

Pitt undergraduate researcher wins prestigious scholarship

Part of a series profiling undergraduate researchers provided by University of Pittsburgh Office of the Provost.

By Niki Kapsambelis

Growing up on the south side of Chicago, in a community troubled by poverty and crime, Ben Gordon spent his life struggling not to become a statistic.

As it turns out, he became one anyway. Fewer than 1 percent of the winners of the prestigious Barry M. Goldwater Scholarship are African American; in the spring of 2007, Gordon learned that he was among them.

Gordon, a mechanical engineering major, was taught the value of education from an early age. His mother took him to the library, gave him puzzles and mind games to challenge him, and told him stories of renowned African American scientists such as Benjamin Banneker. Gordon, a child fascinated with space exploration, flourished.

He decided to pursue engineering after watching the Mars Rover space missions of the 1990s and researching majors that were appropriate to that field.

"Being a mechanical engineer, you can still do the same work as an aerospace engineer; you just have a different title," he says.

As a junior, he took a class taught by Jeff Vipperman, associate professor of mechanical engineering and materials science, and quickly distinguished himself.

"He was inquisitive in class and asked thought-provoking questions," says Vipperman, who noticed that some of Gordon's questions were already a few lectures beyond the concepts they were currently discussing. "A student like that often ends up becoming a voice for students who are intimidated."

Always on the lookout for sharp minds, Vipperman recruited Gordon to work in his lab on a project in thermoacoustics, which is a way of refrigeration using sound waves.

"It offers an environmentally friendly alternative to current refrigeration," Vipperman explains. "It's also much simpler, it has almost no moving parts. But it's not as efficient yet, so that's where we come in. It's a very promising technology; we're just trying to make it better."

Gordon says the possibility of converting sound energy to heat energy was first discovered more than 150 years ago by glass makers, who noticed that if you attached a hot bulb to the end of a cool glass tube, the tube would eventually begin to sing. But until the 1960s and '70s, nobody could think of any practical applications for the phenomenon.

Gordon's work entails developing an effi-



In their pursuit of the development of an environmentally friendly refrigerator, associate professor Jeffrey Vipperman and undergraduate researcher Ben Gordon, use a thermoacoustical prototype model.

cient driver for a thermoacoustic refrigeration system that Vipperman's group is developing. Though still in the early stages, the project may one day help to perfect the technology.

In the meantime, Gordon is busy weighing his options for graduate school. After working as a tutor, he realized that teaching was his true calling, and he plans to earn a master's and PhD so that he may teach at the collegiate level.

When he learned that he had won the Goldwater Scholarship, the highest national honor for an undergraduate studying science or engineering, Gordon was humbled. Vipperman jokes, "We kicked him to make him apply."

"I would never have expected all this to come up," Gordon says of his success. "Everyone is trained to do well in college, but it's been a heck of a ride here. I've enjoyed it. It's been difficult, a lot of work. (But) if anybody can find something they're passionate about and go hard at it, they can do well. They can exceed their own expectations about themselves and realize their own potential."

Gordon credits the University for providing him with an abundance of resources; Vipperman recalls how often his young student stayed after class to ask more questions about the lecture and homework, teasing out subtleties that the professor had not previously considered.

"There is always some kind of way to find out what you need to do well," Gordon says.

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