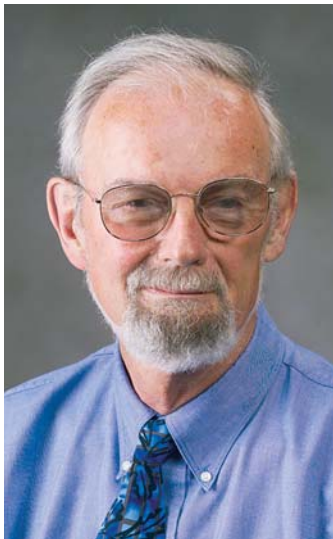


Perspectives

From the Department Head



'Electrical and computer engineering as fields have always been on the cutting edge of new technology, and the pace continues unabated at Virginia Tech...'

Since arriving at Virginia Tech eight months ago, I have come to know a vibrant, accomplished ECE department of exceptional breadth. You will see in this report that we have nine general areas of endeavor, each providing distinct perspectives on the applications and problems facing technologists today. You will read of super-bright LEDs (p. 5), cancer research (p. 35), metal rubber (p. 23), software radios (p. 20), and a lab-in-a-box (p. 18) to mention a few.

Electrical and computer engineering as fields, have always been on the cutting edge of new technology and the pace continues unabated at Virginia Tech. Today's hot topics are bio-related and use nano-scale technology. You will read that in almost every area in our department, biologists are tapping ECE expertise and skills for imaging, computation, systems analysis, and more. Their efforts require manipulation of light, energy, and information—all ECE skills.

In other endeavors, ECEs lead the way in tapping new energy sources, such as fuel cells (p. 24), and in energy transmission (p. 26). ECEs are active in homeland security, applying communications, power, computation and sensor skills. Farther afield, Wayne Scales and colleagues have received funding for an initiative to study upper atmospheric space physics. Their NSF grant was one of only three such awards given nationally.

The vibrancy I find flows from the energy and minds of my new colleagues. Their expertise and contributions to society are recognized by the many honors they earn.

Rick Claus was named one of Virginia's Outstanding Faculty for 2005. He has led more than 550 research efforts totaling more than \$40 million and authored 1,000 papers. In April, Fred Lee will receive the 2004 Ernst-Blickle Award from the SEW-Eurodrive Foundation. The award is made biannually and includes a prize of EUR 100,000.00. Of the 11 previous recipients, only one other was from the United States.

Sandeep Shukla received the Presidential

Early Career Award for Scientists and Engineers (PECASE) at a White House ceremony. Our other young faculty members are also earning national attention. Thomas Hou, Allen MacKenzie, and Tom Martin have received NSF CAREER awards, bringing to 10 the number of ECE faculty members so honored. Anbo Wang's team received one of this year's *R&D 100* Awards. Jeff Reed became the department's latest IEEE Fellow. The department's 19 fellows represent nearly one-third of our faculty.

We continue to grow and strengthen our graduate program, emphasizing the Ph.D. An ECE team has developed one of the country's few online graduate application systems, which will be available to the whole university by fall 2007. We welcomed three new faculty members in January and are searching for six more. Our new colleagues are: Yong Xu (Ph.D. '01 CalTech), Paul Plassmann (Ph.D. '90 Cornell), and Fred Wang (Ph.D. '90 University of Southern California).

My thanks to Doug Juanarena, who completed his term chairing the ECE Advisory Board. Wayne Snodgrass ('61) was elected chair and his comments, at right, reflect the involvement of our alumni and the partnership of our board.

These are challenging times. Pressure to expand the graduate program and enhance our research ranking conflicts with our limited resources. ECE is desperately short of space. Our space-per-faculty member is well below those of competing programs and the shortage of quality lab space makes it difficult to recruit faculty. Finding solutions to these problems is vital to achieving university and department long-term goals. However, the dedication and energy of the ECE faculty have helped Virginia Tech gain national prominences and I am convinced that with proper support, we can take the next step.

A handwritten signature in black ink, appearing to read 'James S. Thorp'.

James S. Thorp
Department Head