

ITTC Industry Advisory Board Convenes in May

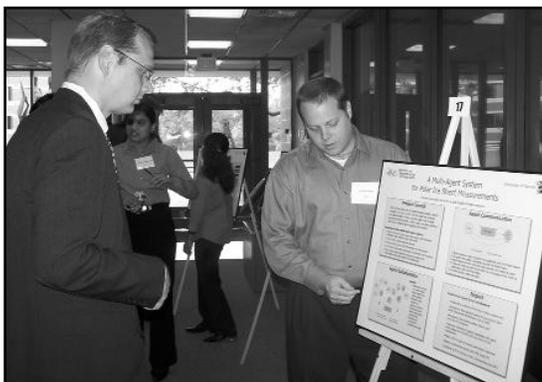
Industry Advisory Board (IAB) members heard about ITTC's latest projects from those in the trenches—its students.

The student poster session concluded the annual IAB meeting on May 25. Earlier in the day, board members listened to presentations on current activities and future endeavors. They provided feedback, ideas, and recommendations to help guide the Center's research and development.

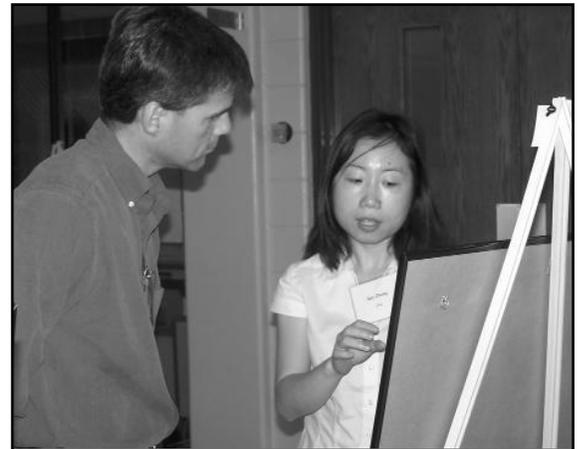
"I always enjoy the opportunity to interact with the staff and students of ITTC, and I am impressed with the energy and passion with which they pursue their respective objectives," said Board member **Brian Ruf** of Ruf Strategic Communications. "I felt that the Industry Advisory Board meeting went very well this year, and I am pleased with the achievements as well as the overall direction and leadership of ITTC."

Board members with expertise in life sciences suggested collaborators and resources for the recently established Bioinformatics and Computational Life-Sciences Laboratory (BCLSL). EECS Assistant Professor and bioinformatics researcher **Xue-wen Chen** led the discussion.

Along with future research opportunities, IAB members discussed commercialization of ITTC technologies. **Perry Alexander**, director of ITTC's Computer Systems Design Laboratory (CSDL),



ITTC student Steven Perry explains his work with multi-agent systems to IAB member Doug Hague.



Ph.D. student Sen Zhang talks to Industry Advisory Board member Brian Ruf about how her research will help lead to better designed lightwave systems.

presented information on this new lab and on his spin-off company, Cadstone. The company is transferring tools based on the system-design language Rosetta to the marketplace. IAB members shared ideas on the technology transfer process.

IAB member **Doug Hague**, a manager of technology research and development at Sprint, said that Sprint continues to support ITTC because of the cutting-edge research that is conducted at the Center.

"The bottom line at Sprint for any new product or technology is the benefit for the customer. In part due to ITTC and its research, Sprint's services are easier for customers to use due to the industry leading reliability and operation of Sprint's network," Hague said.

IAB member **Mazen Mikha**, a systems engineer at Boeing, said he was impressed with the Center's multidisciplinary research projects, and its ability to diagnose current and projected needs of industry.

"The ITTC team did an excellent job conducting the activities during the entire day," Mikha said. "The Center is on the right track to accommodate future research work." ■

While many campus buildings receive a slight reprieve during the summer months, Nichols Hall is busier than ever. The summer provides us with a time we can dedicate our full energies to our mission. To accommodate this increased activity, we have added 27 new students this summer. This brings our total to 164 students, all of whom are crucial to the Center's success.



Director Victor Frost

We have 42 undergraduates, 84 graduate students, and 35 Ph.D. students. The 12 new undergraduates involved in ITTC research will help KU achieve its goals under the recently announced Kansas Board of Regents "performance agreements." Specific KU agreements that apply to the Center include increasing the percentage of science and engineering research funding at a rate faster than the national average and expanding the number of undergraduate students participating in research.

In our attempt to bring younger students into the laboratory, three Lawrence High School students, **Ying Niu**, **Babu Telikepalli**, and **Daniel Zehr**, have joined the Center.

All three are members of the Polar Radar for Ice Sheet Measurements (PRISM) project. They are gaining important laboratory experience on a multimillion-dollar project funded by NSF and NASA.

ITTC Students Earn Honors

During the May EECS commencement ceremony, ITTC students received the following accolades.

Abdul Jabbar Mohammad won the Richard K. and Wilma S. Moore Thesis Award, which is given for the best M.S. thesis or Ph.D. dissertation. Mohammad's thesis, "Multi-Link Iridium Satellite Data Communication System," detailed his work on the Polar Radar for Ice Sheet Measurements (PRISM) project. The award honors **Richard Moore**, distinguished professor emeritus of electrical engineering at KU, and his wife. Moore retired from the department in 1994, but continues his research at ITTC.

Jason Agron received the outstanding academic achievement award in computer engineering. This award is given to one graduating senior in each of the three academic areas (computer science, computer engineering, and electrical engineering) within the department and is based on overall outstanding achievement.

Michael Adams garnered an Everitt Award, which is sponsored by the International Engineering Consortium. The award honors EECS students who are in the top 10 percent of their class, interested in areas of communications and computers, and involved in outside activities.

James Mauro earned a Paul F. Huebner Memorial Award. The award is offered to teaching assistants who best exemplify the role of a teacher. The award is not only intended to reward good teaching, but also to encourage students to consider teaching as a career. ■

We are excited to see what the future holds for these bright students. While Telikepalli and Zehr are still in high school, Niu graduated in May and will be attending the Massachusetts Institute of Technology (MIT) this fall. We wish her the best of luck and thank her for all of her hard work.

Kelly Mason, PRISM program assistant, has organized a summer lecture series. The lectures are designed to give these high school students and undergraduates an overview of or introduction to various technologies, to help prepare them for their future endeavors. Initial lectures on global climate change and principles of radar have been very well attended. All ITTC faculty, staff, and students are invited to attend the weekly lectures, and we will soon be making them available to those outside of Nichols Hall via our Web site. We invite you to take a look.

As you have read on page 1, ITTC's Industry Advisory Board met in May. The Board provided ITTC with a number of ideas that will help guide the Center's research and development. IAB members ended the day with the always popular student poster session. Posters filled the lobby of Nichols Hall as 29 students presented their research to Board members.

ITTC was also honored to co-host, along with KU's Higuchi Biosciences Center, the Kansas Technology Enterprise Corporation (KTEC) Board of Directors meeting in June. KTEC provides critical funding that helps us transfer technology to the private sector for commercialization. As a KTEC Center of Excellence, we are focused on creating new companies, aiding existing companies, and serving as resources for other KTEC programs. For more information, please read the article on page 4. ■

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ITTC Adds Another Bioinformatics Professor to Its Ranks

Terry Clark has joined ITTC's Bioinformatics and Computational Life-Sciences Laboratory (BCLSL). A recent arrival from the University of Chicago, the EECS assistant professor brings to the University of Kansas a research program in computational methods and data management systems for biomolecular applications.



Terry Clark

Bioinformatics and computational biology apply computational methods to problems in life-sciences research. Computer databases and algorithms are used to store, analyze, and interpret information related to biological systems. Studies based on these data aim to advance our understanding of processes in species ranging from microbes to plants and animals.

At ITTC, Clark is developing methods to study genome structure and function. He also works to improve the computational efficiency of molecular

dynamics algorithms used for studying the structure and dynamics of proteins and DNA. His research involves methods in computational linguistics, distributed systems for analysis and data management, relational databases, and scientific parallel computing. One unifying theme in Clark's work is to render data and compute intensive methods routine in these areas. This important step enables investigators to pursue questions otherwise impractical.

With a background in computer science, chemistry, and biology, Clark has made significant contributions in the multidisciplinary areas of bioinformatics and computational biology. At the University of Chicago, he held research scientist appointments in the Department of Computer Science and the Department of Molecular Genetics and Cell Biology. He also co-directed the University of Chicago's Computational Biology and Bioinformatics Core Facility. Clark graduated with his Ph.D. in computer science from the University of Houston in 1996. He also earned master of science degrees in computer science and chemistry from the University of Houston, and a bachelor of science degree in chemistry from Western Washington University.

Clark will offer a bioinformatics seminar course through EECS in the upcoming fall semester. ■

Elizabeth City Students Join PRISM Project for Summer

Two Elizabeth City State University (ECSU) students are the newest members of the Polar Radar for Ice Sheet Measurements (PRISM) project. **Jerome Mitchell** and **Demetrus Rorie** are working with the project's intelligent systems (IS) group this summer. The students from the small North Carolina university received NSF-funded Research Experience for Undergraduate (REU) positions on the project.

Mitchell and Rorie are working with the IS group to understand the design and implementation of multi-agent systems. An agent is a computer program that is assigned certain abilities and responsibilities. When these agents communicate with one another, they can cooperate, coordinate, and negotiate tasks to accomplish a common goal.

"I hope that ITTC provides me with a chance to grow academically and a chance to implement some of the things that I have learned at ECSU," Rorie said.

Mitchell said he hoped the internship would augment the computer science skills he had learned in the classroom. The REU position also gives Mitchell a chance to closely work with graduate students and professors, allowing him to learn more about KU graduate programs.

The REU students, under the direction of **Costas Tsatsoulis**, co-investigator on PRISM and chair of EECS, will create models of the PRISM multi-agent system using the Unified Modeling Language (UML). These models will be used to help plan new features for the system, according to **Steve Perry**, a PRISM student who is mentoring Mitchell and Rorie.

During field experiments this summer in Greenland, the system created by the IS group will gather live data from the rover and simulated data from the synthetic aperture radar (SAR). The system will then use these data to make decisions about the operation mode and frequency of the SAR and the speed and scan path of the rover.

The partnership between KU and ECSU started last fall when **Prasad Gogineni**, Deane E. Ackers distinguished professor of EECS and PRISM's principal investigator, made a presentation at ECSU. Gogineni discussed the PRISM project with **Linda Hayden**, ECSU professor of mathematics, and suggested the possibility of ECSU students visiting KU to work on the project. Hayden recommended Mitchell and Rorie, who were already conducting research through their Office of Naval Research (ONR)/NASA scholarships. The students were admitted to KU as non-degree-seeking students for the summer 2004 semester.

The students will return to ECSU in July for a presentation of their work at ITTC. Originally an institution for African-American students, ECSU is located in northeastern North Carolina with approximately 3,000 students. ■

Achievements and Acclaim

Bioinformatics Professor Receives NSF First Award

Xue-wen Chen, assistant professor of EECS, received a National Science Foundation (NSF) First Award. The First Award was created to help faculty begin research programs early in their careers. With this award, Chen will continue to identify informative genes for cancer classification. He is developing computer algorithms based on mathematical/statistical models to analyze the biological data.

Chen also recently received IEEE senior membership status. ■

ITTC Graduate Receives Tenured Post at Virginia Tech

ITTC alumnus **Luiz DaSilva** was promoted to associate professor with tenure at Virginia Polytechnic Institute and State University. He teaches in the School of Engineering's electrical and computer engineering department. He received his Ph.D. in electrical engineering from KU in 1998. DaSilva also earned his master's and bachelor's degrees from the University. ■

Seniors Give Stiles Harry Talley Award

Jim Stiles, assistant professor of EECS, earned the Harry Talley Excellence in Teaching Award this May. The award recognizes an EECS professor who has contributed significantly to undergraduate education and has developed a strong rapport with students both inside and outside of the classroom. Graduating seniors cast votes to choose the participant. ■



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KTEC Board of Directors Meets on KU's West Campus

ITTC hosted part of the Kansas Technology Enterprise Corporation (KTEC) board of directors meeting events on June 10 and 11. KTEC committees met in the executive conference room in Nichols Hall. KTEC members also received a tour of ITTC, including its new laboratories and facilities.

"We appreciated the opportunity to show the KTEC board members our laboratory facilities and explain some of the research going on within ITTC," said **Keith Braman**, ITTC's associate director for applied technology. "I believe the board members came away with a better understanding of what we do and our contribution to the KTEC economic development mission."

Approximately 40 people, including 17 board members, attended the KTEC board of directors meeting at the Robert J. Dole Institute of Politics. The quarterly meeting, held the morning of June 11, included committee reports and presentations from KTEC-funded groups.

KTEC, a state-owned corporation, promotes advanced technology and economic development within the State. KTEC helps Kansas entrepreneurs and technology companies develop and commercialize their technologies.

ITTC receives approximately 10 percent of its funding from KTEC and is one of five KTEC Centers of Excellence within the state. These Centers of Excellence are university-based research facilities, each with its own



ITTC Director Victor Frost (far right) explains technology in the Networking and Wireless Systems Laboratory to KTEC committee members. Committee meetings took place at ITTC the day before the KTEC Board of Directors Meeting.

technology specialization, that conduct research and provide technical assistance to other KTEC programs. ■