The Department of Mechanical and Materials Engineering is pleased to offer the following research project for the summer of 2016. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

PROJECT TITLE: Three-dimensional Modeling of Non-Woven Fibrous Structures

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Project Description

Non-woven fibrous structures are widely used in many consumer packaged goods such as paper towels and diapers. The goal of this WISE project is to develop a three-dimensional finite element model of a fibrous structure (Figure 2) from the existing 2D model (Figure 1) that can be used to simulate its response to various in-use conditions. The three-dimensional model will allow us to capture the physics of the structure much more accurately. Programming experience is desirable. Experience with modeling and simulation software like ABAQUS is useful but not essential. The WISE student will be mentored by UC faculty and industrial partners and will use state of the art computing facilities. She will also gain exposure to the use of computer modeling and simulation in decision-making.

Figure 1: 2D Non-Woven substrate
Figure 2: 3D Non-Woven substrate