



Defense-Wide Manufacturing Science & Technology (DMS&T) Program



On Tool Inspection of Automated Fiber Placement

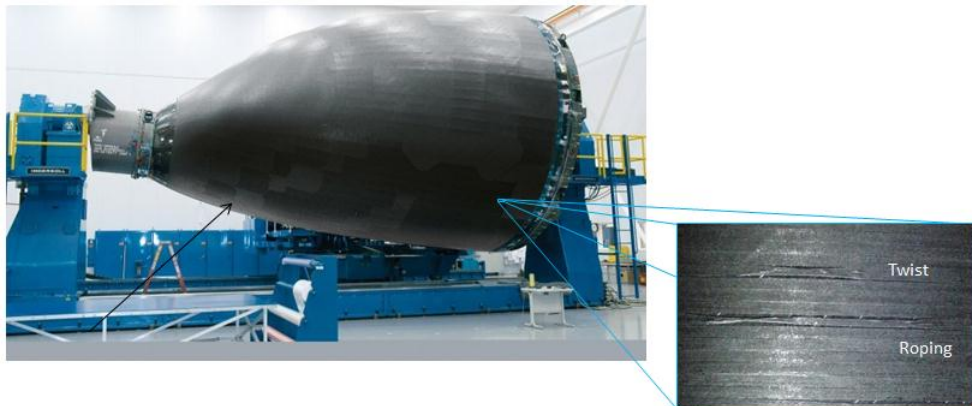
PROBLEM / OBJECTIVE

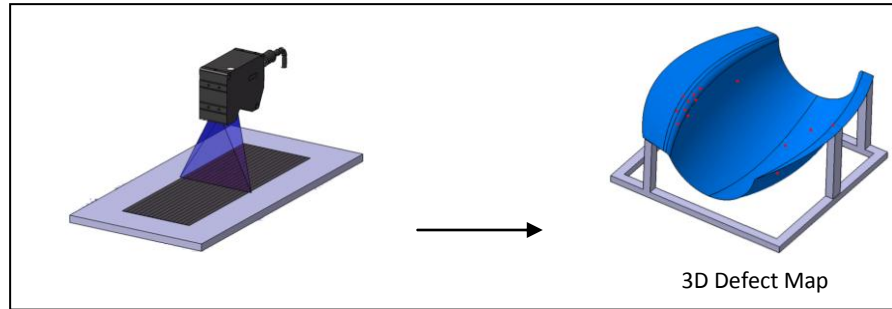
- Current composite lay-up practices require that the fiber placement process is inspected 100% manually / visually after each ply has been placed
- Manual inspection processes are time consuming, leading to reduced production rate dependent on inspector alertness leading to undetected flaws, and expensive due to overhead costs of on-site inspectors

APPROACH / BENEFITS

Approach

- Develop a system to automate the process of inspecting fiber placement for fabricating low cost composite structures resulting in:
 - Decreased time/cost
 - Increased detection capability/quality
 - Digital collection of data/electronic tracking
- Utilize independent hardware that can be used at any location with all fiber placement equipment
- Deploy the inspection system in a production fiber placement environment





Expected Benefits and Warfighter Impact

- Increased productivity, lowered manufacturing cost and reduced touch labor
 - Estimated 25% reduction in inspection costs
 - Increase in production speed
 - Estimated \$50-\$100 million savings over 10 years for JSF program
 - Expandable application across aerospace production industry
- Improve the producibility of complex polymer matrix composite components and raise the MRL of automated fiber placement inspection systems to an MRL of 6.
- May provide basis for a commercially viable product to be used in the production of the JSF, V-22, F/A 18, and commercial aircraft production
- Can eliminate paper tracking quality systems

POINT OF CONTACT

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88ABW-2013-4576

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