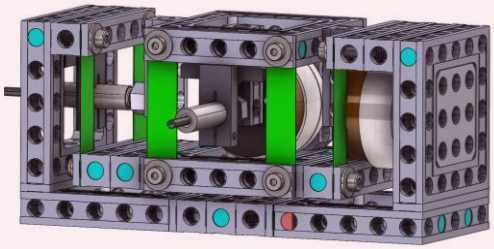
Edge Technologies
Makers of precision diamond tools

LION PRECISION

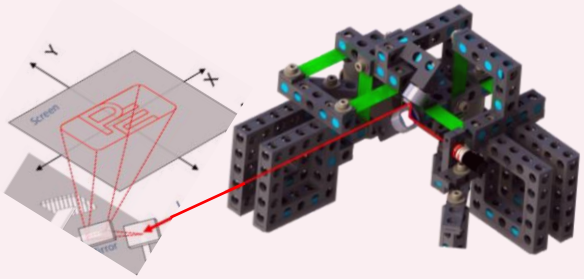
MOTUS MECHANICAL

Past challenge topics

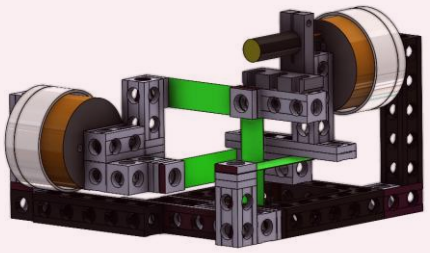
2015: XY stage to scan a penny



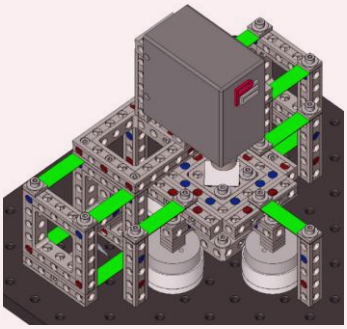
2016: Laser writing ASPE logo



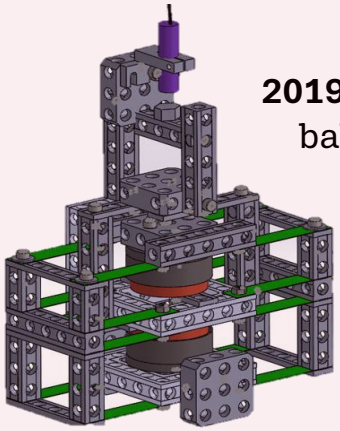
2017: Active feedback vibration isolation



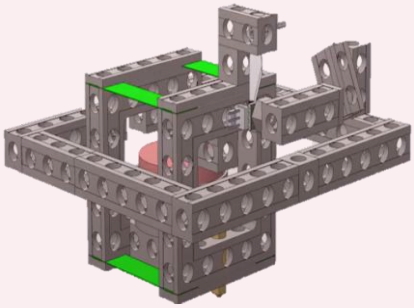
2018: Laser focus probe measuring glass thickness



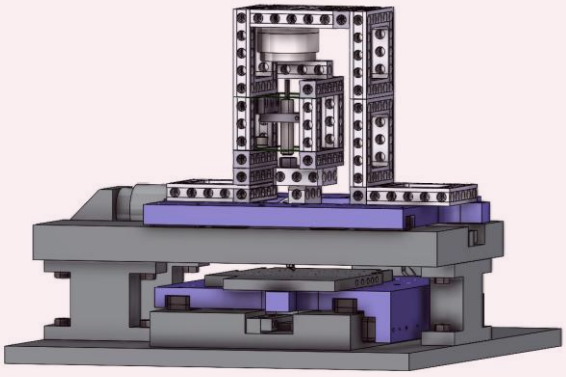
2019: Kibble balance



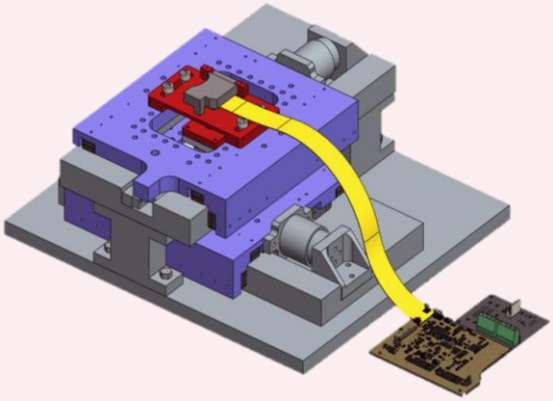
2020: Force feedback control



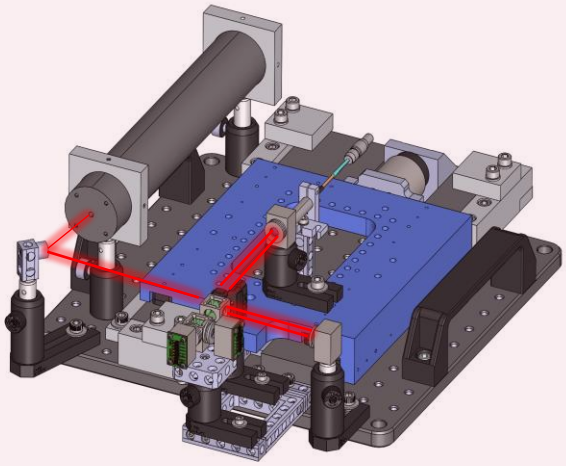
2021: Diffraction grating manufacturing



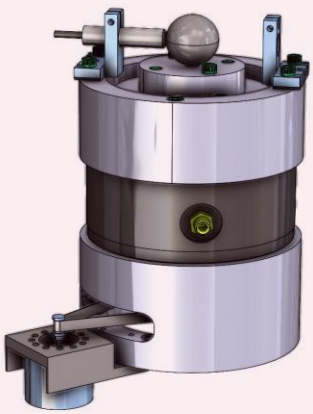
2022: Freeform mirror measurement using an Optical Pickup Unit



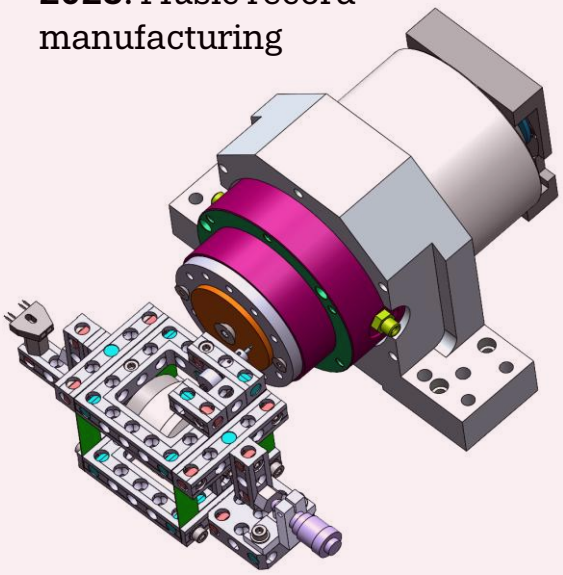
2023: Interferometric feedback control of an air-bearing stage



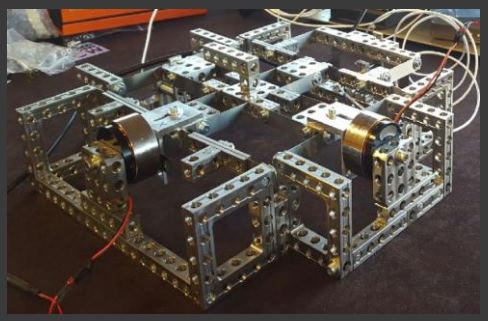
2024: Ball roundness metrology



2025: Music record manufacturing



Past challenge topics



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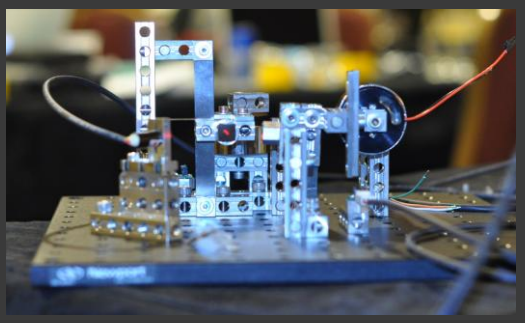

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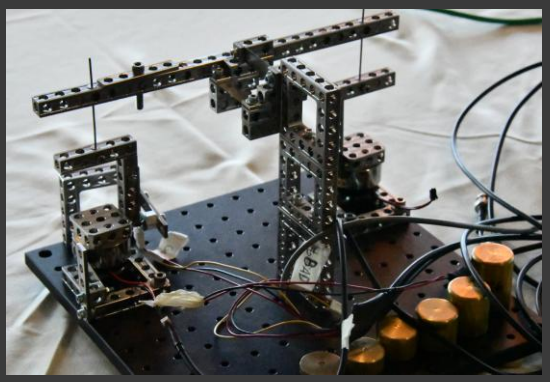

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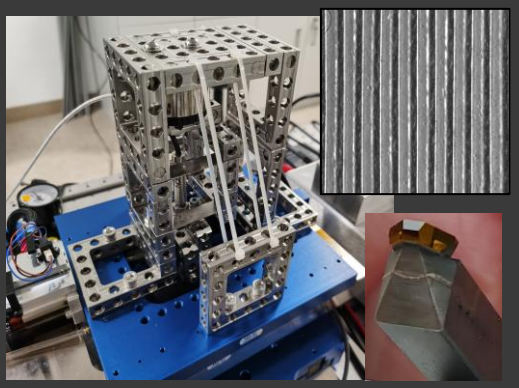
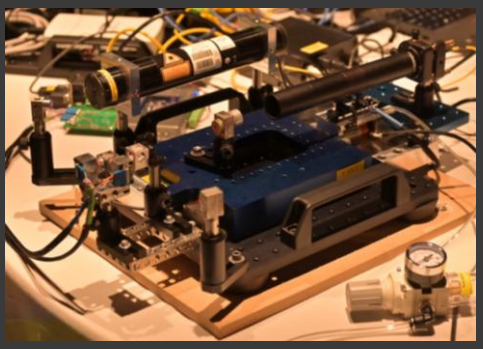


2020-21: Force controlled diffraction grating manufacturing



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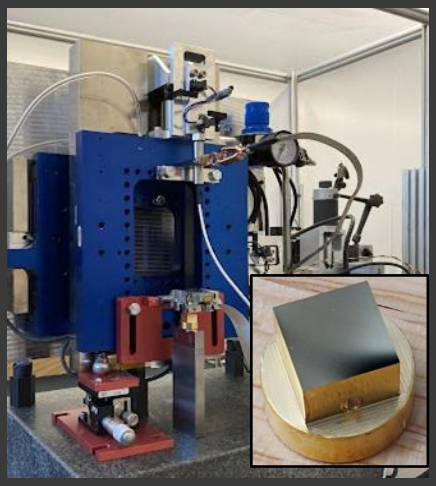

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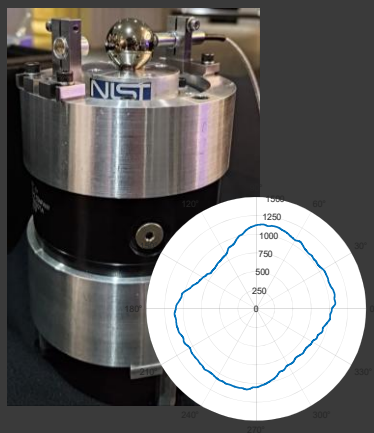

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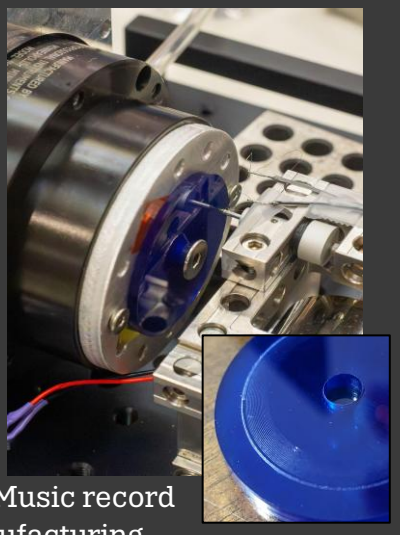

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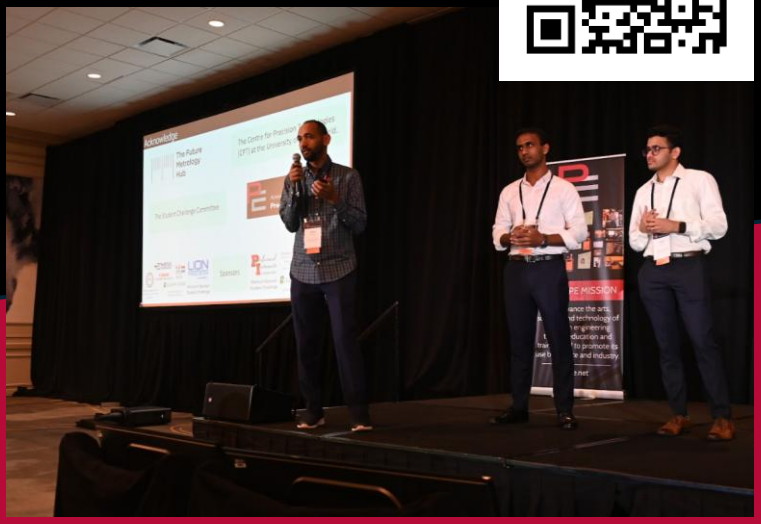

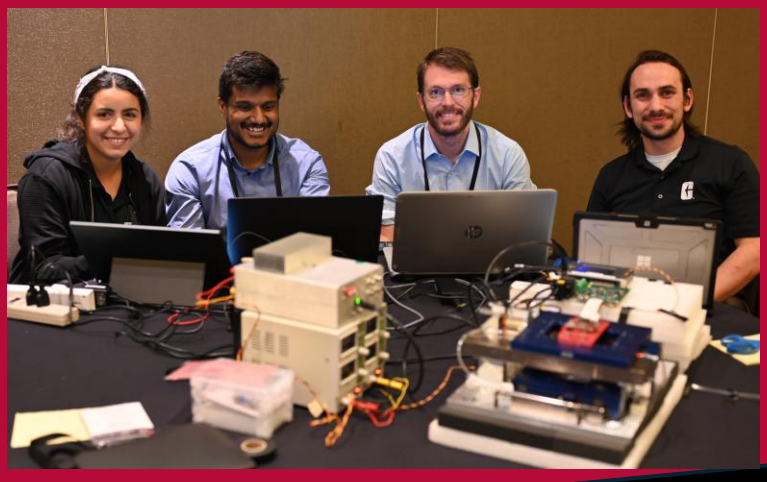

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