

the Trend

Autumn 2005: Volume 55, Issue 2

in engineering



**Guggenheim Hall
Restoring a Treasure...** Page 8

In This Issue

Dean's Message	2
News Spotlight	3
Innovators	4
Alumni News	6
Restoring a Treasure	8
Creating Futures	10
Events Calendar	16

Transitions, Beginnings, Recognitions

The leaves are turning, the days grow shorter, our spectacular Pacific Northwest summer is a warm memory, and winter rains are coming.

Fortunately, these changes do not generate melancholy at the UW. Fall marks the start of the academic year, a busy and exciting time, with returning students and an influx of freshmen eager to begin a journey that will set the course of the rest of their lives and help decide how they will affect society when they leave our sphere. The campus is charged with energy and activity.

At the College of Engineering, this fall also brings us several steps closer to the start of a fresh chapter in the college's history. In the nation-

premier research university drives regional economies and enhances our nation's competitiveness in the international arena.

The money from the endowment is discretionary. The new dean can assign it as he or she sees fit: fellowships, research initiatives, recruiting efforts — wherever the need is greatest. The Jungers' generous gift will undoubtedly help us find the best person, a leader who can take one of the country's top engineering colleges to even higher levels.

Also of note is a major transition in one of our departments. Raj Bordia is stepping down after more than nine years of outstanding service as chair of Materials Science



Mani Soma, Acting Dean

These three pillars of our success — support from friends, strong leadership, and award-winning faculty — greatly benefit our students.

wide search for a new dean we are looking for the right person to lead the college at a time when success in engineering is increasingly defined by the ability to pull from multiple disciplines in answering complex problems. To effectively do that, a leader must have flexibility to innovate and fill needs as they arise.

That's where some of our good friends have stepped in to help. Our thanks go to Frank Jungers and his wife, Julie, who have given \$4 million to establish an endowed deanship for UW Engineering, the first major deanship endowment at the UW. Their gift is bolstered with \$1 million from a matching fund established by supporters who understand that solid footing for a

& Engineering. We thank Raj for his willingness to lead for so long and his talent in doing it so well. We look forward to working with him as a cutting-edge materials engineer as he dives back into teaching and research. I am pleased that Professor Alex Jen has agreed to serve as acting chair during the search for a successor to Raj.

Finally, I am delighted to shine a spotlight on several faculty members. The college was well represented in this year's presidential awards administered by the National Science Foundation. Richard Ladner in Computer Science & Engineering is one of nine individuals nationwide honored last spring with a Presidential

Award for Excellence in Science, Mathematics and Engineering Mentoring. Our former dean, Denice Denton, won the award last year.

Two of our assistant professors, Radha Poovendran in Electrical Engineering and Wei Li in Mechanical Engineering, are among 58 of the country's most promising young scientists and engineers to receive this year's Presidential Early Career Award in Science and Engineering. Two winners from other institutions are UW grads.

These three pillars of our success — support from friends, strong leadership, and award-winning faculty — greatly benefit our students. Our mission is to give them the guidance and learning opportunities they need to become tomorrow's industry and academic leaders. We have a long history of success in doing so. For evidence, read "Students Explore Challenge of Taking an Invention to the Marketplace" on page 4.

We remain steadfast in our commitment to this mission. ■

Engineering Creates UW's First Major Endowed Deanship

A \$4 million gift from Frank and Julie Jungers, boosted by \$1 million in UW matching funds, will create an endowed deanship in the College of Engineering, the first major endowment of this kind at the UW.

"This wonderful gift comes at a propitious moment, as we search for the college's next dean," said UW President Mark A. Emmert. "This endowment will enable us to offer a more competitive salary and also provide the new dean additional funds for innovation in education and research. Most private funding is designated for specific purposes. This gift will give us another tool in attracting the very best individual for this key position. We'd like to thank Frank and Julie Jungers for their generosity."



Frank and Julie Jungers

Frank Jungers graduated from the UW in 1947 with a degree in mechanical engineering. He spent most of his career in Saudi Arabia, and rose to chairman and CEO of Aramco, the Arabian American Oil Company.

"It's my hope that this gift will ensure that the College of Engineering is able to obtain the very best leadership available," Jungers said.

For many years Jungers has been a generous donor to the University and an active volunteer, particularly in the College of Engineering. In 1987 he established the Frank Jungers Endowed Professorship in the college. With additional gifts, he increased that professorship to a chair.

Jungers and his wife are Oregon residents and divide their time between Portland and Bend.

UW Responds to Katrina

More than 100 students from Tulane, Loyola, and other universities in hurricane-ravaged New Orleans are enrolled at UW for fall quarter, with tuition going to their home institutions. Members of the UW community have responded with an outpouring of support, from opening their homes to students, to donating clothing and other items, and contributing to a Katrina Scholarship Fund. See page 5 for a story on UW research and engineering projects related to the hurricane.

On the Rankings Radar: UW Reputation Grows

From the *The Economist* to the *Washington Monthly*, the University of Washington's profile is rising as a top academic institution, not just in the United States, but in the world.

In a September 8 article on higher education, *The Economist* published the list of the world's top 20 universities (the UW is #20) based on the extensive study by Shanghai Jiao Tong University.

Also in September, *The Washington Monthly College Guide* ranked the UW 14th in a listing of the top 30 national universities.

Transition in the Chair's Seat in Materials Science



Thank you Raj!

Professor **Raj Bordia** has led Materials Science & Engineering for nine years, seven as chair and two as acting chair, a tenure beyond the norm. A desire to refocus on teaching and research spurred him to step out of the chair role, effective September 16.

He leaves the department in a strong position that includes accomplishing all objectives of its strategic plan, significantly broading the research portfolio, and combining several programs into a single undergraduate degree in MSE, which has been a resounding success. A faculty member since 1991, Bordia's research focuses on ceramics, composites, biomaterials, and electro-optic and magnetic materials.

Professor **Alex Jen**, a faculty member since late 1999, has been named acting chair. He is an expert in the synthesis of organic materials and polymers with novel optical, electrical, and biological properties. His research goal is to tap the power of the photon and evaluate these materials for deep-tissue imaging, photodynamic therapy, and opto-electronic devices. Jen holds the Boeing-Johnson Endowed Chair in Materials Science & Engineering. He earned his PhD at the University of Pennsylvania and worked in industry for 10 years.



Welcome Alex!

Bioengineering Research Will Have Global Impact Through a \$15 Million Gates Foundation Grant

Professor Paul Yager's research team has set its sights on a goal that could save the lives of millions of people in the poorest places on earth. They are developing a pocket-size device that promises to bring the technological power of modern medical diagnostics to remote regions with scant health care services.

As the lead partner in a regional consortium, the University of Washington has been awarded a \$15.4 million grant to develop and test prototypes of a device that will allow health care workers to do on-the-spot tests for diseases such as malaria and typhoid fever and provide results in minutes.

The award is one of 43 research projects to improve health in devel-

oping countries, supported by \$436 million from the Grand Challenges in Global Health initiative, led by the Bill & Melinda Gates Foundation.

The UW-led consortium is a collaboration of academic, industry and nonprofit partners, including PATH, Micronics Inc., and Nanogen Inc., all with facilities in this state.

"This is a formidable group," said Paul Yager, professor and vice chair of the Department of Bioengineering and principal investigator. "Each partner brings vital skills and experience to the mix and it's what will make our efforts successful."

The Grand Challenges in Global Health initiative is a major international effort to achieve scientific breakthroughs against diseases that



Professor Paul Yager

kill millions of people each year in the world's poorest countries.

The Bill & Melinda Gates Foundation is the lead funder with a commitment of \$450 million. The Foundation for the National Institutes of Health received and manages \$200 million. Other donors are the Wellcome Trust at \$27 million and the Canadian Institutes of Health Research at \$4.5 million. ■

Students Explore Challenge of Taking an Invention to the Marketplace

Many inventions never survive the perilous path (called the "valley of death") from great idea to practical use due to the challenges of funding, manufacturing, and marketing. Three engineering students spent the summer exploring these challenges and hope the lessons learned will help put a revolutionary new diagnostic tool into the hands of health care practitioners.

Siddhartha Sikdar, Ian Blanch, and Leonard Teo are excited about the commercial potential of an ultrasound device that non-invasively detects the unique vibrations associated with coronary artery blockage, one of the leading causes of death.

Sikdar, a postdoctoral fellow in bioengineering who received his PhD in electrical engineering last June, co-invented the technology and developed a working system with Professor Kirk Beach in the Department of Surgery and Professor Yongmin Kim, chair of the Department of Bioengineering. Blanch is a mechanical engineering doctoral student interested in product design. Teo earned a BS in bioengineering in June and aspires to work at the nexus of business, engineering, and medicine.



From left: Siddhartha Sikdar, Ian Blanch, and Leonard Teo

Their path to learning about real-world product development is the Program on Technology Commercialization (PTC) administered by Bioengineering. The year-long course, with lectures by industry leaders, entrepreneurs, and venture funders, covers market analysis, business plans, venture capital, intellectual property, and more.

Sikdar, Blanch, and Teo were awarded paid summer fellowships to explore the market analysis and funding required for a start-up venture for the ultrasound device. They presented a detailed business plan to PTC faculty, community mentors, and UW technology transfer officials. Their polished presentation drew praise, incisive questions, and suggestions for next steps. The UW Tech Transfer office has already filed for patents.

"This course has been invaluable," Sikdar notes. "Now I look at my research in a whole new light."

"The PTC has exceeded our educational expectations," says Kim. "Students have seen what it takes to bring technology from the laboratory to the marketplace. It's a win for the students and for the UW, and also for our community of instructors and industry partners." ■



Learning from Hurricane Katrina Engineering Faculty Plan Research Studies

In the aftermath of the Gulf Coast hurricane disaster, the National Science Foundation put out a call for proposals for small-scale, high-risk research whose results may enable our country to better prepare for, respond to, and recover from catastrophic events. UW faculty across a dozen departments and disciplines including engineering, public health, public affairs, law, and social work moved into high gear to coordinate and submit 10 interdisciplinary research proposals.

Engineering faculty submitting proposals include Mark Haselkorn and Beth Kolko from Technical Communication and Scott Rutherford, Charles Roeder, Dawn Lehman, and Anne Goodchild of Civil & Environmental Engineering. Projects range from studying ways to improve communication and coordination systems in disaster response to the use of public vehicles for emergency evacuations.

Haselkorn is research director for the UW's Interdisciplinary Program in Humanitarian Relief and helped coordinate the faculty effort to develop NSF proposals.



Professor Mark Haselkorn

New Grants Fund Major Collaborations

NSF Grant for Genetic Engineering

The National Science Foundation has awarded the UW a 6-year, \$6.48 million grant to establish a new interdisciplinary center to investigate genetically engineered molecular building blocks based on proteins. They will be used to create nanostructured hybrid materials with novel photonic, electronic, or chemical properties. Three engineering departments — chemical, electrical, and materials science — and the UW chemistry and microbiology departments, are partnering with industry and national laboratories. Professors Mehmet Sarikaya (Materials Science & Engineering) and François Baneyx (Chemical Engineering) direct the project. This renewable grant is one of just two awarded this year by the NSF.

Multi-University Effort for Molecular Microscope

Professors Joseph Garbini (Mechanical Engineering) and John Sidles (Orthopaedics and ME) have received a 5-year, \$5 million grant from the Army Research Office to lead a multi-university research collaboration with the University of Michigan and Cornell. They are developing a revolutionary technology for a “molecular microscope” that promises to transform scientific research.

◆ Winners ◆

◆ Student Honors

Two Computer Science & Engineering doctoral students, **Rick Cox** and **Tapan Parikh**, have won Intel Foundation fellowships. Cox will research systems security support for new applications usage models. Parikh will design accessible user interfaces and computing devices that span disciplinary boundaries in education, economy, geography, and language.

Electrical Engineering graduate student **Xiaodan Song** was one of eight students from top universities invited to the first annual IBM “Emerging Leaders in Multimedia” seminar series at IBM's research center in New York.

Berkin Tokas, who received his PhD from Industrial Engineering in June, took second place in the Dantzig Dissertation Award competition for operations research sponsored by the Institute of Industrial Engineers.

Sigma Gama Tau, the national honor society for aeronautics, recognized **Toru Yamasaki** (BSAA '05) as one of the top seven aeronautics students in the country.

◆ Faculty Honors

Richard Ladner, Boeing Professor of Computer Science & Engineering, was honored at the White House on May 16 with a 2004 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.

Two assistant professors, **Radha Poovendran** (Electrical Engineering) and **Wei Li** (Mechanical Engineering) won 2005 Presidential Early Career Awards in Science and Engineering. They were honored at the White House.

Assistant Professor **Venkat Guruswami**, Computer Science & Engineering, has won a 2005 Packard Fellowship, considered among the most prestigious awards for young science and engineering faculty.

Professor **Gerald Pollack**, Bioengineering, has been inducted as an honorary professor in the Russian Academy of Sciences for his contributions to molecular biomechanics, cell function, and interfacial science.

◆ Staff Honors

Patricia MacGowan, MESA state director, will receive a 2005 Golden Apple Award for Excellence in Education, sponsored by KCTS Television, in a ceremony to be broadcast statewide in February. MESA (Mathematics, Engineering, Science Achievement) annually serves more than 5000 underrepresented students and 350 teachers in 80 K-12 schools to encourage interest in science and engineering careers. MacGowan helped found MESA in 1982. The program is based at UW Engineering.

Explore the UW Engineering website for more news:
<http://www.engr.washington.edu>

Seattle's Icon Bears Rod Kirkwood's Imprint

With the centennial for Mechanical Engineering approaching in 2006, The Trend profiles a UW-trained engineer who had a major hand in defining Seattle's skyline.

Growing up in Minnesota and Montana during the Depression, Rod Kirkwood had no inkling of a future working with Seattle movers and shakers to transform a provincial Northwest outpost into one of the nation's showcase cities. Now his contribution is recorded for posterity in a 2002 book, *The Space Needle: Symbol of Seattle*, which quotes him on the engineering feats that ensured the 605-foot structure would stand firmly in place through earthquakes and gale-force winds.

Kirkwood exerted a major hand in the Needle's design and construction as director of engineering for

John Graham & Co. Architects and Engineers. For this work he was honored as the 1963 "Engineer of the Year" by the Washington Society of Professional Engineers and the Puget Sound Engineering Council.

Over his 46-year career at Graham & Co., Kirkwood rode the elevator to the top management levels as director of operations, partner, and president. In the process, he has left his imprint all over Seattle: The Westin Hotel & Tower, Bank of California Building, Henry M. Jackson Federal Building, Northgate Mall, and projects for Boeing and Nordstrom. He also worked on shopping malls, office buildings, and other facilities from New York to Alaska, Hawaii, and across Canada.



Another notable achievement was Kirkwood's national leadership role in promoting building design standards aimed at conserving energy. As the 1974 president of the American

Society of Heating, Refrigerating and Air-Conditioning Engineers, he led the development of standards that resulted in a 50% reduction in building energy usage and emissions in the United States.

Kirkwood had been on his way to completing his ME degree at the UW when World War II sent him into the Army. By war's end he had married and started a family. Returning to the UW full-time was not an option, so he enrolled part time at Seattle University to complete his BS degree.

Two decades after leaving the UW, his road led back to campus when a 6-foot model of the Space Needle was tested in the Aero-nautics & Astronautics wind tunnel. "The top house rotated with high winds, so we made design changes," he says. He is a long-time member of the ME Visiting Committee and also serves on the ME Centennial History and Program Committee.

In reflecting on his career, Kirkwood says that his greatest satisfaction is not the Space Needle, or any other edifice, but simply doing a good job for the client.

"There are a lot of unfortunate buildings that don't do the job effectively because the aesthetics take over. Do a building right and it works well for people," asserts this engineer best known for the icon that turns all eyes skyward. ■

Noteworthy ~ Newsworthy

Materials Science & Engineering alumna **Bonnie Dunbar** (BS '71, MS '75) is the new president and CEO of the Museum of Flight in Seattle. A former astronaut, Dunbar flew on five Space Shuttle missions and most recently was NASA's deputy director in the Space and Life Sciences Directorate.

Industrial Engineering alumna **Kristen Lenci** (BSIE '96) is a senior associate with Point B Solutions in Seattle. The company provides project leadership services across a wide range of industries including technology companies, health care institutions, retailers, manufacturers, and government agencies.

Technical Communication alumna **Yina Shin** (BSTC '02) is a technical writer and software spec designer at Haansoft, Korea's leading developer of office software, based in Seoul. She reports that the exceptional skills and knowledge she gained from the UWTC program is allowing her to build a stable career in the rapidly growing technical communications sector in Korea.

Mechanical Engineering alumnus **Jay (Jiou) Zeng** (BSME '88) received the Waterjet Technology Association's 2005 "Technology Award" for career achievements and development of an abrasive waterjet cutting model widely used in industry and research. Dr. Zhou was an engineer at Ingersoll-Rand from 1992-98 and is now a senior scientist at OMAX Corporation.

We welcome your news!

Send by email to trend@enr.washington.edu or by mail to:
The Editor, The Trend in Engineering, UW Box 352180, Seattle WA 98195-2180.

Dean's Club Members Explore Wind Tunnel

What do a Boeing 737, the Space Needle, and Lance Armstrong have in common? They, or models of them (Lance was real), all were tested in the UW's Kirsten Wind Tunnel. Dean's Club members and their guests learned the facility's fascinating history during a special program and guided tour on July 6.

Led by Aeronautics & Astronautics Chair Adam Bruckner and tunnel staff and research engineers, the visitors climbed into the recesses of the tunnel and also checked out old generators and vintage equipment from the early days. A video of seven-time Tour de France champion Lance Armstrong testing his bike in early 2004 was another highlight. Dean's Club members also chatted with Acting Dean Mani Soma at a pretour reception.

For information on Dean's Club membership, contact Jan Labyak, 206-543-8779.

Olympic Gold Rowing Team Loses McMillin, a CE Alum

Civil Engineering alumnus Jim McMillin (BSCE '38), who rowed to gold in the UW's celebrated eight-oar team at the 1936 Olympics in Berlin, died on August 22 at the age of 91. He requested that his ashes be scattered in Lake Washington in front of the UW crewhouse.

At 6 feet 7, McMillin was the tallest man on the Husky crew and one of six engineering students. See *The Trend*, Fall 2004 at www.engr.washington.edu/news for details of the Olympic gold victory. After graduating, McMillin coached for a time at MIT and then returned to the Seattle area to work for Boeing.



From top, clockwise: Participants watch a video of a wind tunnel test, check out an old generator, examine a test model of a cycloidal propeller, and see the inside of the tunnel.

◆ Alumni Events ~ Mark Your Calendar

COE 2005 Fall Lecture Series ~ Tickets now available. Details on page 16.

Saturday Seminar: "Seattle: 150 Years in Traffic" ~ November 5

10–Noon (prior to Husky football), *Electrical Engineering 105*
Professors Joe Mahoney and Steve Muench, Civil Engineering, discuss the roads, bridges, vehicles, and other transport from the Denny party to Denny Way. Come by foot, bus, boat, or car and be fascinated.

Mechanical Engineering Reception at ASME Meeting, Orlando ~ November 9

5:30–7 pm, *Three Bay Hospitality Suite, Swan & Dolphin Disney Resort*
Meet ME Chair Mark Tuttle; brief program begins at 6 pm.

**Celebrate
100
Years**

Electrical Engineering ~ April 29, 2006
Information: www.ee.washington.edu, 206-616-1763

Mechanical Engineering ~ September 15, 2006
Information: www.me.washington.edu, 206-685-6993



Restoring a Treasure

A New Incarnation for Guggenheim Hall

Four weather-worn oak doors crowned by arched, leaded glass windows open into the airy, light-infused entrance hall. Sixteen steps steeply rise to the top of the grand staircase. On either side, carved in stone high on the walls, are the names of aviation visionaries — Cayley, LeBris, Stringfellow, Langley, Montgolfier, Lilienthal, Wright, Zeppelin, and others. They dreamed of soaring in the clouds and looking down on the earth.

Walking up those steps for the first time in 53 years, George Jeffs' dreams as a UW undergraduate flooded back to him. In Guggenheim Hall he began the studies that

launched his aerospace career leading the design and engineering of the Apollo craft that carried astronauts to the moon and development of the Space Shuttle, the orbital workhorse for two and a half decades.

"Guggenheim symbolizes aerospace accomplishment," says Jeffs (BSAE '45, MSAE '48). "As students we faced formidable courses and tough professors, challenges that laid the foundation for our careers."

More than 2500 Aeronautics & Astronautics students have walked up those steps since Guggenheim Hall opened in 1929. A&A graduates trained in its classrooms and laboratories have helped build every Boeing aircraft from the monoplanes of the early 1930s through the 787 Dreamliner in development today. They have worked for Lockheed Martin and other manufacturers on nearly every type of commercial and military plane. They include airline pilots and astronauts, and NASA engineers sending rovers to Mars and space probes through the solar system and beyond. They include the academic researchers and innovators and the educators for future generations of aerospace pioneers.

Stately Guggenheim Hall, in its prime location on the east side of Drumheller Fountain (also known as Frosh Pond), admirably served



UW Libraries, Special Collections

generations of A&A students and faculty. That is no longer the case today. The era of calculation by slide rule has long vanished and the tradition of learning only through lectures is rapidly changing.

Hands-on, project-focused, team-centered learning is transforming A&A education, but the old lecture halls won't easily accommodate this approach. Electrical outlets dating to the 1930s can't support new educational technology. Outmoded, cramped laboratories and building infrastructure are inadequate for the high-tech equipment essential for cutting-edge research. For example, researchers must watch the clock to avoid using water-cooled lasers during class breaks. Water pipes are so corroded that flushing toilets decreases water pressure and hinders the flow of water to the lasers.

Restoration Plans

Guggenheim Hall has creaked into the twenty-first century with venerable charm, but in a condition that hinders learning and research innovation. Fortunately for history and tradition, the solution is not to raze Guggenheim. Much of the beauty



Each year, senior undergraduate students work with Professor Eli Livne to design and build small unmanned aerial vehicles (UAVs) in Guggenheim's laboratories. They test the plane in the wind tunnel. This team designed a carbon-fiber composite plane for nonstop crossing of the Pacific.



In its prime location east of Drumheller Fountain, Guggenheim Hall offered sweeping vistas of Mt. Rainier and the central campus in 1929.

and distinction of the UW campus derives from the late nineteenth and early twentieth-century buildings of great character — Denny and Parrington Halls, Suzzallo Library, those on the quad, and others.

Guggenheim is next in line for restoration that will preserve the gracious, Tudor-Gothic exterior while upgrading the infrastructure and interior space to meet the high-tech needs of our world-class A&A program. The State Legislature has appropriated \$27.8 million, which covers 85% of the renovation cost.

“Our department has trained a host of outstanding aerospace leaders such as Ed Bock, Scott Crossfield, Pete Drummond, Dick FitzSimmons, Lloyd Frisbee, Robert Hage, George Jeffs, Rose Lunn, George Martin, Dale Myers, Maynard Pennell, Jerry Rising, Jack Steiner, Joe Sutter, George Snyder, and on and on,” says A&A Chair Adam Bruckner. “Our great incubator, Guggenheim Hall, will produce even more legendary engineers when we bring the educational and research spaces into the twenty-first century.” ■

A Snapshot of Guggenheim History

Construction began in 1928 with a gift of \$290,000 from the Daniel Guggenheim Fund for the Promotion of Aeronautics, prompted in no small part by a letter of support and endorsement from Bill Boeing. The UW was among an elite group of seven institutions to receive such early Guggenheim grants, which gave an enormous boost to aeronautic education and research throughout the country. The State Legislature also provided funds. Guggenheim Hall opened in 1929, the year the fledgling UW program attained department status, and was dedicated in 1930, when A&A granted its first baccalaureate degree. Guggenheim also served as a hub for the college by housing the Engineering Library and the Dean’s Office until 1967, and it offered classroom space for other engineering disciplines. Still in the basement are lockers and a shower. According to department lore, the Husky football team used them in the 1930s.

Furthering the Vision

Renovation plans call for preserving Guggenheim’s exterior and detailing. The building’s footprint will not change. Interior upgrades will further A&A’s world-class program through these elements:

- **Learning Centers/Laboratories:** Strengthen hands-on learning with three large, multifocused instructional labs to support team-based project work.
- **High-tech Instruction:** Upgrade classrooms/labs to incorporate the latest in learning technologies.
- **Multidisciplinary Research Labs:** Expand collaboration among faculty and students by redesigning labs and creating state-of-the-art facilities for innovation.
- **Airplane and Space Systems Research:** Expand laboratories in structural mechanics, fluid and gas dynamics, and composite materials to support this work.
- **Access for All Students:** Add an elevator and improve disability/mobility access.
- **Earthquake Protection:** Reinforce building to meet standards.

You Can Be Part of Creating A&A’s Future

The Challenge: The effort to restore Guggenheim Hall is a public-private partnership. In addition to the State Legislature’s contribution, private funding is needed.

**State Funding 85% = \$27.8 Million
Private Funding Need = \$5 Million**

You can help preserve history and create the future of Aeronautics & Astronautics at the University of Washington. To learn how you can make a difference, please contact Paul Julin, 206-685-1927 or julin@engr.washington.edu.





Potential of “Out of this World” Technology Spurs Creation of Endowed Professorship

“The book on protein chemistry is a lot bigger than it was during my student days,” says Charles Matthaiei (ChemE ’43), chairman of Roman Meal Bread Company in Tacoma.

He is delighted that the first holder of the Charles W.H. Matthaiei Endowed Professorship in Chemical Engineering is Professor François Baneux, who is adding new chapters to the protein book of knowledge. Baneux’s research focuses on protein technology and how certain proteins help others fold in precise conformations. An ability to understand and direct this process will be key to producing high levels of recombinant proteins for commercial or therapeutic purposes and to treating neurodegenerative conditions such as Parkinson and Alzheimer disease.

Another major interest lies in the applications of molecular biology and protein engineering to nanotechnology. “In the biological world, nanoscale materials contain enormous amounts of information,” says Baneux, who is acting director of

the UW Center for Nanotechnology. “Nanostructures composed of proteins and inorganic or synthetic compounds hold great promise for the building materials and devices of tomorrow such as nanocircuits, photonic devices, and biosensors with diverse applications.”

Matthaiei established an endowed professorship because innovative research holds tremendous potential for benefiting people and society in areas such as health, protecting the environment, and energy efficiency. “The technology today is just out of this world,” he says.

Benefiting people has been Matthaiei’s driving goal for nearly 60 years as he built the family company into a nationwide pioneer in producing and marketing healthful, wholegrain breads. He maintained close contact with UW Chemical Engineering over the years and sought advice from faculty experts in cellulose technology for evaluating the many potential sources of fiber suitable for bread production.



Professor François Baneux discusses his research with Charles Matthaiei.

Descended from a lineage of German bakers dating back more than 300 years, Matthaiei has passed day-to-day operations of Roman Meal to his son William, but remains active in the business, in civic organizations in Tacoma, and with a group of World War II Navy veterans who saw battle in the Pacific on the *USS Missouri*. Chemical Engineering honored him with its Distinguished Alumnus Award in 2003.

Since his initial gift of \$500,000 in 2001, Matthaiei has contributed another \$400,000. “I wanted to keep building the endowment,” he says. The Campaign UW matching initiative boosted his recent support by \$200,000, which elevated the total endowment to \$1.1 million.

“It is a great honor to hold the Matthaiei Professorship,” Baneux says. “In a time of tight resources, this support will allow graduate students to explore a new idea or approach that may contribute to our research goals.”

A faculty member since 1992, Baneux also is an adjunct professor of bioengineering. He completed his undergraduate education in his native France and received his doctorate in chemical engineering at the University of Texas. ■

Campaign UW Highlights

- Support for the University topped **\$1.46 billion** by August 31, 2005. The campaign goal is \$2 billion by 2008.
- The **College of Engineering** is on target with more than 70% raised toward our goal of **\$250 million** for student scholarships, fellowships, professorships, capital projects, and programs.
- The Campaign **UW Matching Initiative** has been a huge success. The \$36.6 million in matching funds have magnified the power of donor contributions. Supporters of the College of Engineering have established 25 endowments for student scholarships and fellowships and faculty chairs and professorships.

We invite you to help *create futures* in engineering. Contact Jan Labyak at 206.543.8779 or labyak@enr.washington.edu

Fries Family Takes “Honor Your Mother” to Heart

Little did Marilyn Fries know, as a UW Computer Science & Engineering graduate student in the mid-1970s, that she was the vanguard of a Fries family computer science dynasty. All three of her children — oldest son Bob and twins Ed and Karen — forged careers in the field, and at one time all four family members worked at Microsoft. To honor their mother’s accomplishments and her role model status, the Fries siblings have established the Marilyn Fries Endowed Regental Fellowship in Computer Science & Engineering. The Campaign UW Matching Initiative bolstered the \$500,000 endowment by another \$250,000. It will support outstanding graduate students, with preference given to women.

Always ahead of the curve, Fries was the first female graduate in chemical engineering at Bucknell University. After moving to Seattle with husband Jim, an electrical engineer, she worked at Boeing testing heat shield tiles for space vehicles, then an unusual job for woman. The desire to try a new field with fewer barriers to advancement led her to CSE.

After earning her master’s degree, Fries worked at Digital Equipment Corporation’s Bellevue office providing technical support for customers. That led to a position at DECwest Engineering, a group that was developing the first microprocessor VAX. There she worked

on a new operating system and later managed a group building networks. After retiring, she worked for a time at Microsoft as a contract technical writer.

All three Fries siblings caught the computer bug — Ed in high school when he got hooked on programming, Bob as a UW electrical engineering major taking CSE courses, and Karen somewhat later, after earning UW degrees in psychology and business.

Bob has worked at Microsoft since 1988 and now manages a group that develops software for servers and for data protection. Karen was a recruiter, then a product marketer who evolved into software design. She now works on search, online help, and speech-recognition projects. Ed joined Microsoft in 1985, became one of the first programmers for Windows Excel, then managed the Word and Excel groups. Next he led the MS Games Studios and co-developed the

X-Box project. Since leaving Microsoft in early 2004 he has helped form several startup game companies.

Clearly, anyone who uses a computer has benefited from the work of the Fries family. “Our mother is always giving to others,” Ed says. “She fought for women in engineering her whole career, and was president of the Society of Women Engineers, so the fellowship furthers something she believes in.” ■



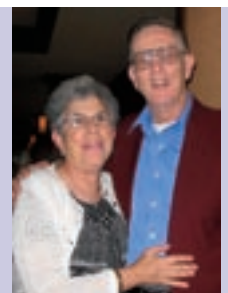
Marilyn Fries (center) holds the endowment plaque given to her last Christmas by her children. Ed (far left) holds son Jasper. Bob and Karen stand by their mom.

Emon’s Living Trust to Fulfill Passion for Helping Students

Don Emon (BSME '60) did not want to replace his crude high school slide rule during his freshman year at the UW because money was tight and he was not sure he would make it to the second year. “One professor even deducted points from my exams because I could only calculate to two decimal places,” Emon recalls. Later he received a \$200 scholarship, “big money at the time.” He purchased a new slide rule and went on to earn his BS in mechanical engineering. That assistance and a fellowship that opened the door to graduate school inspired a life-long passion to help students needing a boost. Emon, who holds a PhD in nuclear engineering, managed several nuclear energy research and development programs for the U.S. Department of Energy. He and his wife,

Diane, a former teacher and a specialist in early childhood development, are retired in North Carolina. They have allocated \$500,000 from their estate as a living trust that will fund UW mechanical engineering scholarships after their deaths. “I’ve always had a soft spot for the UW, and my student years were a treasured time in my life,” Emon notes.

If you would like to consider how your vision and values can be carried into the future through an estate gift or life income gift to the UW, please contact us at 800-284-3679, 206-685-1001, or giftplan@u.washington.edu.



Diane and Don Emon



As the College of Engineering's acting dean, I am pleased to acknowledge the many alumni, friends, corporations, and foundations who have supported our students and faculty over the 2004-05 fiscal year. The resources provided through these generous commitments have created a wide range of innovative and important educational and research opportunities. The partnerships represented here are clear indicators of the vital community that has come together to advance engineering education at the UW. Private contributions continue to be key to our success.

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November 1 ~ Engineering Disaster Relief

Hurricanes and disasters such as the Southeast Asian tsunami and chronic problems such as African famines devastate communities. Engineering has a role in the logistics of rescue and relief efforts. Presented by Technical Communication Professor Mark Haselkorn and UW Alumna Kate Hulpke.



November 8 ~ Engineering Detectives: Uncovering the Causes of Catastrophe

From the World Trade Center collapse to the Bellingham pipeline fire, to the Seattle Monorail, Engineering alumnus Larry Anderson's team is often called to the scene to determine why failure occurred and how to engineer solutions. Presented by Larry W. Anderson (UW ME PhD '66), group vice president, Exponent (San Francisco).



November 15 ~ Saving Soldiers: Robots to the Rescue

In the not-so-distant future, robot pods directed remotely by surgeons will save the lives of injured soldiers on the battlefield, and they will have civilian uses too. Presented by Electrical Engineering Professor Blake Hannaford and Surgery Professor Mika Sinahan.

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