**AIAD #10955**

**ORGANIZATION/PROJECT SPONSOR**
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Location of Sponsoring Directorate: Aberdeen Proving Ground, MD

**PROJECT**
**Title:** Application of Digital Image Correlation for Full Field Displacement/Strain Measurement for the Enhanced Materials Characterization

**Description:**
In recent years, a new computer vision technique called digital image correlation (DIC) has been used to measure the surface deformation of a material under load. The concept of this technology uses digital images captured from cameras and through post-processing, the images are converted into quantitative, full-field displacements (x, y, z) or strains ($\varepsilon_{xx}$, $\varepsilon_{yy}$, $\varepsilon_{xy}$). ARL has applied this technique to obtain data for various materials research programs for the past 5 years and continuing to explore new ways to use this technology.
The cadet will be integrated into a small group of senior and staff engineers and he/she will have the opportunity to learn first hand how these techniques can be applied to the many materials research programs at ARL. In particular, the cadet will learn about the basic fundamentals on DIC and how it is used to measure surface strains on composites laminates under tension and impact.

**ARL/Army Benefit:**
The cadet will also have an opportunity to explore the many state-of-the-art facilities at the Rodman Materials Research Laboratory and to discover how materials technology at ARL/WMRD is essential for the current and future US Army.

**Background Required:** Mechanical/Materials Engineering

**Security clearance required:** Secret

**Capacity:** 1

**Duration:** 4 weeks

**Block Preference**: I will be out of the office during this week of 6-10 June, 2011.