

NEWS

mechanical engineering

Winter 2000

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Diane S. Kukich

The Chair's Corner

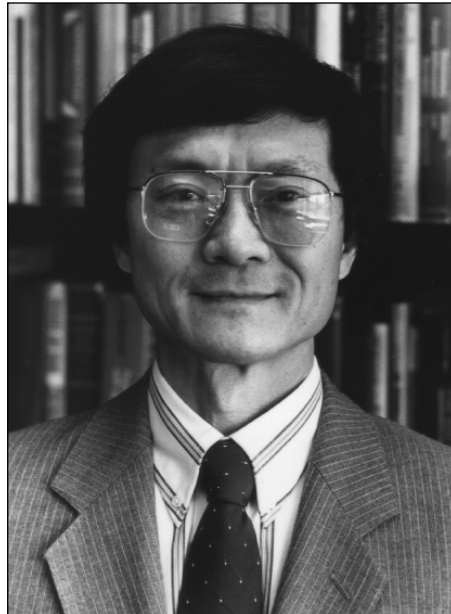
by Dr. Tsu Wei-Chou

It has been a very eventful year in the Mechanical Engineering Department as well as the College of Engineering. First, Dr. Eric W. Kaler was appointed Dean of the College last August. For the past four years, Eric was Chair of the Chemical Engineering Department. Dr. Andras Szeri, who served as the Interim Dean for the past two years, has returned to Mechanical Engineering. We are all thankful for his service and contribution to the College. After serving as Acting Chair for a year, I was recently appointed Chair of Mechanical Engineering. I appreciate very much the support of the faculty during the past year, and I am excited about the opportunity to work with the faculty, staff, and alumni to continue our effort in building a strong department.

We are also very excited to welcome our new faculty member, John E. Novotny. Dr. Novotny received a bachelor of science degree in mechanical engineering from Yale University in 1989. He then served as a research fellow for one year at the Wilhelm Schultess Klinik in Zurich, Switzerland, performing studies on the human spine. After moving to the University of Vermont, he received a master of science degree in biomedical engineering in 1992 and a doctoral degree in mechanical engineering in 1997. Dr. Novotny also spent three years as a post-doctoral associate with the Department of Orthopedics and Rehabilitation at the University of Vermont. Dr. Novotny's research interests include orthopedic and sports biomechanics of the shoulder, spine, and knee. Other recent work has focused on both experimental and analytical methods to study tissue and cellular mechanics within ligaments, tendons, and cartilage. The arrival of Dr. Novotny further strengthens our biomedical engineering program.

We have also initiated the search for two new faculty members in the solid mechanics and fluid mechanics areas. These are positions vacated by Professors Anthony Wexler and John Lambros, who left Delaware for the University of California-Davis and University of Illinois-Urbana, respectively. You may recall that Dr. Wexler initiated *ME News* six years ago and has made a wonderful effort in strengthening our tie with alumni. We wish Drs. Wexler and Lambros all the best in their new jobs. It is our plan to conduct several faculty searches in the coming years in order to increase the total number of faculty from the current 19 to 23 by 2004.

I am very pleased to report that Mr. Nathan Cloud (64EG, 70M/EG) has agreed to be coordinator of alumni rela-



tions for the Department. Nate retired from DuPont Company two years ago and has been a very active contributor to our Senior Design program. Nate will work closely with the departmental Alumni Relations Steering Committee and me and with Wanda Mock, the new College Development Officer. Nate has also taken over the responsibility of Managing Editor of this Newsletter.

This fall semester we welcome the forty-six students of the class of 2004, which include eleven women, and fifteen in the Honors Program. Also, this fall we welcome sixteen new graduate students. The department has fifty-three graduate students, thirty-one of whom are pursuing the Ph.D. degree. There are also eight postdoctoral fellows, visiting scholars, and research associates.

In last fall's newsletter, I reported the visit by a team from the Accreditation Board of Engineering and Technology (ABET) to the College of Engineering and the evaluation of our undergraduate Mechanical Engineering program. I was very pleased to receive the ABET evaluation report in September and the wonderful news that we have been accredited for a full six-year term. The faculty are now preparing for a strategic planning meeting, to be held in the Winter Session. I hope to report to you in the next issue of *ME News* our vision of the future of the department.

I would urge you to continue to be an active member of the department's alumni community. Please keep us apprised of your own activities (e-mail: cloud@me.udel.edu) and log on to <http://www.udel.edu/alumni/alumaddress.html> to update your contact information. Finally, on behalf of the students and faculty of Mechanical Engineering, I want to express our sincere appreciation of the support and encouragement from our many alumni during the past year and wish you all the best for the New Year!

High-Tech Melon Thumper Developed by Student Designers

by Ginger Pinholster reprinted with permission from The University of Delaware Messenger, Vol. 8 No. 4/1999

Forget thumping watermelons to check for ripeness. Unripened watermelons—a serious economic threat to farmers and a disappointment for consumers—may be quickly and automatically rejected by a new machine invented by four former University of Delaware engineering students.

The UD watermelon ripeness sensor was developed by Matt Behr of Towson, Md., Dave Bartoski of Camp Hill, Md., Allan Cohen of Wyckoff, N.J., and Jason Firko of Claymont, Del., as part of a senior design class focusing on real industry problems and customers. All are members of the class of '99.

"But, the technology isn't simply a student project," says UD faculty member James Glancey, who helps supervise student design teams, with colleague Michael Keefe and class coordinator Dick Wilkins.

"These students have come up with a technology that's absolutely viable," says Glancey, an associate professor of bioresources engineering and mechanical engineering at UD. "It would be very useful to growers."

The computer-controlled ripeness sensor ultimately could result in huge savings for the global watermelon industry, according to Ed Kee, a UD extension specialist, and William J. Watson, executive director of the National Watermelon Association, based in Orlando, Fla.

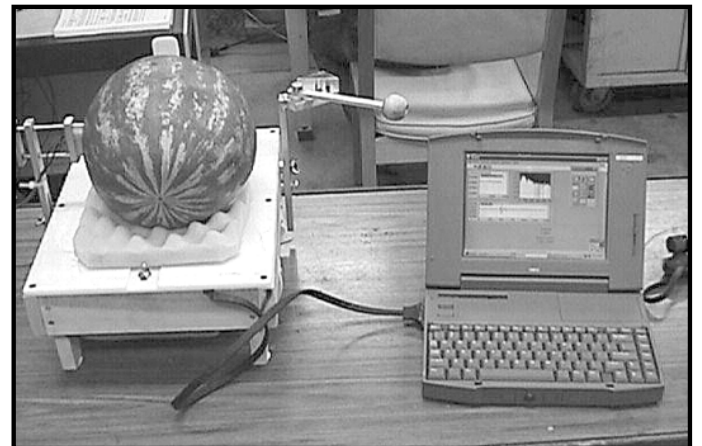
A prototype version of the UD device cranks out a ripeness reading in just 12 seconds. It's also durable, easy to use, weighs about 18 pounds and costs less than \$1,100.

"This is the first generation of a very promising new machine," Kee says. "Down the road, we envision a hand-held microprocessor to replace the laptop computer we're currently using with the device. Such a device could prove essential for farmers," he says, "and it might be handy for consumers, too."

"Watermelon growers need an automatic ripeness sensor," Kee says, because "it's not at all unusual for a 40,000-pound truckload of watermelons to be rejected at the marketplace. An entire load can be rejected if 10 melons are green," he explains.

How does the UD machine work? Its central feature is a platform where the watermelon rests. Sandwiched between the platform and the melon, a piece of foam rubber holds the fruit steady. A mallet attached to a metal arm protrudes from the right side of the machine, while a microphone sits close to the melon, on the left.

When Behr swings the metal arm, the mallet strikes the melon. The microphone picks up the sound and transfers it via electric signal to a laptop computer. The voltage signal is then converted into digital information, which is analyzed.



Because the hollow thump of a ripe melon echoes, it produces an acoustical signal that shows up as a peak on the computer screen, which dies down gradually. On melons tested thus far, the frequency of the signal, when normalized using volume, has shown a promising correlation to the actual sugar content of the melon, according to Kee. (The size of the watermelon influences the frequency of its signal and, therefore, is taken into account during analysis, Behr notes.)



Testing the tester

Melon characteristic frequencies have ranged from 100 to 250 hertz, corresponding to the desired sugar content of 8 to 12 percent. These findings were put to the test this summer, as researchers investigated more melons.

Delaware's watermelon harvest for 1997 came to 64.6 million pounds, making it the nation's 12th largest water-

melon-growing state, just behind Maryland, U.S. Department of Agriculture statistics show.

Other top watermelon states include California, Florida, Georgia, Texas, Arizona, Indiana, North Carolina, South Carolina, Missouri, and Oklahoma. Worldwide, the United States ranks fourth in global watermelon production, behind China, Turkey, and Iran.

Editor's Note:

The seeds of this Senior Design project have helped fertilize a ripe future for the technology of automating the science of fruit and vegetable growing and harvesting. The National Watermelon Promotion Board (NWPB) has budgeted funds for a two-year project with the University of Delaware to develop a commercially viable version of the ripeness sensor. If the project is approved, work would begin in January 2001.

Class Notes

William H. Just 63BME of Atlanta, CEO of Total Association Management Services, Inc., has been appointed to the international board of directors of the Convention Liaison Council (CLC) for a two-year term. He also is one of six professionals to be recognized by the CLC for contributions to the meetings, conventions, and trade show profession with a bronze head plaque at the Washington, D.C. Convention Center and McCormick Place in Chicago.

Mark J. Donald 71BME of Lakeland, Fla., has joined Rodda Construction Co., there as director of project management.

John R. Lombardo 82BME of Chicago is procurement manager for BP Amoco Corp. there.

Stephen Ellery 83BME of Gilbert, Ariz., is a plant manager for Hexcel Satellite Products, an advanced structural materials company there.

Alan W. Flenner 86BME of Camp Hill, PA received a degree from the Dickson School of Law at Pennsylvania State University in Carlisle.

Lee Ahlstrom 89BME, 91MME of Houston, joined the consulting firm of McKinsey & Co. there as an energy specialist on the upstream side of the petroleum practice.

Robert W. Hooley 94BME of Scottsdale, Ariz., is director of marketing and business development for LightLogic Inc. in Santa Clara, Calif.

Jessica Broderdorp 96BME of Exton, Pa., is an energy engineer at Honeywell in Ft. Washington, PA.

Larissa Nichelle Easom 96BME of Largo, MD, is an engineer at Bell Atlantic in Washington, D.C.

Alexander T. Dee 98MME has been named Manager of Engineering at Fujikura in San Diego, Ca. The golf shafts that he has designed are now #1 in the Ladies Professional Golf Association (LPGA) and are the fastest growing in popularity in the Professional Golf Association (PGA). He is currently designing all of the shafts for the Taylor Made's new line for 2001.

DOUBLE DELS

Linda (Scarborough) Craven 72AS is president of Studio Graphics Inc., in Lexington Park, Md. and **Thomas E. Craven** 70BME, 83MME is a mechanical engineer working for the U.S. Navy. They live in Port Republic, Md.

Jim Dick 59BME of Houston, retired as vice president of H&W Petroleum there. He had retired earlier from Exxon Co., USA, where he was manager of marketing technical services. **Louise Lattomus Dick** 59CHEP published a new book, *Old College Reflections: A Family Story*, about her great-grandfather, who was president of UD 100 years ago.

Tanya (Woloshin) DeLussey 97AG works at the University of Pennsylvania New Bolton Center in Philadelphia, as a research technician for the retinal disease studies facility, and **Edmund J. DeLussey** 97BME is a consultant at Anderson Consulting, They live in Wilmington, DE.

MARRIAGES

Michael Vari 86BME, 95MME to Elizabeth M. Haiss, May 6, 1999

NEW ADDITIONS

Julia Nicole, born Dec. 6, 1998 to Pattie and **Lee Ahlstrom** 89BME, 91MME of Houston.

Alyssa Lauren, born Jan. 12, 1999, to **Gina-Marie Jacobs Regan** 92BME and James Regan of Washington, N.J.

DEATHS

Wilmer K. Benson 37BME of Gaithersburg, Md, July 19, 1999

Robert J. Kee 41BME of Chadds Ford, Pa., Sept. 15, 1999

Joseph E. Thompson Jr. 51BME of Newark, Del., April 30, 1999

Alfred J. Lezenby 51 BME of Cherry Hill, N.J. September 18, 1999

Garry W. Hoffman 57BME of Hershey, Pa., August 2, 1998.

Henry L. Morris 70 BME of Rehoboth Beach, Del., Jan 4, 2000.

Alumni Relations Coordinator Named

Nate Cloud, PE, (64EG, 70M/EG) has agreed to be coordinator of alumni relations for the Department, filling a role previously carried out by Dr Tony Wexler.



Nate wrapped up a 35-year engineering career with the DuPont Company in 1998 and

started an engineering and consulting business, Cirrus Engineering, Inc. In early 1999, he extended his professional

activities by joining the Department's Senior Design Team Staff, focusing on getting project sponsors for student teams. (As this issue of the newsletter goes to press, nine projects, all sponsored by local industrial businesses, are being completed under a new single-semester format).

When Nate initially wears his Alumni Relations hat, he will focus on developing communication networks with and among alumni using traditional means such as this newsletter, as well as the Internet. (See signup request in this issue). Plans to gain broader participation in the ME Alumni Association are also being formulated. An underlying theme of the new alumni relations pro-

gram is "creating a community environment where mutually beneficial relationships can develop among alumni, and with students, and the Department".

Financial support of the department is an essential ingredient for this theme to become a reality. "As I took the reins as managing editor of the newsletter and began to review articles for inclusion in this issue," Nate says, "I realized, with embarrassment, that my name wasn't among the list of 1999 contributors! Fortunately, I will be able to see my name on the list for 2000 and also have the experience of helping to create an environment where contributions can be more effective!"

Other items being considered are planning social events around Homecoming and other University activities and providing a mechanism for assistance in alumni job hunting.

More information on alumni relations will be forthcoming, so look for it in this newsletter and in other University publications. If you are interested in participating in ME Alumni activities, check in on the Web page at www.me.udel.edu and fill out the information requested there on the sign-up form see ("Get Connected" below), or contact Nate Cloud by phone 302-778-7567; 302-831-1501 or e-mail cloud@me.udel.edu.

Feedback

We would very much like to have your feedback. Please let us know what you would like to see in this newsletter; and please, if you have information about yourself or fellow

alums, or if you have articles and photos that you would like to share, send them to us for possible inclusion in the next newsletter. We will also be encouraging other means of sharing

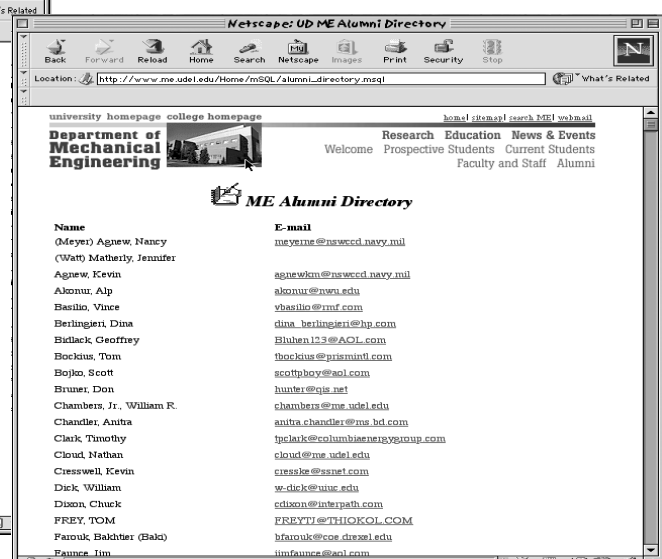
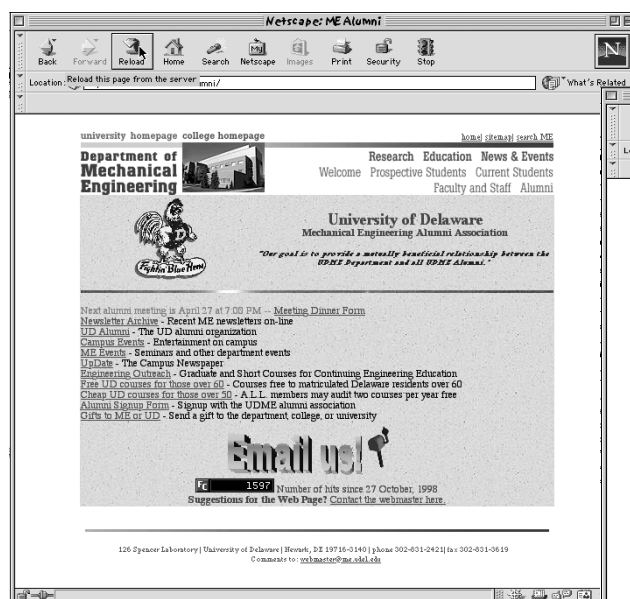
this information to help build the community of alumni. E-mail information to Nate Cloud (cloud@med.udel.edu) or to Diane Kukich (kukich@ccm.udel.edu) or send it to

Nate Cloud by "snail mail" at 126 Spencer Lab, University of Delaware Newark, DE 19716.

Alumni Get Connected

All Alumni are urged to "sign up" on the Mechanical Engineering Web Site. This is a great way to get in touch with each other and with the Department! Simply log on to the World Wide Web at <http://www.me.udel.edu/Home/>, and follow the following "click" path: Alumni; Alumni Sign Up Form; Sign Up (at bottom of list)

A picture of the Alumni web page is shown – look for new and exciting improvements in the future!



Back Creek Boys

by Terry Conway Reprinted with permission from The University of Delaware *Messenger*, Vol. 9, No. 1/1999

Built on a stretch of farmland once owned by Joshua M. Clayton, the first governor of Delaware, the Back Creek Golf Club is making a little history of its own.

Its creation on the outskirts of Middletown, Del., is the work of Allen Liddicoat 71BME, and co-designer David Horn. The Back Creek business mix also includes three other alumni—limited partners Bruce White, 55BME, and Rick Woodlin 76BME as well as marketing director Phil Hernandez, 91AS.

Liddicoat, a developer of custom homes for nearly 20 years, tried his hand at transforming an old crop farm into a dazzling golf course in 1996.

He succeeded. Big time. In a March 1999 issue of *Golfweek*, one of the nation's premier golf publications, the Back Creek Golf Course was tabbed as one of the "Top 100 Modern Golf Courses in America." Ranked No. 98, Back Creek was one of a handful of courses that were highlighted in the article: "...the market is changing—or at least, making room for modestly scaled style and substance by lesser-known designers. Witness the appearance of a real-estate-related, daily fee course in Middletown, Del. The routing of Back Creek allows plenty of home frontage, but the holes also hew to the native contours, circumvent wetlands without imposing awkward forced carries and are walkable rather than requiring a cross-country highway to get from green to next tee."

It was sweet praise for a first-time amateur course designer.

The Back Creek project is a golf community that began in 1989 with the purchase

of the land. Today, the community consists of more than 200 homes. The course weaves its way through the development but, unlike many courses, gives no feeling of being hemmed in by the houses.

When it opened in fall 1997, the \$2.4 million Back Creek was the first public golf course built in New Castle County, Del., in 25 years.

Because of its location and reasonable green fees, Back Creek attracts players not only from the booming southern New Castle County area, but also from Wilmington, Baltimore, Philadelphia, and southern New Jersey.

When Liddicoat initially began costing out the design of the course, he came to the conclusion that he was the most prominent golf course designer he could afford.

"I read every book on course architecture I could find and attended every seminar I could get into," says Liddicoat, a lifelong Delaware resident. "Then I got together with David Horn [an architect from Allentown, Pa.], and we came up with what we believed was both good and feasible."

Given that it was essentially a flat, run-of-the-mill piece of land, Liddicoat and Horn worked wonders to create a 7,003-yard, par-72, links-style layout loosely modeled after The Royal & Ancient Golf Club of St. Andrews, the legendary Scottish course that has hosted many British Open championships.

"I went on trips to Ireland and Great Britain to analyze those courses," recalls Liddicoat. "What I found was gently rolling terrain, sandy soil and plenty of wind. It really gave me an idea of what the game was like when it first started."

Liddicoat made the most of the lightly wooded site. Its challenging "open air" layout features an illusion of many dramatic elevation changes and landing areas, from wavy fairways and contoured greens to an assortment of sculpted mounds and knolls and thickets of spongy wetlands. By diverting water, Liddicoat created rippling ponds that come into play on six holes and variable winds, along with 83 bunkers, that spice up the lay of the course.

Four sets of tees situated on enormous tee areas allow for a variety of play positions for each round of golf. Up to 30,000 rounds are projected for Back Creek this year.

"Since there hadn't been a golf course built in Delaware for so long, it was not an easy approval process," remembers Liddicoat. "We worked with the county Department of Land Use to develop an approval process, which ultimately included a turf management program and water quality and quantity standards."

Initially, the pair didn't have much luck with the weather. The course project started in the spring of '96, which turned out to be one of the wettest years on record. The following two years were unseasonably dry, which hindered the developers' ability "to grow the course in." A good player knowledgeable about the game, Liddicoat did much of the design work himself, as well as supervising construction of the course and making all field changes.

"The shapes of the greens, as well as the putting and chipping areas, are unique to that part of the county," Liddicoat explains. "They complement each other and offer a lot of shot options. It's built more like a course from the 1920s. It's

more strategic than penal. The players hit around the hazards and weave their way to the hole. It provides a variety of shot options due to the varying contour of course. Our goal was to make it playable and fun."

To complete the project, the builders were required to move 350,000 yards of dirt. The course is aesthetically pleasing with plenty of tall grass areas that cater to wildlife and aid the water quality and quantity.

Liddicoat's next venture is a second golf course in Middletown, The Legends at Frog Hollow. Set to open in spring 2000, it will feature one of the premier playing surfaces in the mid-Atlantic region, Liddicoat says.

A golfer since age 14, Liddicoat, who is currently overseeing three separate golf courses (he's an owner/business manager of Chantilly Manor in North East, Md.), says he's lucky to get in one round a month.

So, what's the key to his success as a golf course designer?

"Some of it came from building homes for people and listening to what they really wanted," he explains. "I learned an enormous amount from reading the books of old-time architects. It also comes down to a feel for the landscape. You need a keen eye and the ability to blend a stiff challenge for even the best golfers with an overall harmony of the land."

W.L. Gore: More Than 40 ME Alums Can't Be Wrong

by Diane Kukich

New graduates are faced with lots of choices about a career path, including whether to sign on with a large company or a small one. In the case of more than 40 ME alumni, their choice — W. L. Gore & Associates—represents the best of both worlds.

"Gore is a big company with lots of little 'pockets,'" says Tony DelNegro. "We can move from plant to plant, which keeps us from getting bored with what we're doing."

DelNegro was one of eight ME alumni now working at Gore who attended a reunion dinner at the Blue & Gold Club in May. The dinner was also attended by several faculty members and other ME's active in alumni affairs (see sidebar).

Mark Cirino, a footwear product specialist at Gore, echoes DelNegro's feelings when he says, "Gore is a large company with a small spirit." The company's 14 local sites provide employees with the opportunity to

work in areas ranging from machine and process design to fabrics to prototyping. The ME contingent at Gore is contributing to the development of better fuel cells, running shoes, and portable phones.

Years after graduation, education continues to be an important theme with these alums. Darlene Gorton 96BME, a process engineer, has spent the past four years working in a number of business units at Gore on a variety of products, including EMI gaskets for cell phones. She is also taking courses toward a master's degree in materials science. DelNegro teaches machine design at Delaware Technical & Community College, and Cirino is active in a community group working to establish a charter school in nearby Kemblesville, PA. Cirino credits his education at Delaware with laying a strong foundation for his current position.

With the dinner's captive audience of potential "customers," Prof. Dick J. Wilkins

took the opportunity to pitch the ME senior design program. Run like a consulting firm with real customer problems for the students to solve, the program is always in search of project sponsors. "For those who have already completed senior design projects as students, it's a valuable experience to be on the other side of the process," says Wilkins.

Gore has repeatedly been named among the "100 Best Companies to Work for in America." Based on their comments at the dinner, the ME alumni who have chosen Gore as their workplace would agree.

Editor's Note: The following attended the alumni dinner:

ME Alumni Organization

William R. Chambers Jr.
Nathan Cloud
Kenneth S. Grier
Mark W. Hopkins
Robert J. Shoemaker

Alton P. Smith, Jr.

Alumni with W. L. Gore

Dr. Mark Cirino
Kevin J. Cresswell
J. Anthony Del Negro
Darlene Gorton
Mutza M. Haddadin
Mrs. Terri L. Kelly
Kevin M. Purdue

University of Delaware

Dr. Tsu-Wei Chou
Dr. Michael D. Greenberg
Dr. Andras Z. Szeri
Dr. Jack R. Vinson
Dr. Anthony S. Wexler
Dr. Dick J. Wilkins
Kevin O'Brien, Esq.
Diane Kukich

A Marathon Investment

By Nicole Pensiero, reprinted with permission from The University of Delaware *Messenger*, Vol. 9, No. 1/1999

From the time they first met 30 years ago in line in Kent Dining Hall, Michael Boyle, EG '69, and Joanne Monaghan Boyle, CHEP '69, clicked immediately.

Today, their partnership is still going strong—both on a personal and now, professional level. Mike who for years worked as an attorney, and Joanne who ran a successful retail art and framing business, launched a successful San Francisco Bay area mutual fund in 1998 called the Boyle Marathon Fund.

"We couldn't be in a more competitive

business than we are now," says Mike Boyle. "But, one of the things we learned well at Delaware was how to set goals and go for them."

On the surface, the manner in which the Boyles started their business—moving cross-country from Florida to San Francisco without jobs in place—might seem risky to others.

"We had a lifetime goal to live in the city that we most loved and be our own bosses," says Joanne, who majored in physical education at UD. "It was just a question of when we'd get to that point."

The big move west occurred 10 months after Mike took part in the U.S. Marine Corps Marathon in Washington, D.C., in 1996, finishing the race in a respectable 4 hours and 23 minutes. "Taking part in a marathon is about going for the long haul, making it to the finish line," he says. "It seemed natural that we would use that word 'marathon' for the name of our mutual fund."

Though not professional investors, the Boyles have been buying and selling stocks for more than 20 years and found themselves doing quite well. So well in

fact, that both Mike and Joanne were looking for a challenge that "would be a good fit for the second half of our lives." Once settled in San Francisco, the two decided to create a career niche that would mesh their personal and professional goals.

"We wanted to be our own bosses and work together," Mike says. "We knew, when we moved out here, we could continue investing on our own or let other people join us and do just as well as we are."

Setting up the Boyle Marathon Fund took about six months, starting with just \$100,000 and four stocks. Today, the Boyles track between 30 and 40 stocks in their \$3.7 million fund. Their top holdings include Cisco Systems, Dell Computer, Microsoft, Merck, Gap, and Schwab and the funds rank at or near the top in rate of return in the categories for large cap growth funds.

Joanne handles marketing, Mike does administrative duties and together they select the stocks for the fund. "We select stocks using fundamental analysis, by relying on our own personal knowledge of companies and markets," Mike says. "We select large, medium or small capitalization companies wherever we see the greatest potential for capital appreciation."

As for their professional partnership, the Boyles say they're having a blast.

"Our work styles mesh well together," Joanne says. "We each bring something to the table in terms of running the business."

Emphasizing companies based in the San Francisco Bay area, the Boyles have focused on four sectors where consumer trends and demographics promise strong long-term growth—health care, technology, retailing and financial services.

From the start, Joanne says there, "seemed to be a natural link," between the couple's management style and the mutual fund industry. "In college, I learned about teaching others how to be physically fit," Joanne says. "Now, I teach them how to be financially fit. This mutual fund is

about fiscal fitness, taking care of your future financially."

Mike, who earned his undergraduate degree in engineering, says as major shareholders in the fund, he and Joanne work "shoulder-to-shoulder with the other stockholders."

The Boyle Marathon Fund requires a minimum investment of only \$500. "The goal is to make it easy for anyone to invest," says Joanne, adding that the word-of-mouth fund has more than 200 shareholders, many of them friends of the couple. "The word's really starting to get out now and we're growing quickly."

Despite its small size the Boyle Marathon Fund has garnered plenty of attention, especially in the media. The Boyles were

the focus of a lengthy feature in a July issue of Mutual Funds magazine which says their fund, "has the big professional competition eating dust." The Contra Costa Sunday Times, meanwhile, praised the fund's "stellar performance."

The Wall Street Journal noted that the Boyle Marathon Fund has registered a one-year return of 48.20 percent, compared with 25.59 percent for the average growth and income fund. Lipper Analytical Services, meanwhile, rated the Boyle Marathon Fund as fifth best among 846 growth and income funds for the 12-month period that ended August 26.

The Boyle Marathon Website is <http://www.boylefund.com>.

Hot Wheels

by Jerry Rhodes, with permission from The University of Delaware *Messenger*, Vol. 9, No. 3/2000

Think of it as an engineering lab on wheels—a mechanical engineering class with an attitude. It's UD car No. 51, a one-half scale formula race car built by UD-SAE, the University chapter of the National Society of Automotive Engineers.

UD-SAE was established in 1996 through the efforts of a handful of car enthusiasts and John Lambros, assistant professor of mechanical engineering, who agreed to serve as the group's faculty adviser after seeing how serious the club members were about putting a race car together.

"I got involved through the efforts of Suhas Malghan, EG '99, the person who started the club," Lambros says. "I like cars, and I was impressed with what he showed me, so I agreed to become faculty adviser."

Last summer, club members began working on a vehicle to enter in national competition against other SAE clubs, held each May at the Silverdome, in Pontiac, Mich.

The car that recently made the trip to Michigan is a sleek, dark blue formula style vehicle, complete with UD logo. Powered by a 610 cc, 0.6 liter engine that cranks out 65 horsepower, the car is capable of going from zero to 60 mph in about 4 seconds.

"Driving this car is like no other car you have ever driven," club president Andy Parke, EG 2000, says. "When people get out of the car after driving it, their hands are usually trembling."

For most club members, joining UD-SAE

represents a continuing love affair between car and driver.

I got involved with this through the engineering outreach program," graduate student Dan Skillitus says. "My dad always followed car racing, so it was just sort of passed on to me."

Although he claims not to have known much about cars, club secretary Wilson Steele, EG 2002, says he appreciates the chance to learn about the world of race car driving through his involvement with UD-SAE.

"My brother and my dad have been involved with cars all through the years," Steele says. "I just wanted an opportunity to do this for myself."

Before student members get to sit behind the wheel, much work has to be done, from coming up with an initial race car design to getting the car ready to pass the preliminary safety checks at the Michigan national championships.

"The basic plans are sketched on paper," Mike Hawley, EG 2001, club vice president, says. "After this, the design is modified on the computer through the use of a computer-aided drafting program."

From the drawing board to the driveway, each step of the assembly process is performed by individual members united in a team effort.

"You plan as much as possible, then you start to put things together," Parke says. "You work out from the center, and you are constantly changing things as you go along."

Such a team effort is vital in assembling the various subsystems that include the chassis, drive train, steering and suspension, wheels, shock absorbers, tires, brakes, and electrical systems.

"We have a wide variety of talent in our club," treasurer Alexis Cox, EG 2001, says. "In building the car, every person lends a hand where it is needed." Cox fabricated the car's fiberglass body through the use of vacuum-assisted resin transitional molding.

The contributions made by individual members are put to the test during the championships, where more than 100 clubs from the United States, the United Kingdom, Mexico, Canada, and Japan gather to showcase their auto engineering expertise.

The competition consists of technical inspections complete with a thorough safety check followed by static events and actual driving contests.

Among the static events are the presentation, where team members try to attract investments from business representatives, and the cost event, in which the judges are given full details involving the cost for each item used in building the car.

In the design event, team members sit down with industry experts to demonstrate their

expertise and explain their creative decisions. UD-SAE placed well in both events, finishing 22nd in the cost event and 23rd in the design event, but did not place in the driving category.

While team members recognize the importance of these competitions, all agree that nothing is quite like the thrill of driving against the clock and their fellow competitors.

"The car is really quick, and you just can't compare driving it to anything else," Cox says. "The car handles nicely, and the acceleration is incredible."

Plans for next year include the use of a fuel-injected FZR 600 Yamaha engine and the shedding of about 100 pounds in car weight through the use of a carbon-fiber body.

"Each year, we build a whole new car," Hawley says. "And, with different design factors and new rules due out in September, you need to start on the project during the summer."



Burlington Couple Opens Home and Heart

by Sharon Huss Roat, AS '87 with permission from The University of Delaware *Messenger*, Vol. 9, No. 1/1999

Four years ago, Roxane and Jonathan Leopold were talked into a life-changing decision by their 17-year-old daughter, Sarah. After watching an Oprah Winfrey show about bad foster parents, Sarah came to the dinner table and suggested they open their home to foster children. "She always wanted us to have more children and was able to convince us that this was something we should do," says Jonathan.

Along with son, Jesse, EG 2002, now a sophomore at the University, the family decided to become a part of Vermont's foster parenting program. In the four years since then, they have welcomed eight foster children. The experience has been "challenging in many ways, but wonderfully rewarding," Jonathan explains. "For people who have room in their lives and their hearts, it is a tremendous opportunity to make a difference."

The first children cared for by the Leopolds were siblings, a 6-year-old girl and 4-year-old boy. With their family in crisis, the two were sent to the Leopolds

for one night, but ended up staying six months. Other children were placed with the family for lengths of time as short as one night and as long as three months. "Three have been infants," says Roxane. "They came to us because, by Vermont statute, there is a 21-day waiting period for a birth mother to change her mind before an adoption can be processed."

Sharing their lives with these children—many of whom have been abused or neglected in some way—seems to be an even greater commitment when you consider the busy careers that the Leopolds juggle as well.

Since 1975, Roxane has served as executive director of the King Street Youth Center, which provides a range of services to children from Burlington's poorest neighborhoods. Most of the children she works with come from single-parent families dealing with drug or alcohol abuse, unemployment, physical abuse and neglect and other social problems.

Jonathan is chief financial officer of Global

Health Care Communications, a London-based publisher of health-care magazines that is preparing to launch a major, closed-circuit satellite broadcasting system. He also runs his own Leopold Financial Group, which will soon break ground on an international health-care training facility, conference center and wildlife sanctuary in the Bahamas.

If that isn't enough, the two volunteer for numerous civic, political, social service, and cultural organizations in their community as well. In their spare time, they also study T'ai Chi, the Chinese martial art of moving meditation. "It gives us 30 to 50 minutes of quiet time together," Roxane notes.

How then do they find time for foster children? Roxane explains that they usually take children only during the summer months, when Sarah and Jesse are home to be a part of their "parenting team." It also helps that Jonathan works out of a home office. The Leopolds are careful to take children only when they are certain that

they can offer the time and love that is needed. "They can call us any time, and we can say 'yes' or 'no' any time. We're not inclined to do it unless it's going to be a good experience for the child," says Roxane.

"Every child has an unlimited capacity to absorb love," Jonathan adds, "and foster children have an even more overwhelming need. It can be complicated sometimes, so you really have to be ready and able to open your home."

The Leopolds have encouraged others to become foster parents as well, including neighbors and friends. In the civic-minded community of Burlington, it hasn't been difficult to find people who are willing to give back, says Jonathan.

"Vermont is such a wonderful place because there is such a tradition of being involved in the community," he notes. "If you have an experience like foster children, you just make it part of your life. There's not a question of how to find time."

Engineering Junior Receives Goldwater Scholarship

reprinted from The University of Delaware *Messenger*, Vol. 9, No. 3/1999 "Heard on the Mall"



Jennifer M. Buckley of Wilmington, Del., a junior at the University, has been awarded a prestigious Barry M. Goldwater Scholarship. More than 1,700 college students applied nationwide for the 309 scholarships awarded this year. The awards support careers in mathematics, the natural sciences and engineering.

A mechanical engineering student with a 4.0 grade point average, Buckley grew up in her parents' Ninth Street Bookstore. As the first scientist in a family of English majors, she has an irreverent sense of humor and says she has endured a lot of teasing from her politically liberal relatives over the "Republican" nature of the scholarship—something she is very

willing to endure.

Buckley has conducted research on the fracture of nonhomogeneous materials, which are found in plant and animal tissue as well as adhesive layers and matrix regions of fiber-reinforced composites.

An athlete who rows on the UD crew team and participates on Team Delaware Cycling, Buckley says she hopes to compete in a triathlon or biathlon this summer.

"I think my athletics complement my academics," she says. "Balance is important. I'd be even more of a psychopath about my schoolwork if I didn't have athletics to bring me down a notch. I'm

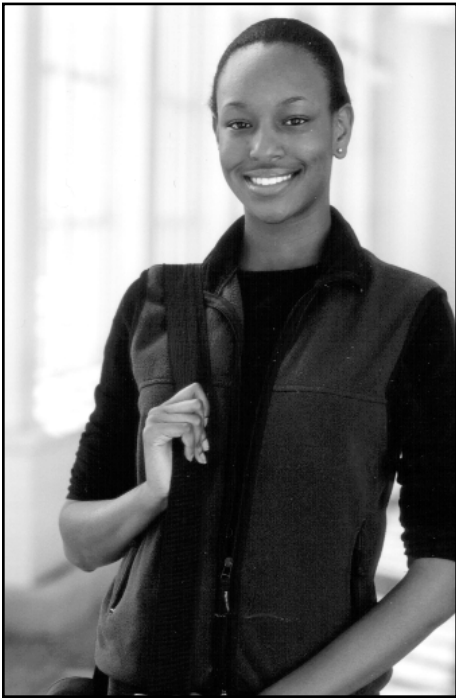
able to get everything done and still maintain my sanity because of my family. They give me a lot of support. I'd be a real mess without them!"

Those family members, all with UD ties, include Buckley's father, James J. (Jack) Buckley, AS70; her mother, Gemma Marsilii Buckley, CHEP71; and her brother Matthew, currently a sophomore at UD, majoring in civil engineering.

A self-described homebody, Buckley says she wants to stay in the area for graduate school and is considering the University of Pennsylvania. For the summer, she will be working for the DuPont Co. in its engineering consulting division, possibly doing troubleshooting at nylon plants.

Student Turns Down \$50,000 Modeling Contract to Study Engineering at UD

by Diane Kukich



When high school senior Aladrian Crowder of Owings Mills, Md., entered a contest to be an "Essence" cover model last January, she never dreamed that she would be selected out of the more than 7,000 candidates to actually appear on the magazine cover and be offered a \$50,000 modeling contract.

As it turns out, Crowder accepted the cover assignment, which ran in August, but turned down the modeling contract—to major in engineering at the University of Delaware.

"It would have demanded too much of me as a student," she said, "especially an engineering student." As a freshman mechanical engineering major at UD, Crowder does do some modeling through a small Baltimore-based agency, but only on weekends.

"I'm trying to be especially careful not to

take on too much during my first semester here," she said. "I want to get a strong foundation in school."

Crowder is modest about her accomplishments, but word about her cover modeling assignment has gotten out through her friends, who show none of Crowder's reluctance to brag.

"People come up to me now and ask me if I'm going to pursue a career as a model," she said. "I tell them I'm going to be an engineer. Modeling is just another hobby I have, along with playing the piano, painting and writing poetry."

Originally enrolled in the Department of Chemical Engineering, Crowder changed her major when she realized that she was more interested in the mechanical side of her intended career—biomedical engineering—than in the chemical aspects. Right now, she said she thinks she would

like to work on prosthetic development, but she admitted that could change at any time. "I originally wanted to be a forensic scientist. Then I considered epidemiology, but after I did an internship and didn't like it, I crossed that off my list."

Crowder had to be more than just tall, slim, and attractive to win the "Essence" contest—along with the other finalists, she had to answer some tough questions from a panel of judges. "They were looking for more than just outer beauty," she says. "They wanted someone who was also articulate."

Honors Day Awards

SENIOR YEAR AWARDS

W. Francis Lindell Mechanical Engineering Award to the Distinguished Senior

For the extraordinary senior Mechanical Engineering student who has demonstrated creativity, academic accomplishment and achievement as determined by the faculty of the department.

Krishan K. Bhatia
Jeffrey R. Focht
Jason P. Landry

Mary and George Nowinski Award for Excellence in Undergraduate Research

For demonstration of originality in a stimulating senior research project as judged by the Mechanical Engineering faculty.

Jeffrey R. Focht

Delaware Section of the American Society of Mechanical Engineers Senior Design Project

For achievements in the senior design project based upon the final design presentation as judged by members of the Delaware Section of the ASME with the concurrence of the faculty.

First Place: Flight Demonstrator:
Jeffrey R. Focht, Peter Peno, Jeffrey Roby

Second Place: On-The-Go Shifter
William Boyle, Jason P. Landry,
Ryan Meers, Andrew Smith

Third Place: Radiographic Array Support
Matthew Beecy, John King, Chad Stover

MEEG 101 UNDERGRADUATE TEACHING ASSISTANT AWARD

In recognition of selected Senior ME students, who developed their leadership, communication and teaching skills by providing support to new ME students in the Introduction to Mechanical Engineering class.

David G. Henderson
John G. Mercurio
Eric J. Morrison
Dorrie A. Pistor

JUNIOR YEAR AWARDS

W. Francis Lindell Mechanical Engineering Award to the Distinguished Junior

For the extraordinary junior Mechanical Engineering student who has demonstrated creativity, academic accomplishment and achievement as determined by the faculty of the department.

Jennifer M. Buckley

W. Francis Lindell Mechanical Engineering Achievement Award

For the junior Mechanical Engineering student in recognition of scholarship and creativity in engineering as recommended by the students and faculty of the department.

Alex Kelly

Cordant Technologies Scholarship

For the junior Mechanical Engineering

student in recognition of outstanding academic achievement.

Pat Downey

SOPHOMORE YEAR AWARDS

W. J. Renton Award for Outstanding Sophomore

A monetary award for outstanding sophomore

Dawn M. Cintavey

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Delaware Chapter Scholarship

For a Mechanical Engineering student who has demonstrated an interest in the thermal sciences and/or environmental academic course work as judged by the Delaware Chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineering.

OTHER DEPARTMENT AWARDS

Delaware Section of The American Society of Mechanical Engineers Outstanding Student

To the outstanding student in the Delaware section of the ASME.

Eric J. Morrison

American Society of Mechanical Engineers Student Section

A certificate to an outstanding member of the ASME Student Section for good academic standing and valuable contributions to the chapter.

David M. Chandlee

Robert T. Bosworth Scholarship

To a student majoring in Mechanical Engineering with both outstanding academic achievement and financial need.

Gilbert P. Ledebur

Redden Scholarship

To a student majoring in Mechanical Engineering with both outstanding academic achievement and financial need.

Michael F. Puchtler

Motiva Enterprise Scholarship

To a student majoring in Mechanical Engineering with outstanding academic achievement.

Gilbert P. Ledebur

GRADUATE STUDENT AWARDS

The Helwig Mechanical Engineering Graduate Fellowship

Glenn C. Gardner
Bryan M. Connell

COLLEGE AWARDS

Liston Houston Scholarship

Gilbert P. Ledebur and
Michael F. Puchtler

Boeing Scholarship

Jennifer M. Buckley

Panel of Distinguished Seniors

Jeffrey R. Focht

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Development: Campaign for Delaware

by Neil Thomas

The Campaign for Delaware has been a great success, having reached 86 percent of its \$225 million goal less than 18 months after the announcement of the public phase of the most ambitious fund-raising effort in the history of the University of Delaware.

As of mid-February, the Campaign for Delaware had raised \$193 million for scholarships, endowed professorships, academic improvements, and capital projects. In the College of Engineering, nearly 54 percent of the \$45 million goal had been met, with gifts and commitments totaling more than \$24 million.

The College will be a major beneficiary of the Campaign through construction of an addition to its flagship building, P. S. du Pont Hall. The architect for the project is Allan Greenberg, who also designed nearby Gore Hall. The project will expand the west side of the building, bringing its entrance in line with the front of neighboring Wolf Hall and providing a complement to Gore Hall, which it will face.

The University has received several major gifts—the largest being \$10 million from the Longwood Foundation—to fund the \$20 million project.

However, while major gifts are helping make such construction possible, a key objective of the Campaign for Delaware is to involve as many

alumni and friends as possible in the spirit and excitement of this fund-raising effort, which is designed to position the University as a national leader in higher education in the 21st century.

According to Robert R. Davis, Vice President for Development and Alumni Relations, "The Campaign for Delaware is about more than just raising the money. It is about engaging alumni in the support of the University at whatever level is appropriate for them given their personal circumstances. Our goal is to get more people involved in the philanthropic life of the University."

Davis said alumni support has a direct impact on the national standing of the institution because many rating systems consider alumni giving as a measure of alumni satisfaction. The higher the percentage of alumni who give, the better chance the University has of maintaining and improving its national standing.

For information on how you can become part of the Campaign for Delaware, contact the Office of University Development at (302) 831-2104 or go to the University of Delaware home page at www.udel.edu and push the Campaign button found in the bottom left portion of the page. There you can learn more about the fund-raising effort or make a gift online.



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