

Student Applies Engineering Science to Help Firefighters

TACC partners with local smart grid demonstration project to pave the way to a more sustainable future.



House fire using gasoline as accelerant.

If your house ever caught fire, it’s a safe bet you would want the firefighters who show up to have met Craig Weinschenk. A master’s-turned-doctoral student in mechanical engineering, he has been studying fire science since he arrived at the University in 2006.

After applying to graduate programs across the country, the New Jersey native began making the rounds to visit the universities. Almost immediately after he set foot on UT’s campus, Weinschenk met mechanical engineering professor Ofodike Ezekoye, an expert in combustion and heat transfer, and realized what he was meant to do — even if it came as a surprise to him at the time.

“We want to improve science and technology, but we’re trying to adapt everything we do to assist firefighters,” says Craig Weinschenk.

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“I met Dr. Ezekoye and we started talking about some research he was doing,” says Weinschenk. “I saw a melted fire helmet and asked him about it. We talked about my friends, many of whom are firefighters. Dr. Ezekoye said, ‘We have a grant coming through. Do you want to work on it?’ And now I’m in Texas.”

Weinschenk, a recipient of the Meason/Klaerner Endowed Graduate Fellowship in Engineering and other endowed funds, is using engineering science to better understand firefighting tactics and to bridge the gap between science and real-life firefighting situations.

Though there is a dedicated “burn building” on UT’s Pickle Research Campus, he uses supercomputers in the Texas Advanced Computing Center (TACC) to simulate fire situations in order to study how flames grow and how air impacts fires. He also gets



Weinschenk, a doctoral student in Mechanical Engineering, who has been studying fire science since he arrived at the University of Texas in 2006. [Photo courtesy of Marsha Miller.]

hands-on training from the Austin Fire Department to better understand how fires work and how best to handle them.

“I attack the fire problems from both the experimental and computational side,” he says. “We want to improve science and technology, but we’re trying to adapt everything we do to assist firefighters.”

Early on in his time at UT, Weinschenk had a profound moment while attending a firefighting cadet class. “They give fire science lectures, and instructors were quizzing students and asking questions,” says Weinschenk.

“The fact that they asked for my input made me think, ‘Wow, there’s really a chance to do something good here.’”

And do something he has. Weinschenk, who Ezekoye calls “a rising star” in fire research, has co-authored a paper that was published in *Fire Technology* and served as president of the UT chapter of the Society of Fire Protection Engineering. He says it has been “amazing” to be at UT for the past four-plus years. He has greatly enjoyed working with Ezekoye, who he calls “one of the smartest people I have ever met.”

“There are so many opportunities” for graduate students to grow at the University, says Weinschenk, who earned a master’s degree in 2007 and is on track to receive his PhD in May 2011. “In addition to conferences, there are discussions with other academics and professors. There is so much work going on. If you talk to anyone around the country and say that you do research at UT, it has a credibility that is rare.”

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by Lauren Edwards for the UT Giving site.