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A passion for problem solving, and saving trees



Kassi Stein is researching radar imaging to detect tree infestation through the Gordon Engineering Leadership Scholar Program. Photo by Mary Knox Merrill

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Northeastern student Kassi Stein says she has long had a passion for research. Participating in the **Gordon Engineering Leadership Scholar Program** her freshman year got her off to a strong start in pursuing that passion.

The program offers undergraduate engineering students the opportunity to participate in paid and volunteer research experiences under the guidance of a faculty member, which can lead to related co-op positions that include mentoring by engineering industry leaders.

Gordon Scholars participate in leadership council meetings and attend workshops held by **the Bernard M. Gordon Center for Subsurface Sensing and Imaging System** (Gordon-CenSSIS). They can also elect to participate in educational outreach activities in Boston public schools.

Carey Rappaport, an associate director of Gordon-CenSSIS, initially set up Stein with her assignment: investigating how thousands of trees are destroyed when Asian longhorn beetles bore deep inside them. Not only a worldwide issue, it's one that was discovered devastating maple trees in the Worcester, Mass., region in 2008. Kassi spent weeks buried in books on the topic.

"It's scary what [these beetles] do to trees," Kassi says.

The goal of her research is to develop an innovative radar device with sensors that can wrap around a tree. The sensors would image the inside of the trunk to determine the existence of beetle infestation holes. Kassi says the research is currently focused on finding the best sensor configuration that would conclusively identify the holes so that testing the device can move into the field.

Rappaport says the current response to the discovery of an affected tree is less than ideal — surrounding trees are taken down as a precaution in case they are also infested. But he says this research could ultimately save those trees by giving foresters a noninvasive tool to detect infestation.

While Kassi — a chemical engineering major — admits it was initially daunting to tackle the ambitious research as a freshman, she says the experience has been incredibly rewarding.

"I feel drawn to researching and taking something that there's not much knowledge about and trying to solve a problem," she says.

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