**Chair’s Corner**

For the first time, this department is offering an introductory course, EE100, Concepts in Digital Signals and Systems, to twelve students in a variety of disciplines from music to electrical engineering. I wish you would talk to these students regarding their experience in the course. We have not had any dropouts. Students seem to enjoy the course. Why is that?

The answer is very clear. Instead of wasting time interpreting lectures and taking notes, and being distracted by the lecture, they spend their time developing and applying theories. For example, in one of the lectures, we talked about how one could add an arbitrary echo to a sound. Students were asked to participate in developing a mathematical model. They were provided with a realistic scene in which a sound would be echoed.

With a little help, they were able to write a simple difference equation representing a mathematical model for the echo process, \( y(n) = x(n) + \alpha x(n-D) \), where \( x(n) \) is the original sound, \( \alpha \) is an attenuation factor, \( D \) is number of delay samples, and \( y \) is the final sound including echo.

After the mathematical model was developed, they were asked to use MATLAB to implement the model and listen to the resulting sound. They did it! I was very impressed. I could see the joy of learning in their eyes. The first student who implemented the model, screamed, “It works. Listen to it—it works!” Nothing could have been more rewarding for me than what I heard from the student.

This process of developing the theory, defining a model, implementing the model, and hearing the results took less than an hour. Would it be possible if we were not in a state-of-the-art classroom?

Thanks to the UAH administrators who have valued and supported this project, allowing this department to have a state-of-the-art classroom.

(continued on page 4)

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**Outstanding Engineering Student Award**

This year, the UAH Outstanding Engineering Student Award was given to Douglas T. Albright. Doug is an electrical engineering student co-oping with ADTRAN. He has maintained a perfect GPA and expects to graduate with a B.S.E. in Electrical Engineering from this department in August 1998. In addition, Doug is holding an MBA-

Finance and Marketing from University of Chicago, Chicago, IL, June 1986, and a BA-Economics/German from University of Utah, Salt Lake City, 1984.

As a student at UAH, he was one of the two-student team that constructed and tested a DSP (Digital Signal Processing) modem as part of an electrical engineering senior design project. The modem provides radio amateurs with digital signal processing capability in a stand-alone low-cost unit.

Also while at UAH, Doug has co-authored in the area of protein crystal growth, diffusion in microgravity, hydrogen diffusion in metals, and critical point phenomena.

At ADTRAN, he has designed and authored original embedded software for the XLT ISDN remote access bridge/router including Network Access Translation, RADIUS, Telnet, and Ping client applications. He has developed and enhanced a tool that generates code for the menu system. He has provided technical field support to customers using ISDN remote access and internetworking equipment.

In addition to his work at UAH and ADTRAN, Doug has worked as a Manager at Mission Foods, Deloitte & Touche, and R. G. Barry Corporation.

Congratulations, Doug!
Publications, Presentations and Awards

COMPUTER ENGINEERING

Krishna Kavi, Professor and
Eminent Scholar in CPE

Book Chapter

Journal Publications


Invited Publications

Invited Talks

William Cohen, Asst. Professor

Conferences

Workshop

ELECTROMAGNETICS

Nagendra Singh, Professor
Graduate Affairs Director


V. R. Riasati, Vis. Asst. Prof.

Conference Papers

Research
Currently supported by MICOM, through a local company, to perform research in the pattern recognition area to utilize fractals and wavelet transforms in the development of new methods for fast recognition scenarios.

Currently supported by the MSX program office to perform work on evaluation and development of algorithms for the attitude estimation of unmanned spacecraft.

A. M. El-Saba, Vist. Asst. Prof.

Lori Sisson is currently a freshman in the computer engineering program and serves as the ECE Department’s webmaster. Even before finishing high school, Lori was involved in many activities at UAH.

A musician at heart, she began playing with the UAH Wind Ensemble while in her high school sophomore year under the private instruction of Jeffrey Howard, an alumni of UAH’s Music Department.

During her junior year of high school, Lori joined the supercomputing class which was sponsored by the Alabama Supercomputing Program to Inspire Research in Education (ASPIRE). During the class Lori researched and developed the project, “Physical Modeling of a Variable Length Flute” with the guidance of her mentors, Carlos and Tricia Garcia. Tricia Garcia, an alumni of the ECE Department at UAH, inspired Lori tremendously. While developing the project, Lori realized that engineering and music could be intertwined and didn’t have to be totally separate.

Prior to the project, she had planned on studying clarinet performance, her primary instrument. However, after seeing how exciting and enjoyable the sciences really were, she decided to focus her attention toward a program that offered the best of both worlds, music and engineering.

During this time, she was playing in UAH’s Pep Band, directed by Dr. Les Hutson, who introduced her to two different academic programs: BSE in electrical or computer engineering with a minor in music and BA in music with a minor in engineering. With the guidance of Dr. Reza Adhami, Lori then realized she was destined to be a student in the electrical and computer engineering department pursuing a BSE in computer engineering with a minor in music.

She was motivated when she visited the Multimedia Development Lab (MDL) in the ECE Department where technology, music, and art are integrated to produce educational learning tools through 3-D modeling and visualization.

She has been the key person in building the ECE Department homepage. In addition, she works as a non-linear audio/video digital editor in MDL.

Visit the ECE Department web site as well as some of the other sites she recommends:

http://www.eb.uah.edu/ece
http://www.zdnet.com
http://www.fastweb.com/
http://www.mediadome.com
http://www.collegeclub.com

Dissertations

Fall 1997

Brian Smith:
Localized Computed Tomography Utilizing the Wavelet Transform
Advisor: Dr. R. Adhami

Mike Hale:
Analysis and Reconstruction of Nonstationary Random Vibration Signals using Wavelet Transforms
Advisor: Dr. R. Adhami

Publications, Presentations and Awards (continued)

ELECTRON DEVICES

Dashen Shen, Asoc. Professor


Fat Duen Ho, Professor


SOLID STATE

Timothy Boykin
Associate Professor

You’re Invited!

ECE Bits and Bites Day
Optics Building, Room 235
Friday, April 17, 1998, 12 noon

If you would like to learn more about …

What do engineers do?
What do engineers study?
Why students should consider studying
Electrical, Computer, or Optical engineering at UAH!

More info: phone (205) 890-6316, email: ece@eb.uah.edu

Chair’s Corner (cont.)

The question is, if this method of interactive teaching/learning is far superior to the traditional one, why not apply it to all courses. The answer is: It requires large amount of resources. The average cost for a modern classroom is about $100,000. Can we afford that? If not, why not? Here is a why not:

Perhaps because for the first time in its history, the state of California has allocated more money to prisons and correctional facilities than to education.

Pennsylvania isn’t much different. The Governor’s proposed 1996-97 budget called for a $33.3 million reduction in spending for higher education with another $70 million to be cut over the next two years. Yet, there's going to be an additional $80 million for prisons and corrections during the same time frame.

My database doesn’t contain anything about the State of Alabama regarding education and prisons’ budget. So I cannot quote you on that. I just hope that the State of Alabama does not copy some other states regarding this issue. Otherwise, we should keep pressuring our legislators to support higher education. I wonder if they listen!

Regardless of whether they listen or not, I believe we have to constantly remind them of the importance of the higher education in our society. Needless to say that local industry has supported this department to provide its workforce with a better education. We count on their continuing support to provide a better education for their needs.

-Reza Adhami, Interim Chair