



Caitlin Kelleher, assistant professor of Computer Science and Engineering at Washington University in St. Louis and an alumnus of Virginia Tech (Computer Science, 1998) explains why some computer programs can be so frustrating.

IN FOCUS | Children discover science

Kids' Tech University

helps shape the future
of science



many experts agree that children need to be introduced early to the excitement of science, technology, engineering and math if the United States is to remain competitive in the global scientific community. Kids' Tech University (KTU) arose from an idea that the best way to engage children with science is to show them as early as possible how exciting and fun it can really be. KTU provides children between the ages of 9 and 12 semester-long opportunities to attend university lectures, take part in hands-on educational activities on campus, and engage in complementary educational experiences at home.

“We have something special here which I would like to see take root across the country.”

Reinhard Laubenbacher

Professor and Deputy Director of Education and Outreach at VBI

Kids’ Tech University (KTU), which is principally sponsored by the Virginia Bioinformatics Institute (VBI) at Virginia Tech and the Virginia Cooperative Extension’s 4-H Youth Development Program, is the first educational program of its type offered in the United States. Reinhard Laubenbacher, professor and deputy director of education and outreach at VBI, came across the original concept of a children’s university in an article published

in a German newspaper. Says Laubenbacher, “Hundreds of children have been attending individual lectures on science on the weekend at Universities around Germany, which speaks volumes for the program and the enthusiasm of the kids. I wanted to see if we could build something similar in the United States.”

After talking to the people who started the project, Laubenbacher and his team put in place the infrastructure needed for a first

semester of KTU. Kids were enrolled to participate in a semester-long series of activities that began in January 2009. Adds Laubenbacher, “We had a huge response from parents and children interested in the program and quickly realized that we were tapping into a significant educational need.” Last semester, KTU students were able to attend lectures in a Virginia Tech lecture hall, have lunch in one of the on-campus dining facilities, and take part in hands-on activities to build on the lecture concepts. A key feature of KTU is that the fun and excitement of the university experience continues after the kids leave campus through an online lab component with activities designed to promote a continued interest in the lecture topics, as well as providing a forum area to promote discussion and teamwork.

Says Cathy Sutphin, Virginia 4-H associate director of youth development at the Virginia Cooperative Extension, “A major program focus of 4-H is Science, Technology, Engineering, and Math or STEM. Through hands-on learning, KTU participants apply the ideas that are presented during lectures and explore other avenues. By connecting youth to the university, we increase the chances that they will not only choose a STEM field but that they will also consider attending Virginia Tech.”

In the first semester of KTU, students heard from scientists who had engaging stories to tell about their research. Keith Devlin, known as “The Math Guy” on National Public Radio and co-founder and executive director of Stanford’s Human-Sciences and Technologies Advanced Research Institute, kicked off





proceedings on 31 January 2009, answering the question “Why are there animals with spotted bodies and striped tails, but no animal with a striped body and a spotted tail?” In subsequent months, Caitlin Kelleher, assistant professor of Computer Science and Engineering at Washington University in St. Louis and an alumnus of Virginia Tech (Computer Science, 1998) explained why some computer programs can be so frustrating and Louis Guillette, professor and director of the Howard Hughes Group Advantaged Training of Research (G.A.T.O.R.) Program at the University of Florida, described how he wrestles alligators in the swamps of Florida to study the effects of environmental contaminants on wildlife. The first semester of KTU ended with an up-close look at what it would take to live on Mars in a lecture from Phil Christensen, Regents Professor and the Ed and Helen Korrick Professor in the Department of Geological Science at Arizona State University.

Says Laubenbacher: “The first semester of KTU was made possible due to contributions by many volunteers from the Virginia Tech community and beyond. Without their help, we would not have been able to put on an event of this scope and their assistance going forward will be a key part of our success.”

“We have been able to attract scientists to KTU who have shared their enthusiasm for science in a way that has captivated the children,” says Laubenbacher. “Our biggest challenge remains financial support. Despite an oversubscribed program and great feedback from children and parents, the lack of strong connections to formal K-12 education programs has made funding a challenge.

With the introduction of teacher workshops we hope to overcome this challenge. We are hoping to secure private and company donations to support our second semester lineup of KTU lectures and hands-on activities.”

School's back

The second semester of KTU begins in January 2010. Kristy DiVittorio, Co-Principal Investigator of KTU at VBI, comments, “This semester KTU has a partnership with Tazewell County Public Schools and Tazewell 4-H to reach and involve economically disadvantaged students and their parents with the KTU program. KTU will also be attending a host of exciting new venues around the Virginia Tech campus.” An additional new component of the program will also encompass training of teachers from around the state of Virginia. This will provide opportunities for teachers to acquire Continuing Education Units to advance their professional career development. Kathleen Jamison, Extension Specialist for 4-H Youth Development at the Virginia Cooperative Extension at Virginia Tech, will be spearheading this part of the program.

New and returning children of KTU will be ready to tackle questions like “What is the smallest thing a person can see?” and “Why can't humans walk on water and climb walls with their fingertips like spiders?” Harvey Mudd College Mathematics Professor Arthur Benjamin, who has appeared on *The Today Show*, *CNN*, and *National Public Radio*, will demonstrate his mixture of mathematics and

magic, which he calls “Mathemagics,” and explain how to mentally solve complex math problems faster than a calculator. Returning KTU lecturer Louis Guillette will explain why alligators are important to the swamps and what they can tell us about the world in which we live.

Says Laubenbacher: “We have something special here which I would like to see take root across the country. We can provide virtual resources that will make it possible for other universities to set up their own KTUs across the United States. In this way, I believe we could take a big step forward for the future of science in this country.” •

KTU AT A GLANCE

- 450 kids attended the first KTU event in January, 2009, on the Virginia Tech campus
- First educational program of this type ever offered in the United States
- Real lectures by real researchers in a real university setting
- Diverse hands-on activities to complement lectures
- Encourages kids to pursue science education and careers
- Large unmet need for further, expanded programs