Newsletter - December 2009

Carroll Lee Receives Edward T. Bryand Distinguished Engineering Award

Carroll Lee, former President of Bangor Hydro-Electric Company has received the 2009 College of Engineering Edward Bryand Distinguished Engineer Award. Mr. Lee (shown here with Dean Dana Humphrey (l) and Mohamad Musavi (r) is currently a consultant providing advice to businesses and investors in the Northeast region, specializing in energy related matters. Customers include T&D utilities, owners of electric generation plants, wind power development companies, engineering services firms and energy consumers. He was recently appointed as an Adjunct Professor of the University of Maine Electrical and Computer Engineering Department.

Carroll received his BS degree in Electrical Engineering, with distinction, in 1971. While working as an engineer for the Bangor Hydro-Electric Company, he continued his graduate education at the University of Maine and received his Master of Engineering in Electrical Engineering in 1974 and MBA in 1980, both with high distinction. He also completed the Harvard University Advanced Management Program in 1990.

Carroll held various positions in the engineering, planning, and management of Bangor Hydro-Electric Company. With his strong educational background, hard work, and management skills he went on from an entry-level engineer to the top level positions as the Vice President of Operations, Senior Vice President and Chief Operating Officer, and President of the company. He was responsible for the overall operations of Bangor Hydro-Electric, providing reliable and cost-effective electricity to approximately 110,000 customers in eastern Maine, with a workforce of approximately 450 employees and annual revenues of $200 million. He managed Bangor Hydro's power supply resources, including the construction of a modern $45 million hydro-

electric power plant and automation of several existing hydro plants. He was responsible for representing Bangor Hydro before the Maine PUC and the Federal Energy Regulatory Commission, focusing on power supply planning and economic/ financial analysis. He worked closely with other regional utilities, in New England and Canada to plan and operate major regional generation and transmission facilities, including the planning for a 345 KV transmission interconnection with New Brunswick. He participated actively in regional power pool matters, including serving many years on the NEPOOL Operations Committee, two years as the Chair.

Carroll's experience and influence have helped to shape the energy industry in Maine over the past 30 years, making him a respected leader in the energy industry. In 1977, Carroll was named "Maine's Young Engineer of the Year" by the Maine Society of Professional Engineers. In addition to his professional activities, Carroll has served his community in many different capacities as a member of the Grievance Commission of Maine Bar Association, President of the Board of Community Health and Counseling Services of Bangor and a founding and continuing Board member the Leach Memorial Home of Brewer, a member of the Fund Raising Committee for the Challenger Learning Center of Maine. In addition, since 2006, he has headed a local volunteer effort to raise funds and develop investment strategies to provide energy assistance to low-income citizens.

Carroll is a distinguished member of the College of Engineering Francis Crowe Society and a big supporter of the University of Maine Electrical and Computer Engineering Department. He has been responsible for establishing the Carroll R. Lee Scholarship and the Robert N. Haskell Power Engineering Professorships in the Department. Furthermore, he has been assisting and mentoring the department faculty in developing new activities in the area of renewable energy and smart grid.

Thank you to the ECE Visiting Committee

The ECE Visiting Committee provides a great service to the department's self evaluation process. We wish to thank the members of our Visiting Committee for taking time out from their busy schedules to meet with our faculty and students, and reviewing our programs providing us with constructive feedback. This year's meeting was held on October 29-30. Below is a picture the committee members.

Visiting Committee (l-r) Row 1: **Bob Meisenhelder**, Dir. Gov R&D Programs, Dir. Univ. Gifts & Grants, Analog Devices, **Glen Riley**, VP of Commercial Foundry, TriQuint Semiconductor, Inc., **Murthy Ayyagari**, Exec. VP & Gen. Mgr., Newlans, Inc.; Row 2: **Steve Waldstein**, Fairchild Semiconductor, **Willis Tompkins**, Prof. & Chair, Dept. of Biomed. Eng. and Elec. & Comp. Eng., Univ. of Wisconsin, **Martin Troy**, Mgr., Elec/Inst. & Hydro, Madison Paper Industries; Row 3: **Bob Gelinas**, AMD, **Tony Paine**, Exec. VP & CTO, Kepware Technologies, **Kurt Stinson**, Mgr. Elec. Eng. Dept., Bath Iron Works; Row 4: **Roland Gilbert**, BAE Systems, Inc., **Brian Conroy**, Mgr., Dispatch & ECC, Central Maine Power, **Matthew Graf**, Mgr., DA Enablement, IBM; Row 4: **Dale Flanders**, Chief Exe. Officer, Axsun Technologies, **Mohamad Musavi**, Prof. and Chair Electrical and Computer Eng., Univ. of Maine

US-Ireland Partnership Program

Electrical and Computer Engineering Professor Rosemary Smith along with Professor Laurie Connell from the School of Marine Science at the University of Maine have joined in a partnership program with Ireland. The project entitled: **B**iosafety for **E**nvironment**A**l **CO**taminants Using **N**ovel **S**ensors (BEACONS) aims to develop novel strategies for the isolation and detection of algae (*Alexandrium* and *Microcystis* species) and their associated toxins, (e.g. paralytic shell fish toxins and microcystins), that are of significant concern as environmental and food contaminants. The consortium of partners, assembled as a result of the US-Ireland Partnership initiative, has complementary expertise in sample handling, marine and fresh water environmental research, assay development - using antibodies, peptide nucleic acids and receptors/channels, microfluidics, sensor assay generation and associated applications. The partnership is specifically designed to strategically exploit this combined expertise to tackle major algal toxin problems that are common to the US and Ireland. A highly innovative sample collection/concentration system and a sensor-based prototype system, with industrial input from Precision Photonics Corporation, a US company, will be developed. Regular meetings and

exchanges of staff and students between the partner institutions are planned that will foster training, education and outreach. The partnership is jointly funded by the Science Foundation Ireland, Invest Northern Ireland, and the National Science Foundation, USA.

Kick-off meeting at Dublin City University, Ireland on Sept. 21-22, 2009. Pictured L-R: Laurie Connell (Marine Science, UMaine), Rosemary Smith (ECE and LASST, UMaine), Richard Kennedy (Dublin City U., Ireland), Julie Meneely (Queens U. Belfast, N. Ireland), Gregg Doucette (NOAA), Chris Elliott (Queens U. Belfast, N. Ireland), and Edwina Stack (Dublin City U., Ireland)

Awards and Recognition

Faculty/Staff

Susan Niles Receives the 2009 Leila Lowell Award

Over the last 17 years, Susan Niles has provided outstanding service to the Electrical and Computer Engineering Department (ECE). Susan originally worked in the ECE Department from 1979-1983 and then returned in 1997. Susan's hard work, intelligence, positive attitude, and friendly manner have served the department well and provided a productive and welcoming environment for the faculty, students, and visitors. Susan's contributions to the ECE Department goes far beyond the normal day to day activities such as undergraduate, graduate and faculty support. In particular, Susan plays a major role formulating and writing the ECE newsletter, which is distributed to all ECE graduates from the University of Maine. The newsletter has not only served to maintain ties to previous graduates but has also significantly enriched the ECE academic programs and fundraising efforts. Susan also has played a major role in three National Science Foundation (NSF) grants namely the NSF Research Experience for Undergraduates (REU), Research Experience for Teachers (RET) and GK-12

programs. In these programs she coordinates all inquiries and notices associated with the program and interacts directly with the applicants and awardees. Her contributions to the program have been invaluable and have resulted in well-organized first rate NSF programs at the University of Maine.

The ECE faculty continues to be impressed with Susan's consistently positive attitude and her diligence in helping both faculty and students! She is an extremely valuable member of the department and plays a major role in both day-to-day operations, the newsletter and several NSF programs. Her unique professionalism, dependability, intuition, and dedication are exceptional.

Maine Could be an Ideal Home for Big Computers

If a high-speed fiber-optic network is built through the state, opportunities for centers to process data would come. (By Jeff Letourneau, Mike Bilodeau and **Bruce Segee**).

This holiday season when Americans go to their computers and type "turkey stuffing recipe" into a Google search, they'll take for granted the more than 10 million places on the Web they can go for help with a holiday meal. We tend to see such wonders of the Internet as a "virtual" gift, something that appears from the ether, an act beyond the bounds of a physical space.

But in the back of our minds, we know that somewhere, perhaps in California or maybe just outside of Boston, there are machines that physically process our keystrokes and make the miracle of the Web a reality.

Because the Internet lets us be connected everywhere at once, we forget that it is a physical thing. It take computers, lots of big ones that eat up power and generate heat, to process data and send it on its way through the World Wide Web.

All sorts of information - corporate data, health records, government records, e-mail, news, NASA images from space, even turkey stuffing recipes - must be stored and processed somewhere. It takes a number of inputs to make a large data processing center function well, and it might surprise you to know that Maine is especially well positioned to host that industry if - and it's a big "if" - we are able to invest in some missing infrastructure (full story).

Former Alumnus Speaks to ECE 300 (Seminar) Class

Former alumnus William Stoy (front row, 5th and wife, Judy, holding plaque) recently spoke with Dr. Musavi's Senior Seminar regarding his experiences and career lessons at the National Security Agency. Mr. Stoy and his wife were also recognized for establishing the William G. Stoy and Judith Kenoyer Stoy Scholarship in the Electrical and Computer Engineering Department.

Editor's Note

For nearly three years, after every newsletter publication, one of our alumni sent me an email thanking us for keeping him informed of his alma mater, albeit with great stories presented in a humorous way. I had never seen or had any prior communication with him but his emails kept coming. He studied electrical engineering during WWII, served his country, and graduated in 1945. His name was Al Barmby and I always looked forward to his emails. Sadly, though, I was informed that Mr. Barmby died of a heart attack in Huntsville, Alabama on Friday, November 27th. Mr. Barmby's story was printed under the Alumni Profile section in the April 2007 newsletter. Below is his last email to me dated October 1, 2009.

"From an older alumni .....!!!
Thank you for the email from up north. Down here it is sunny and a bit cooler..about 78 F .
I live half way up a mountainside and have a 2500 ft mountain behind me. I can look across a valley..
aka Jones Valley although the Bailey's owned it when they had cows ! When I used to fly around here it was a prime landing spot in an emergency . We always had our eyes open where to touch down .
My biggest activity here besides church work is volunteering at our Red Cross center. We have a blood donor center . Once I was getting taught how to draw blood but insurance and liability cut into non-employees helping there. They have hired folks to do just that !
This afternoon I have to rob the bank and get Thelma's hair done for

Friday . Her hair dresser I have know for some 30 years ! He is ready to retire ! My son now 50 used to sweep their shop on Saturday afternoons.
Time to sign off ..munch on lunch and scoot !
We wish you a very successful year . The electrical field is so expanded !
Back in the late 30's I had already done teletype and radio and telephone .
I even got a free year at Lehigh U. Army ASTP.
As I said before...have great year !!
Best wishes AL .45"

Gifts/Donations

We sincerely appreciate the support of our alumni and corporate supporters. During this challenging economic time, your support of our scholarship programs means a lot to our young and hardworking students.

Kepware, $5,500, Oct. 30
Dale and Julia Flanders $11,000, Nov. 6
A. Abedi received a $4,985 donation from Xilinx, Inc. Nov. 23

Other Contributors to the ECE department since October

Nancy C. Holmes
Malcolm A. Young

Publications

Peer Reviewed Journals

"Electron Beam Stimulated Oxidation of Carbon (EBSOC), P.S. Spinney, D.G. Howitt, S.D. Collins and **R.L. Smith**, Nanotechnology 20(46): 465301, 2009.

Peer Reviewed Conference Proceedings

"Electrical Characterization of a Carbon Nanoelectrode Instrumented Nanopore Sensor," P.S. Spinney, D.G. Howitt, **R.L. Smith** and S.D. Collins, Proceedings of the IEEE Sensors 2009 Conference, Christchurch, New Zealand, Oct. 25-28, 2009, Paper A2L-B1.

Grants Received

Since October 2009, the ECE faculty has received 2,040,189.00 in grants.

J. Vetelino and C. Holden, "Track II GK 12 Sensors!" Year 5 funding, NSF, $278,038, July 1.

M. Pereira da Cunha (PI) and R. Lad (Co-PI), "LGX High Temperature Acoustic Wave Sensors," Air Force Research Laboratory, DoD, $1,376,428.00, July 1.

M. Pereira da Cunha, "NSF-REU Sensors: Detecting Microbial Pathogens With Novel Surface Acoustic Wave Devices in Liquid Environments," NSF, $6,000.00, July 15.

R. Lad and **M. Pereira da Cunha**, "Sensors for High Temperature Harsh Environments," MTI, $12,500.00, August 10.

J. Vetelino and **N. Emanetoglu**, "REU site: Sensor Science and Engineering," Year 2, NSF, $90,646, Sept. 1.

N. Emanetoglu, "Novel Symmetric Gain Device for Single Pixel LADAR Applications," $24,152, Army Research Office (Administered by Battelle), Oct. 27.

A. Abedi, "Wireless System on a Chip for Leak Detection in Inflatable Structures," $252,425, NASA, Research and Higher Education Program (Collaboration with USM, IEEE and Jax), Nov. 24.

Other

Since October the faculty have submitted proposals for a total of about $752,425.

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