



IEEE STUDENT PRESIDENT TONY ALLEVEN
HIS EXPERIENCE AT IOWA STATE (PAGE 10)

THE SOUND OF SLEEP
WITH SAM NICOLINO (PAGE 12)



CONNECTIONS

FALL SEMESTER 2013



A SEARCH ENGINE FOR **CODE**

Kathryn Stolee's Satsy could revolutionize the way amateur (and professional) coders search.



Greetings from Iowa State. The Fall semester is winding down and soon we will be celebrating the holidays and welcoming a new year. We have much to be thankful for at ECpE. Our students and faculty work tirelessly to ensure the success of the department, and the generosity of our alums is as impressive as ever.

The success of our students continues to be one of the primary focuses of the department. In these pages, you can read about one successful student, **Tony Alleven**, president of the Iowa State Student Chapter of the IEEE (page 10), who came to ISU by chance and stayed by choice.

Our faculty distinctions continue to impress. **Srikanta Tirthapura** recently was selected to receive an IBM Faculty Award (opposite page), the department's eighth since 2007. These awards are a terrific example of our close relationship with IBM.

In addition, the department's associate chair, **Manimaran Govindarasu**, was honored with the ISU Award for Mid-Career Achievement in Research (page 2). This award is given annually to faculty members with outstanding accomplishments or extraordinary creativity at the mid-career stage.

Finally, ECpE alums continue to give back to the department (page 9). Numerous funding sources previously relied upon are no longer available, making gifts that establish professorships and fellowships even more important. When a student graduates, becomes successful, and gives back to the department, that helps the next generation of students graduate, become successful and give back. We call this our Virtuous Cycle of Giving, and every gift made to the department strengthens this cycle.

Please enjoy the Fall edition of ECpE Connections. I wish the best to you and yours this holiday season,

David Jiles

David C. Jiles

Anson Marston Distinguished Professor, and
Palmer Endowed Department Chair
Department of Electrical and Computer Engineering

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Editor: Brock Ascher

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NOVEMBER 28 & 29

University Holiday
Offices Closed

DECEMBER 21

Master's/PhD
Pre-Commencement Reception
275 Scheman, 11:15 a.m.

DECEMBER 21

Undergraduate
Pre-Commencement Reception
Fisher Theater, 9 a.m.

DECEMBER 21

Commencement
Hilton Coliseum, 1:30 p.m.

DECEMBER 23 - JANUARY 1

Semester Break
ECpE Offices Closed

JANUARY 31

Distinguished Lecture Series
Anthony Maciejewski
3043 ECpE Addition, 1:10 p.m.

FEBRUARY 14

Distinguished Lecture Series
Evelyn Hu
3043 ECpE Addition, 1:10 p.m.

MARCH 7

Distinguished Lecture Series
Jerry L. Hudgins
3043 ECpE Addition, 1:10 p.m.



MORE ONLINE

See the full calendar at
www.ece.iastate.edu

TIRTHAPURA WINS IBM FACULTY AWARD


Srikanta Tirthapura, associate professor of electrical and computer engineering, has been selected as a recipient of the 2013 IBM Faculty Award, an annual, worldwide competitive program intended to foster collaboration between researchers at leading universities, and those at IBM.

IBM Faculty Awards are cash grants awarded to full-time professors at accredited universities that have an outstanding reputation for contributions in their field or show unusual promise. Those who wish to be considered for a Faculty Award must receive a nomination from someone within IBM who shares common interests and is willing to serve as a liaison for collaboration.

Tirthapura received the award in recognition of his research and education program in the area of large scale data analysis and mining.

"My research focus is in the area of real-time analytics," Tirthapura said. "On ways to quickly extract patterns from massive dynamic data sets, which is an area of great interest to IBM." The \$20,000 award will serve as funding for his research program in Big Data Analytics at Iowa State.

Iowa State has a synergistic research and education program with IBM. Tirthapura teaches a course on software tools for large-scale data analysis, in which the students write software that analyzes large data sets using the IBM Academic Cloud, a hardware and software resource provided by IBM. In addition, he works in a joint research program with IBM, which has led to research publications in top-tier venues such as the Conference on Very Large Databases. He also holds multiple United States patents jointly with IBM.

"I am very excited to receive this award," said Tirthapura, "It gives me encouragement in my research." 



Srikanta Tirthapura
Associate Professor

AN IBM FACULTY

The Department of Electrical and Computer Engineering has been awarded at least one IBM Faculty Award in each of the last seven years. This year marks the department's first-ever two-award year.

Professor	Year
Srikanta Tirthapura	2013
Arun Somani	2013
Vikram Dalal	2012
Vikram Dalal	2011
Chris Chu	2010
Chris Chu	2009
Chris Chu	2008
Thomas Daniels	2007



Above

Iowa State University
President Dr. Steven
Leath presents Dr.
Govindarasu with the
ISU Award for Mid-
Career Achievement in
Research.
(Photo by Bob Elbert)

GOVINDARASU HONORED BY IOWA STATE

BY MICHAEL STILL

Manimaran Govindarasu, Mehl Professor in the Department of Electrical and Computer Engineering, received the ISU Award for Mid-Career Achievement in Research for his work in the area of cyber security.

Govindarasu has been a faculty member at Iowa State since 1999, and is widely regarded as a pioneer and leader in the emerging interdisciplinary research area of cyber security. Within this field, he has made both fundamental and applied contributions, helped government agencies in formulating policy, and assisted the industry in meeting evolving needs and compliance requirements.

The ISU Award for Mid-Career Achievement in Research is given annually by the Office of the Senior Vice President and Provost to recognize faculty members who have demonstrated outstanding accomplishments in research and/or creative activity at the mid-career stage. This honor is one of many research and teaching based awards used to recognize excellence among Iowa State faculty.


"The most rewarding aspect of my career so far has been striving to achieve excellence in research, teaching, and outreach at a major land-grant university such as Iowa State," said Govindarasu. "But most importantly I've enjoyed educating students and seeing them succeed in their careers."

Recipients of the ISU Mid-Career Achievement

Award must be nominated by a fellow faculty member who submits an application detailing the nominee's research accomplishments and contributions to education. The application also includes two letters of reference by other distinguished faculty from universities across the United States.

According to **Chen-Ching Liu**, Director of the Energy Systems Innovation Center at Washington State University, Professor Govindarasu has brought national attention to the subject of cyber security for the electric power grids, proving himself as leading researcher in this area.

"In recognition of his leadership, Govindarasu was invited to chair the IEEE Power and Energy task force on the subject and has led a number of highly visible sessions and publications by the IEEE PES," Said Liu. "He also attracted major National Science Foundation and industry grants and educated a number of outstanding Ph.D. graduates in this area."

A long list of professional experience and achievement isn't the only thing qualifying Govindarasu for this award. Over the years, he has had an amazing impact on students as a mentor, professor, and research advisor. Whether supervising Ph.D. dissertations or overseeing undergraduate senior design projects, his contribution to learning has launched careers for students at Google, Teradata, and John Deere. 

Department

Students

Alumni



David C. Jiles plays chess blindfolded in the Coover Atrium. Photo by Jessie Bonner, Ames Tribune. Used by permission.

CHARITY CHESS

ECpE Department Chair David C. Jiles played chess for charity in the Coover Hall Atrium

BY BROCK ASCHER

David C. Jiles devised a clever way to give back to the community while sharpening his senses in the process.


Jiles, Anson Marston Distinguished Professor and Palmer Endowed Department Chair of Electrical and Computer Engineering, sponsored a pair of chess events in the Coover Atrium. The first, pictured above, involved Jiles taking on all comers, blindfolded, and donating \$100 to the United Way of Story County for each loss he was dealt.

"This is a great way to raise money for a good cause and have some fun in the process," Jiles said.

Graduate student **Kevin Townsend**

served as Jiles's proxy, moving pieces and relaying opponent moves to the department chair. Jiles played eight games with half-hour time limits, winning six and playing to a draw in two. He agreed to donate \$20 for each draw.

The following Saturday, Jiles played simultaneous chess against eight opponents, promising to donate \$20 for each loss. Opponents lined up tables while Jiles walked up and down the atrium, stopping to think and make a move at each table.

"It's important to give back to causes like these," Jiles said. "They help so many people, and can make a difference." 

DEPARTMENT HEADLINES

ECpE STUDENTS ATTEND GRACE HOPPER CELEBRATION OF WOMEN IN COMPUTING

Ten ECpE students attended the 2013 Grace Hopper Celebration of Women in Computing at the Minneapolis Convention Center in early October. The students served as ambassadors for the Department, with professional development awards funding their trip to see speakers and technical sessions that covered a wide range of topics within the areas of engineering, computer science, and information technology.

SNEHA SINGH RECEIVES IBM PHD FELLOWSHIP

Sneha Singh, PhD student in computer engineering, received the prestigious IBM PhD Fellowship for the 2013-14 academic year. She earned this award for her extensive research based on real-time and online data analytics. She's working toward developing algorithms to monitor and process data streams, including network data, telecommunications data, or any other data with a continuous stream.

HKN WINS OUTSTANDING CHAPTER AWARD

The Iowa State chapter of Eta Kappa Nu won its third Outstanding Chapter Award in four years this year.

The award is based around an Annual Chapter Report, which each chapter drafts and submits to the Eta Kappa Nu parent organization. These lengthy packets include descriptions and documentation of all the events a chapter hosts throughout the academic year. The reports are collected and reviewed by a committee that determines which chapters deserve the title "outstanding."

In total, Eta Kappa Nu recognized 24 chapters from different universities across the nation.



MORE ONLINE

Keep up with the latest news online
www.ece.iastate.edu

ISU IT-EXPO

November 11, 2013

The department welcomed hundreds of high school students to campus this November for the inaugural IT-Expo in Coover and Howe Halls. Students visited 10 different research-related venues, including the ISU Data Center, the Robotics Lab, and the Power Simulator Lab. The Information Assurance Center, headed by University Professor **Doug Jacobson**, hosted the event, which was created to introduce high school students to various information technology activities on campus.



Satsy

Input	Output
<input type="text" user\\name\\abc.tex\""="" value="\"/>	<input abc\""="" type="text" value="\"/> X
<input c:\\windows\\mydocs\\file.txt\""="" type="text" value="\"/>	<input file\""="" type="text" value="\"/> X

+

A SEARCH ENGINE FOR CODE

Kathryn Stolee's Satsy could revolutionize the way amateur (and professional) coders search.

BY MICHAEL STILL

Writing software is kind of like solving a puzzle,” said **Kathryn Stolee**, the Harpole-Pentair Assistant Professor of Software Engineering.

Any programmer who has suffered long hours in search of missing code can attest to this analogy. But now, thanks to Stolee’s research and development of Satsy, a new code-specific search engine, digging up those final missing pieces has become easier than ever.

“I wanted to find a way to help programmers reuse existing code so they don’t have to re-invent the wheel,” said Stolee, who added that much of the programming code we write today has likely been written in the past. “I also wanted to assist novice programmers who don’t have much experience or formal training. I think that’s who will find the most value; people who know what they want to do, but aren’t quite sure how to do it.”

The first thing Stolee did was conduct a survey of programmers and their code searching habits to understand their needs and how to meet them. She gathered information on how often they search for code, what information they were looking for, and what tools they used.

After analyzing data from the survey, Stolee was not only surprised to learn just how frequently programmers searched for code, but she also was surprised to find out where they were searching for it. The survey revealed that Google search was

the most frequently used tool among programmers, despite the numerous code-specific search engines available.

“It’s surprising, because

Google wasn’t designed specifically for code search,” said Stolee. “It was designed for general search, and although it currently serves as the best tool, I think that for certain types of searches, we can do better.”

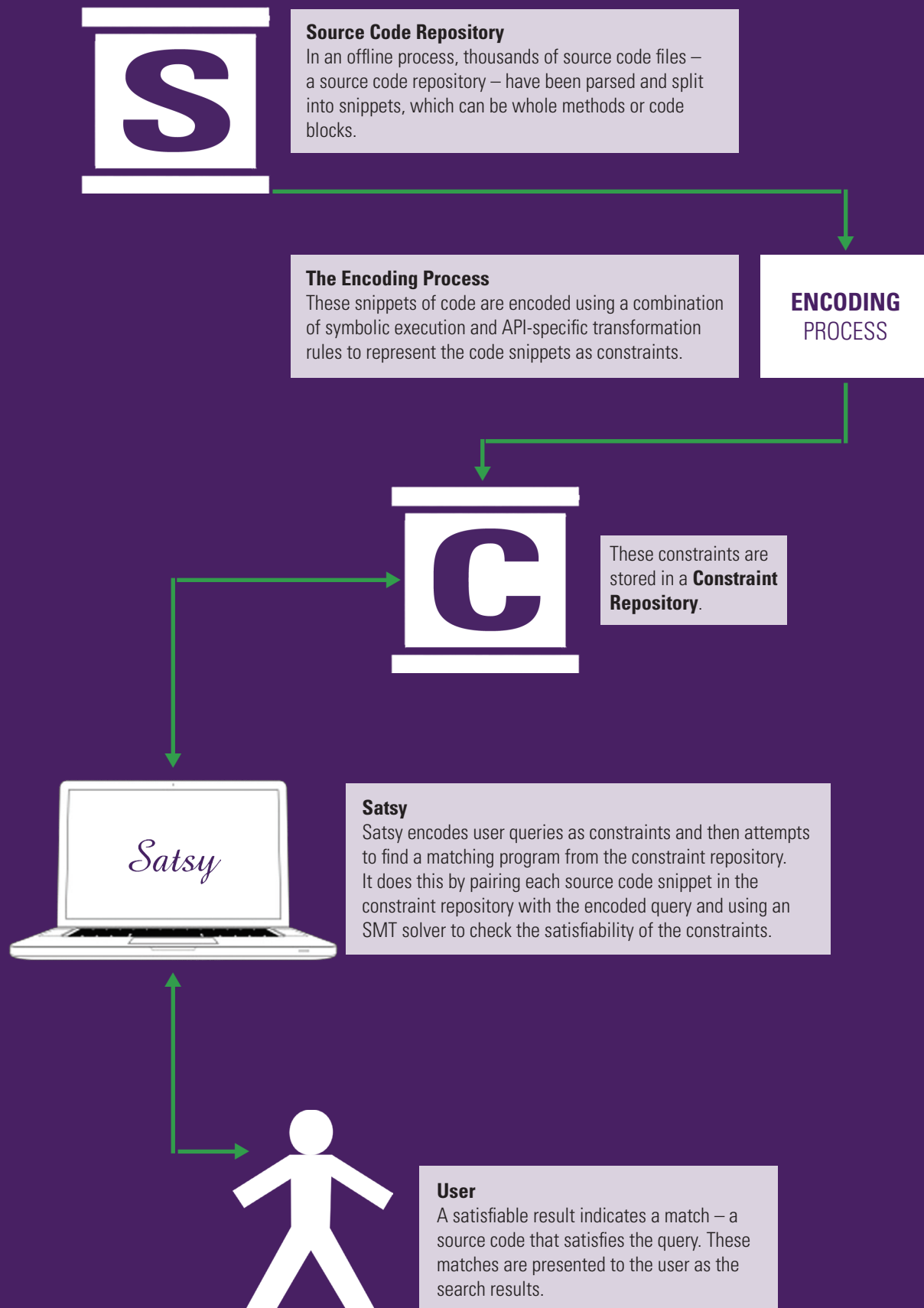
“Google wasn’t designed specifically for code search”

Department

Students

Alumni

THE SCIENCE BEHIND SATSY





Above

The Satsy team meets in Atanasoff Hall. From L: Kaitlin McAbee, Carl Chapman, Kathryn Stolee, Cody Hoover, Cole Groff, Trevor Lund

The survey results seemed to show a demand for a code-specific search engine that is accurate, efficient, and able to give Google a run for its money.

This is where Satsy comes in.

Satsy is the program that Stolee developed to help programmers search for code quickly and efficiently. Unlike Google where you search using a question or phrase, Satsy utilizes input values and output values to locate source code that best matches the programmer's needs. By eliminating the textual query, Satsy is able to search by using the behavior of a function, rather than by the way the function is written into a search bar.

"You provide concrete examples of inputs and concrete examples of outputs for your desired code. Then, Satsy uses a constraint solver to find existing functions that satisfy the examples," said Stolee. "It's not easy, which may be why it hasn't been done before, but it is more intuitive than a textual search and can achieve higher precision. By using a constraint solver, we also can find code that approximately or partially matches the examples when an exact match does not exist."

Satsy scans through a library of source code called a repository, and pulls out any and all functions that satisfy the user's initial values using an SMT solver to determine if a function matches the provided examples. A ranking system is then applied to these functions to determine which ones are most likely to satisfy the programmer's needs.

After developing her approach, the next step in Stolee's research was to evaluate how Satsy would hold up in practice when compared to the competition; in this case, Google and a pre-existing code-specific search engine called Merobase. Stolee gave programmers simple tasks that required them

to run searches using each tool. Afterward, she collected data to determine which search engine provided the most satisfying results from the programmer's standpoint.

Stolee's evaluation was promising, showing that Satsy out-performed Merobase in providing relevant search results. While Google still provided the most relevant search results of three tools, the results were competitive.

When the evaluation was complete, Stolee began looking at areas to improve. One area she hopes to tweak is the ranking system used in Satsy. By increasing the accuracy and effectiveness of the ranking system, Stolee believes it could match Google.

"Google wouldn't be as effective as it is if it didn't have such an effective ranking system," said Stolee. "Without a good ranking system, it's hard for programmers to find what they want to use."

Now, as Stolee looks toward the future, she has identified multiple "next steps" that she plans to take toward improving Satsy to make it more helpful and effective. Most importantly, she hopes to gain more knowledge about what the programmer already knows, and what information they are looking for when conducting code searches.

Stolee also is working with a senior design team to create an interface that will make Satsy more user-friendly and efficient. Once the program is fully developed, further tests can be run and measured more accurately.

Looking ahead five years, Stolee hopes to make Satsy publicly available to programmers everywhere. She also hopes that it can be adopted and used in practice by students and professionals alike.

Department

Students

Alumni

Keep in touch

We want to hear about your career moves and personal news for future issues of *ECpE Connections*! Please fill out the form below or online at www.ece.iastate.edu/alumni (click Alumni News Form) to share your news.

Name: _____	Graduation year(s) and degree(s): _____
Address: _____	City: _____
State: _____	Zip code: _____
Country: _____	E-mail address: _____
Home phone: _____	Business phone: _____
News I'd like to share: _____	

Support the Department

The ECpE department relies heavily on the support of our alumni and friends to ensure that students have access to scholarships and the latest lab facilities and classroom spaces, that faculty can continue to support graduate students and conduct state-of-the-art research, that department facilities remain updated for staff to do their jobs efficiently, and that student organizations and department events can continue to thrive.

If you would like to help the department continue to be one of the best in the country, you can support the department through several funds. Additional opportunities are available to support endowments and building space. Please check the appropriate box below if you want to offer your support today, or visit www.foundation.iastate.edu. For more information about the funds, contact the ISU Foundation's Adam Laug at 515 294-4883 or alaug@iastate.edu.

I'd like to support:

Electrical/Computer Engineering Excellence Fund

☐ \$1,000 ☐ \$500 ☐ \$250 ☐ Other \$ _____

ECpE Coover Hall Building Project

☐ \$1,000 ☐ \$500 ☐ \$250 ☐ Other \$ _____

Please contact me about supporting:

- ☐ endowed chairs and professorships
- ☐ scholarships and fellowships
- ☐ laboratories and classroom space
- ☐ ECpE Coover Hall Building Project

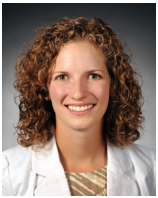
Payment Type:

☐ Check enclosed (payable to ISU Foundation)
☐ Credit Card Select Type: ☐ Visa ☐ Mastercard ☐ Discover

Credit card number: _____ Name as shown on credit card: _____
Expiration date: _____ Cardholder signature: _____

Thank You!

Mailing Instructions: Detach this form along the perforated edge. Fold the form in thirds so that the ECpE address shows on the outside. Tape the form closed and place your stamp in the labeled box. If you're mailing a check, remember to completely seal the edges of the form or send the form along with your check in a standard envelope.



Kathryn Stolee
Harpole-Pentair
Assistant Professor



Kathryn Stolee began her undergraduate education at the University of Nebraska, where she originally planned to pursue a degree in business. It wasn't until her sophomore year, however, that she really got a good look at what software engineering was all about. After enrolling in an introductory course, Stolee discovered there was more to the field than meets the eye.

"It was the first exposure I had to the personal side of software engineering, seeing it as more than just programming," said Stolee. "The course highlighted software development as the study of people and their processes, and it was that human aspect that convinced me to pursue the career I have today."

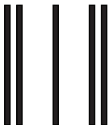
From then on, Stolee kept her sights set on the human aspect of computer science and has focused on ways to use her knowledge to help others. Consequently, it is no surprise that Stolee chose a career in education. Fresh off completion of her Ph.D. from Nebraska, Stolee was welcomed as the newest addition to the software engineering faculty at Iowa State in July.

"Quite honestly, I've always loved school, and this job allows me to continue learning," said Stolee "Even growing up, I said I wanted a research-based career, and now, here I am."



Dept. of Electrical and Computer Engineering
Attn: Communications Specialist
2215 Coover Hall
Ames, IA 50011-3060

IOWA STATE UNIVERSITY





SPROUL ESTATE PRESENTS ECpE WITH LARGE GIFT

Above ↑
Jonathan Woods
presents David C.
Jiles with a check for
\$942,612.30

Will establish the Philip and Virginia Sproul Endowed Professorship

BY BROCK ASCHER

The estate of **Philip and Virginia Sproul** presented the Iowa State Department of Electrical and Computer Engineering a gift for more than \$900,000 to support faculty within the department. **Jonathan Woods**, nephew of the Sprouls and executor of their estate, presented a check to the department at a ceremony in Coover Hall Nov. 21.

"My uncle established this trust," Woods said. "And he enjoyed supporting it throughout his life."

The gift will be used to establish the Philip and Virginia Sproul Endowed Professorship, which will aid the department in attracting first-rate faculty. The Professorship will fund postdoctoral research assistants, graduate students

and numerous research initiatives for the awarded professor.

"Endowed professorships are so important in this funding climate," said **David C. Jiles**, Palmer Endowed Department Chair of ECpE and Anson Marston Distinguished Professor. "This gift will support faculty in the department and allow its recipient the freedom to innovate and inspire students."

Philip Tate Sproul (1915-2011) earned two degrees from Iowa State and was a Technical Staff Member at Bell Laboratories from 1937-80. At Bell, he helped develop military radar during the Second World War, and was awarded a patent for permanent magnet focus for picture tubes – a now-universal component of radar, of which he is listed

as the sole inventor.

Sproul is a member of the Order of the Knoll at Iowa State, a life member of the Old Guard of Summit, New Jersey, and a Life Senior Member of the IEEE. In addition, he is an Honorary Member of the Iowa State Department of Electrical and Computer Engineering.

"Successful alums giving back to the department creates a virtuous cycle," Jiles said. "When our students graduate, become successful, and give back, they help the next generation of students to graduate, become successful and give back."

Sproul's previous gift of more than \$200,000 allowed the department to establish the Sproul Intellectual Center in Coover Hall. ■

CHANCE ENCOUNTER

Tony Allevan, President of Iowa State's student chapter of the IEEE, came to Ames by chance. He hasn't looked back.

BY MICHAEL STILL

- 1 Theremin
- 2 Laser head-tracking system
- 3 Ghost Drive (inside of a classic Star Trek Lunchbox)
- 4 Plasma speaker
- 5 Solar panels from powerfilm
- 6 Robotic hand

Department

Students

Alumni



For most students, choosing the right college is a stressful process that can involve weeks, even months, of comparing campuses and class sizes. But when the time came for **Tony Allevén** to make his decision, he took a much more spontaneous approach.

"I decided to attend Iowa State out of a coin flip. It was between ISU and Wisconsin on the last day to accept and Iowa State won," said Allevén.

Although the Minnesota native made his choice in a somewhat unconventional manner, he has not regretted it once.

"I absolutely love the feel of Iowa State," said Allevén. "Nature is incorporated into the campus, and ISU provides students with all the opportunities of a large college while still making you to feel like you are attending a small one."

Allevén will graduate in May with a degree in computer engineering and a minor in economics, not to mention an impressive resume packed with extracurricular involvement. He is a member of the Phi Kappa Psi fraternity and has taken on leadership roles in multiple organizations throughout his time at Iowa State.

One club that Allevén has been heavily involved with since his freshman year is the Iowa State chapter of IEEE. The Institute of Electrical and Electronic Engineers (IEEE) is the world's largest professional technical society that is dedicated to advancing technological innovation and excellence.

The Iowa State chapter's goal is to help students. Whether that means learning about electrical and computer engineering careers, networking with industry and university faculty and staff, or developing teamwork and technical skills, the organization is devoted to serving students. It accomplishes these goals by hosting company information sessions, co-sponsoring curriculum forums and generating interest in community involvement.

After Allevén was introduced to the organization by a friend, he wasted no time in joining. A freshman at the time, he said attending his first meeting was one of the best decisions he made that year, and that it was a great way to meet upperclassmen, as well as other freshmen. Before he knew it, Allevén



found his way to a leadership position.

"I took a role in Industry Relations around the middle of my sophomore year. At the end of that year, when elections were being held for president, I ran and I won," he said.

Today, Allevén still serves as the president of Iowa State's IEEE chapter, and the organization has seen a dramatic increase in membership. According to Allevén, when he joined in his freshman year the club was very small, so after becoming president he worked really hard to, in his words, "gather an awesome group of students to push IEEE back up to the apex it had in the 1980s-90s." The effort paid off tremendously.

"At the first IEEE meeting this semester, we had more than 130 people in attendance," he said. "We had the room packed full, and people were still standing outside. It was nice to see the work our board put in come to fruition."

Between class, homework, and extracurricular activities, Allevén still finds time for hobbies. He enjoys hiking, playing racquetball, and makes it a goal to bike at least 26 miles each week. He also enjoys working on a range of personal scientific projects, purely for his own benefit.

"I find that I learn more from sitting down and working on something I am interested in than I do in any other setting," said Allevén. "I have a folder full of 'paused projects' on my skydrive. So whenever I have time, I will go into that folder and 'un-pause' a project, start

I find that I learn more from sitting down and working on something I am interested in than I do in any other setting

working on it again, and then 'pause' it when schoolwork starts to kick back in."

Right now he is working on a generic neural network that predicts trends based on generic data, and he hopes to test it with trends in the stock market to get broad predictions of rises and falls in the market at large. Another current project Allevén is working on involves turning a "dumb phone" into a smart phone.

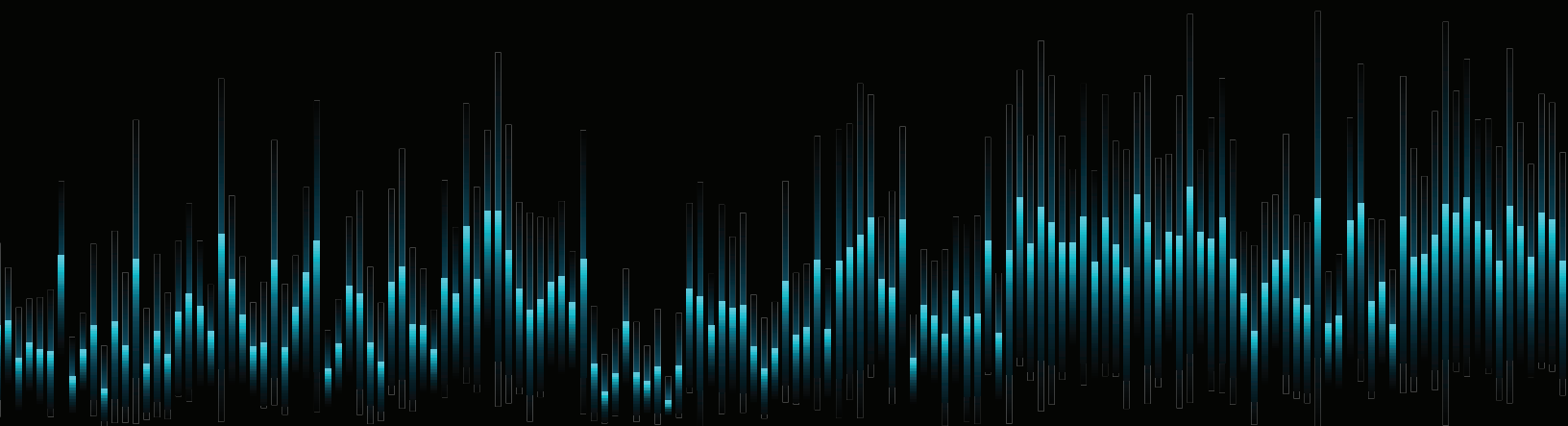
"I have an old phone that can make phone calls and send texts and I am trying to make it 'smart' by writing a program to run on Microsoft's cloud that will allow me to text commands to the server, and receive results back," said Allevén. "For example, I want to get a maps functionality on my phone by texting my start and ending destinations and having the server return a list of directions in the form of a text message."

Although Allevén is working in the early stages of this project right now, he hopes he will have enough time to continue his research over the upcoming semester break. With graduation right around the corner, Allevén feels confident that Iowa State has prepared him for industry. He believes his classes have not only taught him about formulas and equations, but something much more valuable and applicable.

"A common view on classes is that they aren't all relevant to your specific field. But it doesn't matter if it's relevant. The main thing you learn how to do in college is solve problems," said Allevén. "Chances are, your job won't be on the topics you learned in college, so it is important to know how to solve general problems and use critical thinking."

Allevén hopes to eventually end up as a program manager at Microsoft, working on software that will help and affect many people. He wants his work to impact the world at large. In addition, he thinks he might like to test the entrepreneurial waters by developing his own start up. But before he takes off into the post-college world, he has one piece of advice to offer his fellow students.

"Don't waste a moment of college," said Allevén. "Sign up for everything you might be interested in and if you find you've taken on too much, start dropping the things you can live without. That way, you can try a bit of everything, to really find out what you enjoy." ■



THE SOUND OF SLEEP



Sam Nicolino
(BSEE '75; MSEE '77)

Founder, Adaptive
Sound Technologies, Inc

Department

Students

Alumni

Armed with Bachelor's and Master's degrees from ECpE, **Sam Nicolino** founded Adaptive Sound Technologies, Inc. in 2008. The company strives to help people fall asleep and stay asleep naturally without the assistance of over-the-counter sleep aides or prescriptions.

BY MICHAEL STILL

For Sam Nicolino, necessity really was the mother of invention. After living and working in Silicon Valley for many years, he found himself with his second child on the way, and the open space in his home quickly filling up. A search for a new home ensued, and Nicolino found a house that fit his family's needs to a tee, but there was one little problem.

"It was well understood by me that Highway 85 'might' be going up through our neighborhood in the future, and obviously that would increase the noise level in the area," Nicolino said. "But that was in the future, and the house was perfect, so we moved in. I assured my wife Kathryn that I'd figure out a method of canceling out much of the noise when the time came."

Nicolino did exactly that. After extensive research and fieldwork on the beach with his DAT

recorder, he discovered that he could take sounds from his natural surroundings and use them to cancel out and cover other noises or unwanted sounds from the highway. He called this idea a "Sound Story."

From this technology, Adaptive Sound Technologies created the SOUND+SLEEP machines, which measure the ambient sound in a room using built-in microphones, and then determine the appropriate mix of sounds to play through a process called real-time sound composition.

The machines have the ability to play a variety of different SOUND+SLEEP sound profiles which were recorded "the hard way," meaning all sounds are authentic, and were captured by sound engineering and design teams. When a machine is turned on, it plays the correct sounds that will help the listener get better sleep.

The company has been a success. With both home and travel machines on sale and generating profit, Nicolino is taking a look at the what future holds for his company. New products and new markets are on the schedule for ASTI, and Nicolino is confident that his company will continue to grow at a healthy rate.

“We just launched our new ‘LectroFan’ product, a machine that generates fan sounds and white noise, and it is exceeding our expectations,” said Nicolino. “We sold out of our first batch in just three weeks.”

Before ASTI could celebrate success, however, Nicolino found himself facing multiple challenges in the company’s early years. For example, although the patent for ASTI was issued to Nicolino in 1998, he wasn’t immediately able to start the company because the cost of necessary components was too high for consumer purchase.

“The economy took a turn for the worse soon after ASTI found funding, and we almost didn’t make it,” said Nicolino. “When you start a company, you make commitments to your investors, and if things don’t go as smoothly as you outline in your business plan, it is very challenging.”

Times will get tough and there will be moments when things don’t go as planned, but Nicolino offers a few pieces of advice to students who aren’t sure where the road will lead them after graduation.

“Follow your heart, not the money. The money will come later.” said Nicolino, “Do what you like even if you have to take some gambles and perhaps start out with a little lower salary than other available jobs. The hours will fly by and you will truly enjoy your work.” ■



The SOUND+SLEEP family of products are sleep therapy machines designed to help people fall asleep naturally and drug free. Currently ASTI offers two products: SOUND+SLEEP which is designed for home or office use, and one SOUND+SLEEP Nomad which is designed specifically for travel.

SOUND+SLEEP

SOUND+SLEEP machines include 10 distinct sound profiles engineered to promote deeper sleep, relaxation, and renewal. These sound stories include, White Noise, Waterfall, Meadow, Brook, Rainfall, Ocean, Train, Fireplace, City, and Meditation. SOUND+SLEEP also features a headphone jack and sleep timer that can be set for 30 minute increments up to a period of two hours.

SOUND+SLEEP Nomad

The SOUND+SLEEP Nomad is smaller and more compact than its at-home counterpart. Because it is designed for travel, the SOUND+SLEEP Nomad runs on two “AA” batteries, but also includes a power adapter and power cable to help extend the charge. This machine also offers a sleep timer and six sound stories, but does not feature a headphone jack.

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