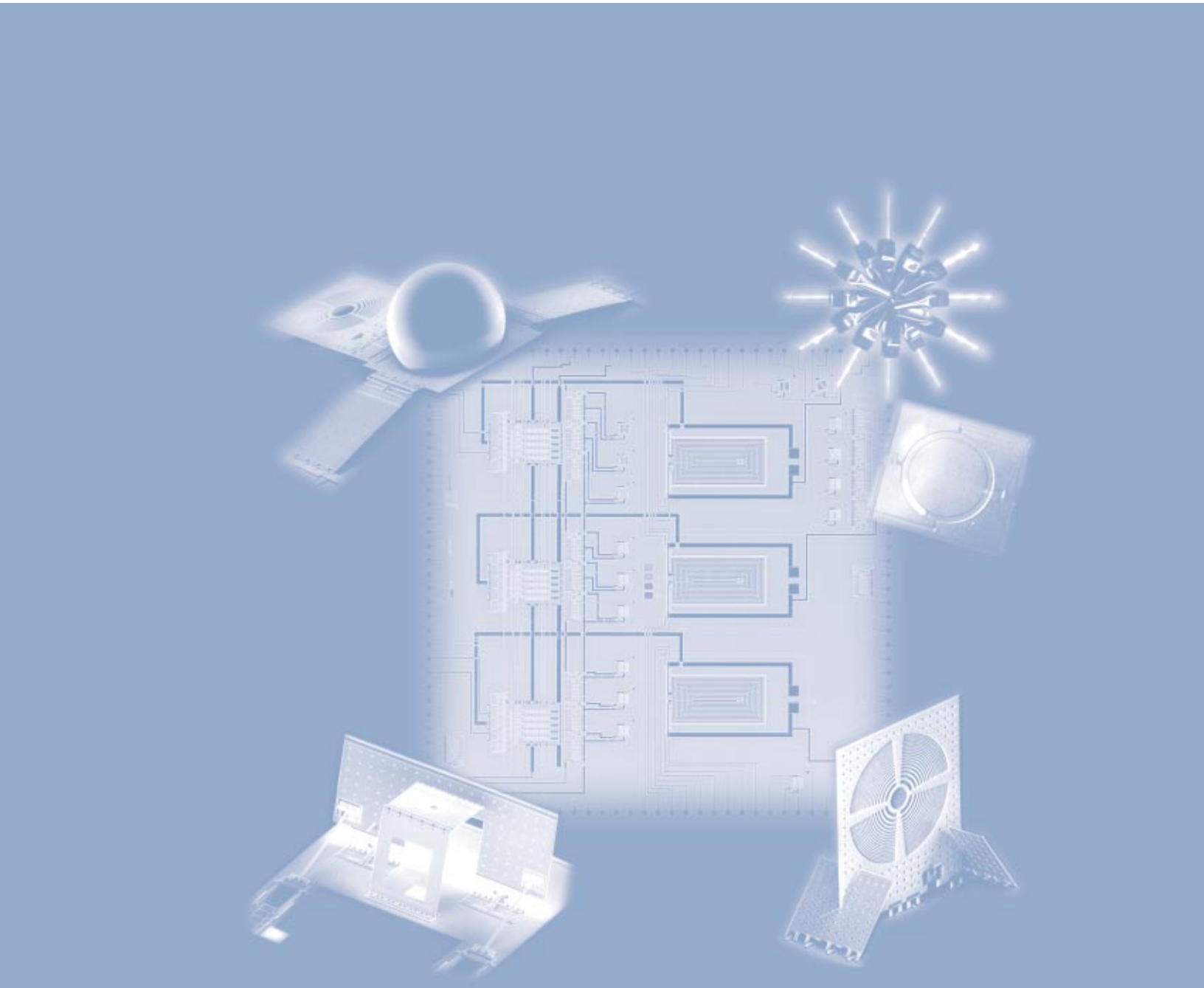
FALL 1999
ISSUE NO. 3

In this issue: Microelectromechanical Systems Research, Fall Enrollment Facts, the Boelter Society's First Year, Career Services for Alumni, Support for Entrepreneurship Course, and the School's New Faculty.

UCLA ENGINEER



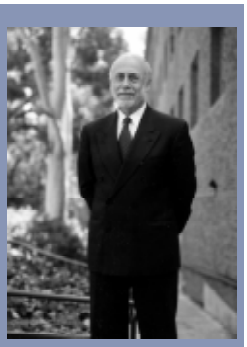
Clockwise from upper left: Professor Ming Wu's Micro Ball Lens (300 microns in size), Professor C.-J. Kim's Micro Cage (900 microns) and Liquid Motor (200 microns), and Professor Wu's Micro Fresnel Lens (300 microns) and 3D Self-Assembly Micro Lens (500 microns). In the center: Professor Chih-Ming Ho's Smart Skin (one cm by one cm).

MESSAGE FROM THE DEAN

This is an exciting year of visionary growth for the UCLA School of Engineering and Applied Science. From early breakthroughs in aeronautical engineering to the establishment of the Internet, from wireless technology to nomadic communications and computing, UCLA has long played a leadership role in the research and development of ground-breaking technologies. Talented faculty, exceptional students, and dedicated staff continue to develop innovative programs that are pushing new frontiers in Engineering.

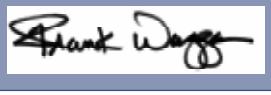
Our new Interdepartmental Biomedical Engineering Program has already established new partnerships with faculty in Neurobiology, Urology, Cardiology, Orthopedic Surgery, and Dentistry. Combining these doctors' medical knowledge with the inventive engineering skills of the School's faculty, this program will create new ways of solving medical problems with microeletromechanical (MEMS) tools, computer imaging, and laser applications. This field will help millions of people by developing new ways of treating disabilities such as hearing, speech, and mobility loss.

Collaborative cross-disciplinary programs are the linchpins of the School's research and educational projects now and into the future. Electrical Engineering is branching out in the arts and entertainment field. Our proximity to the Los Angeles entertainment community makes this a prime target for studies and research in digital technology, computer-aided design, and human/computer interfaces. Computer Science is venturing into this field with new multimedia laboratories, and research in graphics, automatic construction of 3D models from multiple images, and graphics hardware design. Both departments are developing smart, embedded computer chips which, in the future, could affect every aspect of technological application.



The recognition of the importance of engineering to the California economy is given credence with the implementation of the Engineering Initiative. Under the auspices of UC President Richard C. Atkinson, this program mandates an increased enrollment in the UC Schools of Engineering of up to 40 percent over the next five years. The growth projection will include resources for not only the addition of faculty and staff, but also for new, and much needed, teaching and research facilities in the School.

Change will be our constant and positive guide as we head into the next century. It is a time of exploration, invention, and unparalleled creativity. We hope you will join our partnerships and support us in our new initiatives.



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CORRECTION

In the Spring issue, Bill Goodin was referred to as the first Engineering Alumni Association president. Alumnus E. B. Hilton noted that this is inaccurate because there had been a prior organization in the School with the same name. The Engineering Alumni Association established in 1998 is the first to be officially affiliated with the UCLA Alumni Association and serves as a professional and academic support organization.

We would like to recognize and thank some of the original EAA presidents for their support of the School: Carlos Apablasa, Aaron Cohen, William D. Mitchell, and E.B. Hilton.

CALENDAR OF EVENTS

October 13, 1999
Start-up Companies Job Fair
Covel Commons Ballroom, UCLA.
1:00 p.m. to 4:00 p.m.

Start-up Companies Panel Discussion
Covel Commons Ballroom, UCLA.
6:00 p.m., followed by a networking reception

October 14, 1999
Jobs for Bruins
Pauley Pavilion.
9:00 a.m. to 4:00 p.m.

October 15, 1999
Engineering and Technical Job Fair
Pauley Pavilion.
9:00 a.m. to 4:00 p.m.

October 30, 1999
Homecoming Tailgate Party - UCLA vs Arizona
Pasadena Rose Bowl Foodzone, Blue 1 and 2.
The event begins 2-1/2 hours prior to kickoff.

February 5, 2000
Pre-Game Basketball Event - UCLA vs Cal
UCLA, location to be determined.
The event begins 2 hours prior to tip-off.

Please visit our web site, www.seasalum.ucla.edu, for additional information about EAA events.

STUDENTS

COULD YOU GET INTO UCLA TODAY?

As more students select UCLA as their first choice for engineering, the admissions process is becoming increasingly competitive. High school students must maintain a higher grade point average (GPA), take more honors courses, and earn higher SAT I and especially SAT II scores to enter the program.

Each year, UCLA receives nearly 35,000 applications and is only able to enroll 12.5 percent of these students. For the School of Engineering and Applied Science, this percentage is even lower: only 11.4 percent of the 4,772 applicants enrolled in the program last year.

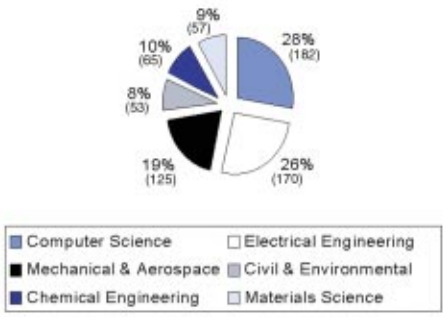
Because the School receives so many applications each year and has such rigorous requirements, it conducts its own screening and admissions process.

The average freshman entering UCLA this fall had a 3.78 GPA (excluding honors courses) in high school and SAT scores of 1330. The average engineering freshman had a 3.75 GPA (without honors) and combined SATs of 1351.

Both the average GPA and average SAT scores of students accepted into the School continue to rise. With honors courses factored in, the average GPA of incoming students in 1996 was 4.0 with a combined SAT score of 1287. In 1998, students carried an average GPA of 4.1 and had SAT scores of 1344.

The School has seen a steady, although gradual, increase in the number of women enrolled, growing 22 percent from 1996 to 1998. The changes in the admissions process mandated by Proposition 209 have led to a slight decrease in the number of minority students in the School. In 1996, minority students comprised 12.4 percent of the undergraduate population compared to 10.9 percent in 1998.

FRESHMEN ENROLLMENT BY DEPARTMENT



In addition to the 652 freshmen who are enrolling in 1999, the School enrolled 122 transfer students from community colleges. These transfer students have an average GPA of 3.73. Unlike freshmen who begin their studies at UCLA, transfer students come into the School prepared to begin upper-division engineering coursework immediately.

As might be expected from recent technology shifts in the marketplace, UCLA is keeping pace with the national trend toward increased enrollments in computer science and electrical engineering.

Despite a nationwide decline in students applying to engineering programs, the School received 2,500 more applications in 1999 than in 1996. Undergraduate enrollment in the School increased by seven percent from 1996 to 1997 and six percent from 1997 to 1998, an overall increase of 13 percent. UE

ONLINE ENGINEERING RESOURCES

General Engineering Indexes
• Engineering Resources Index
http://www.er-online.co.uk/
• WWW Virtual Library – Engineering
http://arioch.gsfc.nasa.gov/wwwvl/engineering.html
• Computer Science (USGS)
http://info.er.usgs.gov/network/science/computer/index.html

Areas of Research
• MEMS Exchange
http://www.mems-exchange.org/
• Dynamically Reconfigurable Hardware
http://dec.bournemouth.ac.uk/drhw_lib/
• Artificial Intelligence on the Web
http://www.scms.rgu.ac.uk/staff/asga/ai.html

Women & Engineering
• Women and Computer Science
http://www.mills.edu/ACAD_INFO/MCS/SPERTUS/Gender/gender.html
• Women & Minorities in Science and Engineering
http://www.ai.mit.edu/people/ellens/Gender/wom_and_min.html

Technical News
• The Register – Biting the Hand that Feeds IT
http://www.theregister.co.uk/
• CNET - Tech News First
http://www.news.com/

For Kids
• Science in the Home
http://www.ehr.nsf.gov/ehr/ehr/scihome.html
• Cool Robot of the Week
http://ranier.hq.nasa.gov/telerobotics_page/coolrobots.html

If you know of sites that would be of interest to your fellow alumni, please let us know. Submissions can be sent to seasalum@ea.ucla.edu.

UCLA was named one of the nation's most Wired Colleges by Yahoo! Internet Life.

BOELTER SOCIETY

BOELTER SOCIETY EXCEEDS '99 GOALS

The inaugural year of the Boelter Society leadership gift club was an outstanding success by any measure. Led by the co-chairs, Odell Graham and Edward Rice, the Society more than doubled the number of $1,000-plus unrestricted gifts and pledges made to the School last year.

The work of volunteers played a crucial role in surpassing last year's totals. Giving both their time and support, they helped the School secure more than 120 unrestricted gifts at this level.

The Boelter Society includes graduates from the classes of 1947 through 1999. Many new members took advantage of their company's matching gift policy to reach the $1,000 level and support the School in a leadership capacity.

The growing number of engineering alumni and friends committing at this level has contributed to the success of the Engineering Annual Fund, which reached more than $449,000 in 1999.

Boelter Society members will be honored at a reception hosted by Dean and Mrs. Frank Wazzan in September. A permanent wall display paying tribute to inaugural year members will be mounted in Boelter Hall later this year.

Gifts from Boelter Society and Engineering Annual Fund members are helping secure some $2.6 million.

The Boelter Society is named for the first Dean of the School, Llewellyn M.K. Boelter. UE

Remembering Dean Boelter

Llewellyn M.K. Boelter, the first Dean of the UCLA School of Engineering and Applied Science, often took an active role in the lives of the School's students, and his approach to engineering impacted many of their careers. We asked Boelter Society members to share their memories of Dean Boelter as a way of honoring him and celebrating his legacy.

Dean Boelter would gather the seniors together and talk about what was most important in life, and that to him was knowing yourself. He was a great educator. His concept of a unified engineering education allowed us to be successful and flexible in our careers. I remember him well and with affection.

- George Nikolaychik, MS '65

I remember Dean Boelter's definition of an engineer: "An engineer is someone who can do for $1 what any fool can do for $2." - Stevan Birnbaum, '65

Dean Boelter recognized that engineering would become more and more interdisciplinary, breaking with the traditional view that considered existing disciplines separate and distinct. As a member of my doctoral committee, Dean Boelter encouraged me to view the development of systems engineering as an interdisciplinary design methodology, a concept which I was able to implement at the Naval Postgraduate School. In today's complex and rapidly increasing technical world, his foresight has been confirmed.

- Melvin B. Kline, PhD '66

L.M.K. Boelter was one of the finest and most inspiring persons I've known. He left a very indelible impression on me, intellectually and personally, and I feel he was responsible for much of the success I've had in engineering and life. I will always feel deeply indebted to Dean Boelter and UCLA. - Charles A. Brallier, Jr., '47

I was not accepted as a junior transfer based on my Upper Division Examination scores. I appealed the decision and later received a phone call telling me that Dean Boelter was willing to give me a chance. The rest is history. Not only did I graduate with honors in 1961, I received my PhD in 1971 from UCLA as well. Without someone like Dean Boelter, who knew how to look beyond test scores, I would not have had the opportunity to complete my education at UCLA.

-G. Harold Klein, PhD '71

Dean Boelter held a dinner ceremony in Santa Monica for graduating engineers in January, 1956. He not only awarded us our BS degrees, he also called my wife to the podium and awarded her the PHT degree, for "Pushing Hubby Through"! It was a very nice recognition of my hard-working spouse who made all this possible for me.

-Robert S. Gaylord, MS '61

In 1948, I took a professional ethics class taught by Dean Boelter who taught us to keep high, ethical standards when faced with situations that could compromise our integrity. By following these standards throughout my career, I was able to maintain a clear conscience; although at times my decisions did not win favor with management. -Earl Butcher, '52

Continued on Page 7

ALUMNI

PLANNING FOR THE FUTURE: CAREER SERVICES

The UCLA Career Center offers alumni and students a range of services for career development, both on campus and on the Internet.

By shifting many of their services onto the Web, including national job listings, the Center is able to reach alumni who cannot come to campus.

Engineering and Science Career Services, a branch of the UCLA Career Center, provides a link between campus life and employment for engineering students and alumni. They offer programs, services, and information to assist with career planning and decision making.

Recent UCLA graduates are eligible to use the Career Center's services and resources for three months after graduation at no charge. After this period, alumni can choose Blue or Gold Card membership for continued access to the Center.

Blue Card membership lasts for six months and is available for $60 to UCLA Alumni Association (UAA) members and $75 to all UC graduates.

Blue Card holders have 24-hour access to BruinTraks™ online job listings. In addition, members can browse more than 3,000 titles in the Career Center Library and attend annual career fairs, including the Engineering and Technical Job Fair held each October.

The year-long Gold Card membership costs $225 for UC graduates, with a $30 discount available to UAA members. In addition to Blue Card benefits, Gold Card members can take advantage of drop-in career consultations, career counseling, and job-related workshops.

The Center also offers the "resume doctor" service, providing a personalized resume and cover letter critique via e-mail, fax or regular mail to all graduates for $40. (This service is free to Gold Card members.)

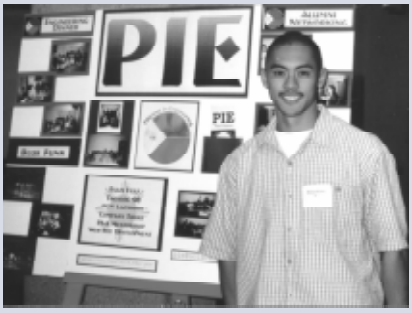
UAA members also have access to JobNet where they can browse jobs by employer or by keyword, and create and submit their resumes electronically.

For more information about Career Center services, please visit their web site at: www.career.ucla.edu. Additional Alumni JobNet information is available at: www.alumni.ucla.edu.

(Please see the Calendar on page 2 for related events.)

SUPPORT FOR STUDENT PROJECTS

As part of its ongoing efforts to aid UCLA engineering students, the Engineering Alumni Association (EAA) provides supplementary financial assistance through the Alumni Fund for Student Projects. Last year, the EAA Student Affairs Committee awarded a total of more than $7,000 to 12 groups.



Clockwise from top left: the Pilipinos in Engineering display, the Steel Bridge Project (ASCE) and the Human Powered Vehicle (ASME).

MONEY MANAGEMENT

Appreciated Securities

A gift of stock, bonds, mutual funds or other securities is one of the smartest ways an individual can choose to support UCLA. Here's why: individuals contemplating the sale of appreciated securities find that they are faced with paying the capital gain tax on the stock appreciation. By giving the stock to The UCLA Foundation, a donor can completely avoid the capital gain tax and take a deduction for the full fair market value of the securities, not just their original purchase price.

Alumnus Rich Gay, '73, MS '73, PhD '76, prefers making gifts of stock, noting, "On-campus experts have all the necessary information to help you easily make a gift. You can split the gift among several SEAS programs, contributing to areas that are important to you."

If you have marketable securities that have grown in value, the tax laws make it possible for you to make a significant gift at a remarkably low after-tax cost in support of engineering education and research at UCLA. UE

RESEARCH

MICROMACHINE RESEARCH AT UCLA

The Microelectromechanical Systems (MEMS) program, growing rapidly in the School of Engineering and Applied Science, is among the leading research groups in the nation. The interdisciplinary program at UCLA boasts active faculty and student participation from the Departments of Electrical Engineering (EE), Mechanical and Aerospace Engineering (MAE), and Materials Science and Engineering (MSE).

Research teams are creating miniature computers, devices, and sensors only hundreds of microns in size placed together on a single chip. These micromachines include a tiny unmanned air vehicle, motors powered by surface tension, wireless microsystem sensors, and optical systems.

The MEMS research conducted by Professor Chih-Ming Ho's group in MAE centers around a M^3 system. A M^3 MEMS integrates microelectronics, microactuators, and microsensors onto one electronic chip, which can perform sensing, thinking, and actuation. Ho's smart skin chip, only one centimeter by one centimeter in size, contains nine MEMS sensors, three MEMS actuators, and a neural network computer. The team is using this emerging MEMS technology to provide M^3 microsystems for the control of a large delta wing aircraft. On another aerial project, the Micro-Air-Vehicle, the team is collaborating with Cal Tech to build one of the world's smallest flapping-wing flying machines. The craft comes complete with an on-board MEMS microphone made by the Cal Tech group.

Nicknamed the "microbat," the flying micromachine could be used to locate survivors in a damaged building.

Nicknamed the "microbat," the micromachine eventually could be used to locate survivors in a damaged building.

Professor Ho's group also has several major research projects in the bio-MEMS area. For one project the team is developing an integrated MEMS system that collects airborne particles and prepares the sample for DNA extraction. By matching the collected target DNA with an on-chip DNA probe, the team can specifically identify the pathogen at very low concentration levels.

For MEMS devices to be commonly used in commercial applications, the manufacturing process must be further streamlined. Professors William Kaiser and Gregory Pottie in EE are improving the manufacturability of both microactuators and microsensors through the development of unique designs and microfabrication processes. Professor Kaiser's research on Wireless Integrated Network Sensors is directed to demonstrating the technology necessary to enable the deployment of large-area networks of inexpensive wireless microsensors, microactuators, and microsystems. Their research will support such applications as tiny seismometers, thumbtack-sized home security/alarm systems, and hospital systems capable of monitoring both patients and equipment.

Their work will support such applications as tiny seismometers, thumbtack-sized home security/alarm systems, and hospital systems capable of monitoring both patients and equipment.

The small scale of these devices demands novel solutions to complex problems. In the Nanoscale Heat Transfer and Thermoelectrics Laboratory in MAE, Professor Gang Chen's group is working on a wide range of heat transfer problems encountered in MEMS. They are developing thin-film based solid-state thermoelectric coolers and power generators that use electrons as the working fluid to carry energy from one place to another. The team also is examining the potential of thermoelectric micropower sources for space applications such as nano-satellites, and the potential application of thermoelectric microcoolers in biological systems.

International Award Winner

Birgitte Ahring, a Civil & Environmental Engineering professor, received the Villum Kann Rasmussen Award in Denmark. The first woman to receive this award, Ahring was recognized for her research in the improvement of biotechnology for processing of waste and wastewater for production of useful compounds such as biogas or bioethanol.

The size of these micromachines also allows for the use of new techniques not possible on a larger scale. Professor C.-J. Kim's group in MAE is creating miniature devices regulated or powered by surface tension. His group showed that bubbles can replace conventional valves in blocking the flow of liquids in microscale. This elegant principle was used to radically improve the performance of inkjet printing, as well as to show that liquids can be pumped through microchannels with no moving parts. More dramatic is the team's liquid micromotor, which relies on electrical control of surface tension to move tiny drops of liquid in microchannels with unprecedented efficiency. Such devices have wide application potential anywhere from biochemical devices to miniature satellites.

In EE, Professor Ming Wu's group has added an optical component to MEMS research, developing micro-optoelectrical systems for use in computer displays, communications, and optical sensors. The team has successfully demonstrated a two-dimensional optical scanner with a large mirror area and large rotation angle using a novel Micro-Elevator by Self-Assembly technology. By combining the actuated micropositioners with microfabricated optical elements, optical systems on a chip also have been made possible.

MEMS technology also has the potential to better the quality of our lives. Through the Neuroengineering Training Program, Professor Jack Judy in EE and Professor Allan Tobin, Director of the Brain Research Institute, are developing a program that allows engineering students to create and execute projects with a neuroscientific base. The program also teaches biological science students how to employ state-of-the-art technologies, including MEMS, in their research. As the students work with others outside their fields on complex neurological projects, they soon learn the value of multidisciplinary teamwork.

The Nanoelectronics Research Facility (NRF) supports many of the School's research and curricular activities in MEMS. The laboratory is located in the largest and newest engineering building on campus, Engineering IV. The NRF boasts 8000 square feet of Class-1000 HEPA-filtered space with an additional 500 square feet of Class-100 space with temperature and humidity control. UE

ADVANCED UCLA MEMS RESEARCH SHOWCASED

A MEMS exhibit featuring the work of UCLA engineering faculty is on display at the California Science Center through November, 1999.

The exhibit includes photographs of MEMS devices created at UCLA, as well as a micromachine shown under a powerful microscope.

Located in Exposition Park in Los Angeles, the California Science Center is open from 10:00 a.m. to 5:00 p.m. daily. General admission is free, and public parking is $5 per car.

For additional information about the museum, call 323.724.3623 or visit the web site: http://www.casciencectr.org/.

Boelter Memories (Continued)

When I was 21, I worked for Dean Boelter as his receptionist. He frequently stopped by my desk for brief chats, which were gentle homilies about life (it flies too fast), airplanes (not meant to fly), the Los Angeles City Planning Commission (ditto), and Joe Miller (marry him). Dean Boelter thought the only way to "fix" Los Angeles was to blow it up and start over. But my 40-plus year marriage to Joe is still flying high.

- Judy Miller

I enjoyed the many friends Dean Boelter introduced me to at UCLA, where I served on the research and teaching team. I had the good fortune to be selected by Dean Boelter to work at the Bureau of Standards in Washington, D.C. with my good friend Robert Bromberg. With George Gourrich, another good friend, I participated in park computer development, which had a profound influence upon my continuing career. - Bill Martin, MS '50

Hall of Fame Inductee

Thelma Estrin, Professor Emeritus in the Computer Science Department, was inducted into the Women in Technology International's Hall of Fame in April, honoring her contributions to the advancement of science and technology.

ON CAMPUS

GRUNDFEST SELECTED AS CHAIRMAN OF BIOMEDICAL ENGINEERING PROGRAM

Dr. Warren Grundfest, Director of the Laser Research and Technology Development Program at Cedars-Sinai Medical Center, has been named Chairman of the UCLA Biomedical Engineering Program.

Associate Dean Doug Mackenzie remarks, "We are delighted to welcome Warren to the program - he brings a wealth of experience and knowledge to this position. His extensive contacts in the medical world, industry, and academia will enrich our students' education."

Grundfest's laboratory pioneered the development of minimally invasive surgery. He has developed multiple medical devices, and actively collaborates with other institutions and industry to bring new medical technologies into the healthcare marketplace. His current research interests include a broad spectrum of biomedical engineering projects, from the development of new lasers for medical applications to the use of spectroscopy for cancer detection via minimally invasive surgery and microendoscopy to magnetic resonance-guided interventional procedures.

Grundfest received his M.D. degree from Columbia University College of Physicians and Surgeons and completed his first two years of surgical training at UCLA. In 1991, he received the Dorothy and E. Philip Lyon Endowed Chair in Laser Research at Center-Sinai. UE

Welcome to YOU@UCLAlumni.net

Show your pride in UCLA with every e-mail you send!

The UCLA Alumni Association is offering members a new e-mail forwarding service, YOU@UCLAlumni.net.

When you create your own UCLAlumni.net e-mail forwarding address, you will never have to send a change of e-mail address note again. All you have to do is update your valid e-mail address on the UCLA Alumni Association web site (your change of address will be transparent to your friends and colleagues) and keep your membership current.

Please visit the UCLA Alumni Association web site, www.uclalumni.net, for more information about this service.

THE SCHOOL'S NEWEST FACULTY

Chemical Engineering

Jane Chang comes to UCLA from a postdoctoral fellow position at Lucent Laboratories. Areas of research: plasma processing, process modeling, and silicon surface preparation for ULSI circuits.

Computer Science

Adnan Darwiche joins UCLA after working at the Rockwell Science Center. Areas of research: reasoning with uncertainty and diagnostics for embedded systems.

Songwu Lu recently received his PhD from the University of Illinois. Areas of research: wireless communication and mobile computing.

Civil & Environmental Engineering

Patrick Fox comes to the School from Purdue where he was an associate professor. Areas of research: consolidation and settlement, geosynthetic clay liners, slope stability, retaining structures, flow through porous media, soil testing, and numeric modeling.

Electrical Engineering

Elliott Brown was a program manager at the Electronics Technology Office of DARPA before coming to UCLA. Areas of research: advanced RF and IR components, remote biological sensing, power electromagnetics, THz circuits and optoelectronics, and biodental engineering.

C.-K. Ken Yang joins UCLA after receiving his PhD from Stanford University. Areas of research: high-speed and low-power interfaces for high performance mix-mode VLSI design.

Warren Mori was an adjunct associate professor in EE before becoming a permanent member of the Department's faculty. He will continue to teach in the UCLA Physics Department as well. Areas of research: theoretical plasma physics.

Materials Science & Engineering

Ya-Hong Xie joins UCLA from Bell Laboratories, Lucent Technologies. Areas of research: Si VLSI processing, cross-talk isolation in mixed-signal integrated circuits, and crystal growth/fabrication of Si-based structures.

Mechanical & Aerospace Engineering

Jeff S. Shamma comes to UCLA after working as an Associate Professor at the University of Texas. Areas of research: feedback control theory and design, and robust control for nonlinear and time-varying systems.

Tsu-Chin Tsao joins UCLA from an Associate Professor position at the University of Illinois - Urbana-Champaign. Areas of research: modeling and control of dynamic systems with applications in mechanical systems, automotive systems, and energy systems, digital control, and mechatronics.

NSF CAREER Awards

Electrical Engineering Professors Fernando Paganini and Jack Judy received 1999 National Science Foundation CAREER Awards. Paganini was recognized for his research in control of distributed systems and Judy for his work with MEMS microsensors and microactuators.

CLASS NOTES

1950s

Ralph T. Joeckel '50, Founder and President of J.B.A. Consulting Engineers, recently celebrated 33 years in business. The company designs and prepares mechanical-electrical specifications and drawings for major building construction. His youngest son is completing PhD studies at Claremont Graduate School and his oldest grandson is in his first year at Harvard Law School.

Donald Herzstein '59 received his JD from Southwestern Law in 1972.

Class of '59 40th Reunion Committee (l to r): Larry Tannas, Charles Herget, and Jan Olson.

Larry Tannas '59, MS '60 is an internationally recognized consultant and lecturer on electronic displays. He has recently began a new venture on customizing displays for avionics.

1960s

Michael Stafford '66 completed his 34th year working for the City of Los Angeles' Bureau of Engineering. He joined the EAA Governing Board in 1999 and is continuing as Board President of the UCLA Triangle Fraternity Alumni Corporation.

1970s

Raymond Landis PhD '71, Dean of the School of Engineering and Technology at California State University, Los Angeles, received the first CSU Wang Family Excellence Award for administrative leadership.

Rick Becker '76 is a registered Civil Engineer in California, a nationally certified building official and planner, and Commissioner in Redondo Beach, where he lives with his wife, Cindy. He is also the webmaster for the Los Angeles basin chapter of the ICBO (http://www.icbolabc.org).

Aaron Cohen (far left, back) with members of the UCLA Alumni Association at the North Pole.

Jim Fenton '79 is currently a Professor and the Acting Head of the Chemical Engineering Department at the University of Connecticut. His wife, Suzy, also at the University of Connecticut, is an Assistant Professor and the Assistant Department Head of the Chemical Engineering Department.

1980s

Philip E. Rosen '89 MS '90 is Lead Engineer of Plastics Manufacturing Units at Chevron Chemical Co. His wife, Betty, is a Professional Engineer-Electrical, working on ocean-going design and construction. They have two children, Jacob and Rachel.

1990s

David Ting '93 is returning to UCLA in the fall to earn his MBA from the Anderson School at UCLA.

Dan Liebgold '96 was a software engineer on the Diablo and Starcraft PC games while at Blizzard Entertainment.

IN MEMORIAM

The UCLA engineering community felt the loss of several members in 1999. The School extends sincere condolences to the family and friends of these alumni.

Robert Bromberg, PhD '51
As an engineer at TRW, Bromberg helped develop the lunar descent engine that landed American astronauts on the moon. He also taught at UCLA, was inducted into the National Academy of Engineering in 1968, and was the 1969 UCLA engineering alumnus of the year.

Adolfo Mejia, Jr. '97
The Center for Excellence in Engineering and Diversity is establishing a scholarship in memory of Adolfo Mejia, Jr. It will be awarded to a sophomore involved in CEED programs who demonstrates outstanding leadership and is active in community service programs.

SHAPING THE FUTURE - COMMENCEMENT '99

Alfred E. Mann
Chairman and CEO of MiniMed, Inc.
Chairman of Advanced Biotics Corporation
Medical Research Group, Inc.
Chairman Emeritus of Pacesetter, Inc.

"Try to learn from some of the lessons of those who have gone before you. You have been blessed with a great education, and the tools of technology available today are so enormously advanced from those I enjoyed half a century ago. You will be able to do so much more than I and the colleagues of my time have been able to accomplish.

Put your all into what you are going to do, whatever that is. Some will tell you that luck plays an important role. But all of you will be presented with opportunities. And what I have learned is that the harder I work, the luckier I have become.

Good luck to all of you and God speed on your roads to glory and success."

ALUMNI ACTIVITIES

HONORING OUTSTANDING GRADUATES

A Call for Nominations - Alumnus of the Year

The highest honor the School of Engineering and Applied Science can bestow on one of its own is the Alumnus of the Year award. Established in 1965, this award is traditionally presented to a graduate who has excelled in his or her chosen field and given back to the community and the School.

Each recipient holds a sterling record of distinguished career accomplishments, complemented by a history of outstanding contributions to the engineering profession. Without exception, awardees establish new standards of excellence to which others in their fields may aspire.

The nominee must be a graduate of SEAS, possessing one or more of the following degrees: Bachelor of Science, Master of Science, Master of Engineering, Engineer or PhD. He or she must be working or teaching in the engineering industry and have a minimum of five years working experience. A history of community service will also be taken into consideration.

The Alumnus of the Year will be selected by the Awards Committee, a standing committee of the EAA Governing Board. They will also determine the winners of any other EAA awards.

If you know of someone you feel is deserving of this award, please submit a nomination form, available online at www.seasalum.ucla.edu or by calling 310.206.0678. Self-nominations are welcome.

Meet, Greet, and Eat: Engineering Networking Dinners

The Engineering Alumni Association's Engineering Networking Dinners bring together alumni and students who are interested in a common engineering field. To start your dinner plans, please fill out and return this form to our office. If you would like more information about the dinners, please call 310/206-0678 or e-mail seasalum@ea.ucla.edu.

____ Yes, I want to host a networking dinner in my home!
Quarter: ____ Fall ____ Winter ____ Spring

____ Yes, I want to participate as a dinner guest!

Please print your name(s) as you wish them to appear on the invitation:

Name: _____

Home address: _____

City/ZIP: _____

Phone: _____

E-mail: _____

Business/Profession: _____

Major /Year: _____

Can you accommodate vegetarian guests? ____ Yes ____ No

How many people can you accommodate for dinner? ____ 12 ____ (other)

Please return your application to the Engineering Alumni Association, School of Engineering and Applied Science, 7420 Boelter Hall, Box 951600, Los Angeles, CA 90095-1600

U-C-L-A

HOMECOMING TAILGATE PARTY

Cheer on UCLA when the team meets Arizona at this year's Homecoming Game!

The Engineering Alumni Association is hosting a Homecoming Game Celebration on October 30, 1999 at the Rose Bowl in Pasadena. The pre-game party will begin 2-1/2 hours before kickoff.

Tickets to the pre-game event ($30 for adults, $20 for children under 12) include a full buffet, soft drinks, beer and wine, and games and activities for children. Tickets to the game will also be available via the reservation form.

AN INVITATION TO STAY CONNECTED...

Sign up now to receive information about events in the School and EAA activities via e-mail.

To register for this service, send a message to listserv@listserv.support.ucla.edu with **Subscribe SEAS** and your full name in the body of the message. When you receive a confirmation e-mail, reply with **ok** to start receiving invitations and news electronically.

International Award Winner

Professor Thomas Hanh of the Mechanical and Aerospace Engineering Department received the 1999 Ho-Am Prize in Engineering for his research in composite materials.

CAMPAIGN UCLA

GIFT FUNDS ENTREPRENEURSHIP COURSE

A generous gift from Al and Kirsten Sommer, friends of the School, will enable UCLA engineering graduates to better navigate the complex world of start-up businesses.

As the founder of Del West, a company that makes high performance products for auto racing, Al Sommer knows the importance of a business background in developing technical companies.

Thanks to the Sommer gift, the School will be able to offer a class in Entrepreneurship for Engineers again this year. As more students look to move their ideas into the marketplace, courses such as this one are becoming a necessary component of a complete engineering education. For example, a group of students successfully founded Scour.net, an Internet search engine, and many other students are hoping to establish their own companies.

Electrical Engineering Chairman Bill Kaiser notes that the course is the first at UCLA to combine the engineering and management programs. "This course provides essential background for evaluating the market impact of engineering concepts. The students in this class have developed outstanding concepts and business models for their engineering ideas. This course has also provided a unique benefit of exposing students to the multidisciplinary engineering challenges that appear in product development. It has become clear that the course content and formal project experience are valuable background for all of the career directions that our students have planned."

Utilizing faculty and teaching assistants from the UCLA Anderson Graduate School of Management, the entrepreneurship course also gives engineering students access to the resources of the Anderson Venture Development Program.

Although a number of companies have been formed by UCLA engineering faculty and students – including Broadcom, Pairgain Technologies, Scour.net and others – this course is the first offered by the School to address the unique challenges of starting a business. We hope to expand this effort in the coming years. UE

30th Anniversary Celebration

UCLA recently celebrated the 30th anniversary of the birth of the Internet. The first node of ARPANET was successfully tested on September 2, 1969 by a team led by Professor Leonard Kleinrock in Boelter Hall.

MAKE RETIREMENT LESS "TAXING"

Depending on your goals, a charitable gift to UCLA can provide:

- increased income for you and your family;
- increased income from stocks, CDs, and even your home equity;
- capital gain tax reduction;
- deferral of income until retirement;
- diversion of income to a family member in a low tax bracket;
- estate tax savings;
- professional investment management of your funds; or
- a hedge against inflation.

For more information on how you can take advantage of gifts that provide these benefits, please write or call: UCLA Office of Gift Planning, P.O. Box 240037, Los Angeles, California, 90024-9137, 310.794.2334 or 800/737-UCLA. Or contact Candice Shamia, SEAS Development and Alumni Relations, 7420 Boelter Hall, Box 951600, Los Angeles, California 90095-1600, 310.206.0678.

OPPORTUNITIES FOR SUPPORT

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Campaign UCLA

Through Campaign UCLA alumni and friends can help the School continue its tradition of engineering excellence in research and education. One of the leaders in microelectromechanical systems (MEMS), UCLA faculty and students are creating micro-scale applications for medicine, science, and entertainment.

MEMS research is flourishing across the School. Faculty and students have developed microactuators to counter turbulence in airplanes, micro pumps powered by surface tension, and wireless, mobile computers housed on a single chip.

Through Campaign UCLA, the School hopes to establish an endowed chair for MEMS that will encourage and support innovative faculty research. Endowed chairs allow the School to compete successfully with other universities to attract gifted faculty.

Other Campaign priorities for the School are wireless technology, aerospace and biomedical engineering, and support for students.

For additional information about Campaign UCLA or how you can contribute the School's success, please contact Candice Shamia at 310.206.0678.

Artificial Intelligence Research Honored

UCLA Computer Science Professor Judea Pearl was the 1999 recipient of the Research Excellence Award of the International Joint Conference on AI for his fundamental work on heuristic search, reasoning under uncertainty, and causality.

The UCLA School of Engineering and Applied Science 2000 Alumni Directory is coming soon!

Search for other alumni by:
- alphabetic listing
- industry listing
- area listing

The directory will be available in several formats:
- hardback
- paperback
- cd rom

Use the directory to:
- find classmates you haven't talked to in years
- network with others in your field

Watch for Your Survey - Arriving in March

Approximate sizes of the devices on the cover

STAY CONNECTED WITH THE EAA WEB SITE:

WWW.SEASALUM.UCLA.EDU

WWW.SEASALUM.UCLA.EDU

We Will Be Adding These New Features Soon

- Register to receive invitations and news from the School via e-mail.
- Nominate an outstanding alumnus for an EAA award, including Alumnus of the Year.
- Take advantage of the new online e-mail directory to find friends you've lost touch with. Add your e-mail address so classmates can find you.
- Make sure you receive the next issue of UCLA Engineer - keep your contact information current using the new online directory.

DEVELOPMENT AND ALUMNI RELATIONS
School of Engineering and Applied Science
7420 Boelter Hall, Box 951600
Los Angeles, California 90095-1600

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