

Corn Stalk Failure — A Biomechanical Approach to Crop Science

POSITION TITLE: RESEARCH ENGINEER

RESEARCH PROJECT TITLE: CORN STALK FAILURE — A BIOMECHANICAL APPROACH TO CROP SCIENCE

FACULTY NAME & TITLE: DOUGLAS COOK, ASSISTANT PROFESSOR OF ENGINEERING

RESEARCH PROJECT DESCRIPTION

We are seeking forward-thinking individuals to join our research group. The culture of our team is one of innovation, creativity and meaningful collaboration. Rather than following traditional methods, we are always looking for new ways to achieve high productivity and high impact research. We continually integrate the best ideas and methods from many other fields (such as business, marketing, and graphic design) into our research methods and organization. For example, for stunning conference presentations, we hired a 3D animation company to produce video graphics to illustrate our research.

The goal of our group is to provide optimal training and developmental opportunities for each member, while simultaneously improving research efficiency and producing influential research. Our research is focused on aspects of biomechanics that makes it unique from other engineering disciplines: primarily high levels of variability and uncertainty. Representative research topics include techniques for addressing the high levels of variability exhibited by biological systems, stochastic modeling, computational modeling of biomechanics, and biological fluid flow.

Current research projects involve the following:

- Crop Biomechanics: working with plant scientists to identify the most influential structural properties of corn stalks so that plant breeding techniques can be more effectively used to develop stronger crop varieties.
- Mechanics of single reed instruments, such as the saxophone.
- Voice biomechanics.

Applicants from all fields are welcomed. Persons with backgrounds in Biology, Biomedical Imaging, Mechanical Failure Analysis, Biomimetics, Statistics, Stochastic Modeling, or Reliability Analysis are especially encouraged to apply.

RESPONSIBILITIES OF THE POSITION

- Conduct and document results of laboratory test
- Prepare scientific publications
- Assist in grant writing activities
- Conduct relevant independent research activities

ESSENTIAL QUALIFICATIONS:

BS or MS degree in a related field: Biology, Engineering, etc.

PREFERRED EXPERIENCE / SKILLS:

Biomedical imaging, mechanical failure analysis, biomimetics, statistics, stochastic modeling, reliability analysis, acoustics, plant biology / physiology, biology

APPLICANTS TO PROVIDE:

1. Statement of interest in the position
2. Transcript of degree(s)
3. CV
4. Two letters of recommendation
5. Short essay response (1-2 paragraphs per topic) to the following questions:
 - a. In your opinion, what changes to the traditional model of academic research would yield the greatest improvements in quality of training, while simultaneously improving research accomplishments?
 - b. Describe your most creative accomplishment.
 - c. How would you contribute to our group?
 - d. Why does this position interest you?