

EQUADRANGLE

A Newsletter for
Alumni and Friends

Fall 2005

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The QUADRANGLE is published four times per year by the College of Engineering. It is named after the College's first four one-story concrete structures built in 1928.

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A Conversation with Dean Wai-Fah Chen

In September 2005, Dean Chen completed his sixth year as the College of Engineering's leader. As he enters his "senior and final" year at UH (as he has decided to step down as dean upon the recruitment of a new dean), *Quadrangle's* senior reporter, Marvin Nitta, sat down with the dean to reflect on the College's accomplishments during his tenure to date and to look at what's ahead.

BY MARVIN NITTA

Q: What is your assessment on the progress thus far in achieving your goals since your arrival in 1999?

A: To understand more fully what was accomplished, we need to first know what we were trying to accomplish. The unwavering goal throughout my deanship was, and still is, for the College to follow a strategic plan built around the clear vision of becoming a top-ranked engineering school in the country.

As described in my vision paper in 1999, the strategic plan to become one of the top 50 engineering schools included efforts to strengthen our faculty, improve our facilities, and increase our enrollment. We have made a lot of progress in all three areas. We have added faculty, we have grown our research program, we have improved our facilities, and we have increased our enrollment.

The total number of faculty has increased from 45 to nearly 65, and almost half are newly recruited at more competitive salaries. We also implemented a merit raise process in 2001. This has significantly improved the salaries for some of our existing faculty and staff. With the upcoming significant salary adjustment negotiated by the faculty Union over the next five years, our salaries will be much more competitive.



We have built several million-dollar laboratories, including the state-of-the-art wireless test bed and corrosion research facility. We have completely renovated our environmental laboratory and also built two multi-media laboratories, among others.

In 2004, we raised \$1.5 million in private funds, 50 percent more than the previous year. Our research funds have grown to nearly \$8 million, a 60 percent increase from the previous year. Our goal is to increase research funding to \$10 million in a year or so.

Dr. Vassilis Syrmos, Associate Dean, has made

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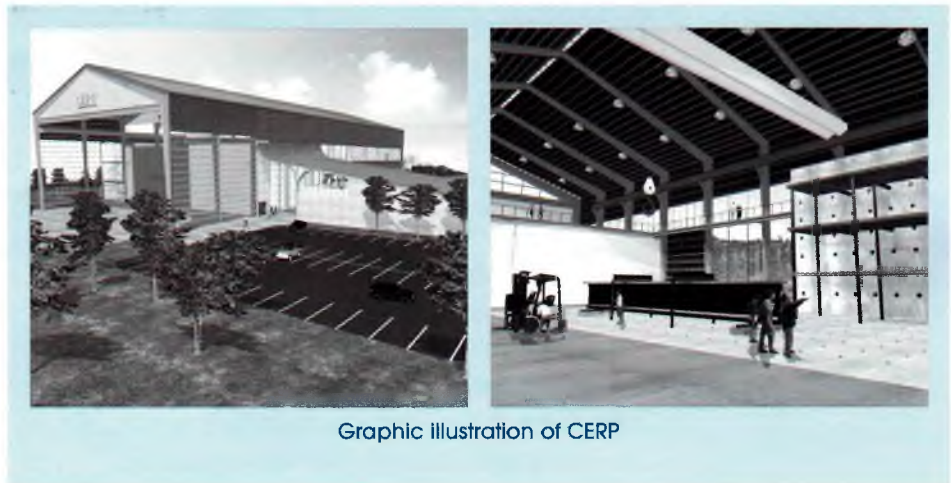
significant contributions to our success and will continue to help the College to achieve this goal while serving in the Office of the Vice Chancellor for Research and Graduate Studies during the coming year.

Our enrollment has steadily increased over the last five years and has reached more than 900 students with 750 undergraduates and 160 graduate students. Our goal is to cap the undergraduate enrollment to around 1,000 and to increase our graduate enrollment to 250 in the next few years with particular emphasis on enrolling more doctoral students. Dr. **Song K. Choi**, Assistant Dean, has expanded our current enrollment management plan with particular emphasis on improving the retention rate of our undergraduate students and increasing scholarships.

Q: What do you believe are the biggest challenges ahead in achieving your vision?

A: Our major challenge is to improve our graduate program by enrolling more doctoral students; and to sustain the current effort to improve the retention rate of our undergraduate students. Our performance goal is for each of our faculty to produce on the average one doctoral student every three years and one MS student per year. This goal will require a lot of commitment and hard work from our faculty members. With the current high level of research funding, I am very optimistic that we will meet this goal.

As a comparison, at Stanford University, a top-ranked research university, each of their faculty members produces about one doctoral and



four MS students per year. Both at Stanford and at UH, the number of undergraduate graduating students per faculty per year is about the same. However, our resources per faculty from the state and tuition revenues are only about half of Stanford's.

To be ranked in the top 50 engineering schools in the country, the size of the College also matters. As you well know, we have only three engineering programs under the College, but the actual size of our engineering programs at Mānoa is much larger than the three departments. For example, Ocean Engineering and the Hawaii Natural Energy Institute in SOEST are also engineering programs; and the Ocean Engineering Department in particular has produced many graduate engineering students.

Similarly, the Information and Computer Science Department is under the College of Natural Science; while the Molecular Biosciences and Bioengineering Department is under CTAHR. Water Resources and Research Center is under the Office of the Vice Chancellor for Research. If we can report all these engineering programs and activities at Mānoa together, the size of our engineering

programs can be doubled overnight in faculty numbers, in research funding, as well as in the number of graduate students. This unrecognized strength in engineering at Mānoa can be a great help, if recognized, in promoting our national ranking and reputation. This is the second major challenge with which we have to deal.

Q: Construction on the Mānoa Campus is happening at a record volume and pace. What is the College's plan in regards to the future space need in your vision?

A: The Holmes Hall facilities are insufficient to accommodate the growth of research in the College. In particular, the facilities in the Department of Civil and Environmental Engineering are too small to accommodate large-scale testing. The Mānoa Campus does not have space for such facilities. Unlike other urban research universities such as UC Berkeley, Purdue and Texas, we do not have off-campus sites to accommodate large-scale civil engineering research.

Since we have enormous need for additional space for growth, we have already developed a business plan for

the construction of an off-campus Civil Engineering Research Park consisting of several clusters, each of which will be developed in stages as the need arises.

The first cluster we have identified is the development of a large-scale testing laboratory in structural, geotechnical and transportation engineering. It will accommodate research in construction technologies relevant to both private and military housing, retrofit of deficient bridges, and new pavement.

The plan calls for us to raise funds required to build the CERP from both public and private sources. However, we will be financially responsible for the operation of this laboratory. Professor **Ron Riggs**, chair of our CEE department, has been leading this development since last fall. A detailed business plan has been developed, and more actions will be followed in due course.

Q: The strategic plan promotes the College's research and graduate program with similar emphasis to its undergraduate education mission. Why, in your view, should research and graduate education be seen as parallel in importance to undergraduate education?

A: Mānoa is a research campus and that is distinctive compared, say, to the Hilo campus or the community colleges. We have made it clear in our vision statement that taking the College to the next level must involve strengthening its research mission. We cannot become preeminent if we don't have a preeminent research and graduate education program—they go together. A quality graduate program will help significantly raise the quality of our undergraduate

“First-rate faculty attracts quality students and quality students attract quality faculty. Each is dependent on the other and together they bring excellence and prestige to the University. This is how we define ‘the next level’—what we mean by ‘preeminence’. This is something that the College can do, should do, wants to do, and must do.”

education. It will help enormously in attracting and retaining top-notch students in Hawaii.

There is a growing realization that the engineering workforce plays a central role in shaping the future of Hawaii's economy. There is a greater awareness by our State's leaders, public leaders, and private sector leaders, that the research mission at UH, and the College in particular, is really pivotal for this development.

As I mentioned previously, our research funding has reached \$8 million this year. This funding essentially supports research and graduate education, and has not diverted our current resources from our undergraduate education.

First-rate faculty attracts quality students and quality students attract quality faculty. Each is dependent on the other and together they bring excellence and prestige to the University. This is how we define “the next level”—what we mean by “preeminence”. This is something that the College can do, should do, wants to do, and must do.

Q: Because the size of the College is relatively small and resources are limited, the College must concentrate on the effort to strengthen the focused areas of research in the College. One of the focused areas of development in your strategic plan is the establishment of the Hawaii Center for Advanced Communications. What can you tell us now about the progress and achievements of this Center?

A: It took us two years to search nationwide for the right person to lead the Center. We made a spectacular choice and recruited Professor **Magdy Iskander** from the University of Utah to lead the Center. Magdy and I have worked together closely and in consortia. He has taken the Center to new levels of excellence that promotes multi-disciplinary research, international collaboration, and partnership with industry.

As a research unit, the Center places a significant focus of its activities and efforts on attracting research funding, recruiting doctoral students, and building research facilities. This year, the Center's funding reached a new high of \$1.2 million, or \$600,000 per faculty, with eight doctoral students, or four per faculty, an incredible achievement by any measure.

Last year, with a major research instrumentation grant from NSF, the Center established three leading-edge laboratories in wireless test-bed, microwave network analysis, and indoor antenna range. The Center also joined “Connection One,” a NSF sponsored multi-university program located at the University of Arizona, to conduct research in communications in partnership with other universities and industrial partners.

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To create a more entrepreneurial environment in Hawaii, and particularly in our College, the Center is working with colleagues from the business school to develop integrated graduate programs that will merge communications technology with entrepreneurship, management and policy. In addition, the Center is developing a distance learning graduate program, primarily targeting students on the neighbor islands.

To bring the research to our undergraduate students through the project-based learning process, the Center launched the Engineering Clinic Program two years ago. The program uses industrial support to enable teams of undergraduate students to do real world research projects. This program has provided better learning experiences for our students, who are the big winners.

Q: Throughout the UH system, all eyes are focused on the remarkable development of the medical school and biomedical research in Hawaii. What is your vision for the College's involvement in connection with this biomedical research development?

A: As we were thinking about future growth areas for the College, a consensus emerged that biomedical engineering research and education held great promise in Hawaii and the College in particular. There is significant interest and desire among existing and newly appointed faculty in the Department of Mechanical Engineering to build a research and teaching program focused on biomedical engineering.



A two-year business plan was developed to guide the department in its effort to develop the Biomedical Engineering Program: first, in the form of a biomedical graduate certificate program; second, in the form of an accredited undergraduate biomedical engineering program in the future. Professor **Bruce Liebert**, chair of our ME department, has been leading this development since last fall. The ME department will start to offer new courses and a seminar series for upper classmen and graduate students this fall.

Q: Is there any other department interested in biomedical engineering?

A: Yes, our Electrical Engineering Department has traditionally offered biomedical engineering courses. In fact, in EE, like ME, there is significant interest among existing and newly appointed faculty on biomedical research. This is why our proposed biomedical engineering program has a bright future in the College.

The current priority for our EE department is to develop an accredited computer engineering program within the department. The department has proposed to change its name to the

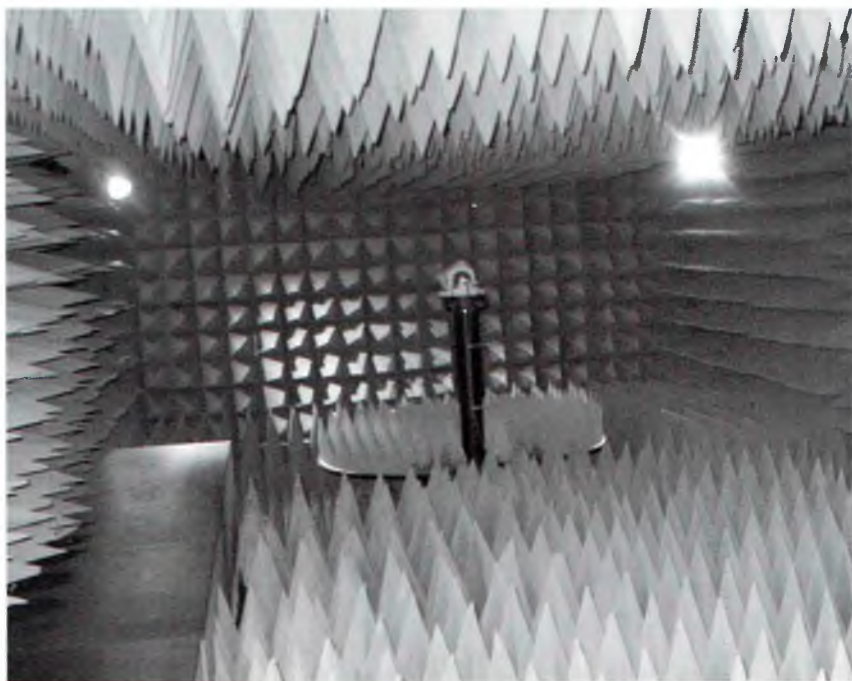
Department of Electrical and Computer Engineering to truly reflect the real interest and expertise of its faculty members. Professor **Galen Sasaki**, chair of our EE department, has been leading this development since last spring

Q: After six years as dean, how did you decide to step down at this time and what do you plan to do?

A: This is a good time for me to prepare to step down when the College is in very good condition. This would allow the Chancellor to have adequate time in searching for a new dean. I will not be going far! I have decided to take a six-month sabbatical leave after the appointment and start of a new dean, an option for an administrator returning to academic duty or near retirement.

I plan to stay at UH for a few more years as a research professor, and be actively involved in research activities, mentoring doctoral students, and working with some of our young faculty members in the Department of Civil and Environmental Engineering.

Thus, I am stepping down from the deanship with the satisfaction of having achieved the challenges and goals set up for me by the administration more than five years ago. In addition, I will leave behind a solid roadmap or blueprint for the College to continue reaching its goal of being ranked as one of the top 50 engineering schools in the country. And finally, I have the great fortune of having the opportunity to continue my life's work in the field that I have loved and will always love as a graduate research faculty here at UHM's research campus. 🌺



... to “be the leading Center for multidisciplinary research in the telecommunication technology with joint research and educational activities that promote national and international collaboration and partnership with industry.”

Hawaii Center for Advanced Communications

BY CARRIE MATSUZAKI WITH MAGDY ISKANDER



WHAT DO YOU WANT TO KNOW about micro and pico-cell wireless communications? How about phased antenna array with electronic beam steering? Maybe you’re interested in indoor/outdoor communications or site planning for a wireless communication network? Or are you a middle school teacher interested in knowing what teachers at Kawanakoa, Dole, and Keaau are doing to develop science and math programs related to wireless communications technology? Where do you turn to find answers to these questions?

... to HCAC, the Hawaii Center for Advanced Communications. HCAC was established with major funding from the Hawaii State Legislature and approved by the Board of Regents in 2000. A Center in Advanced Communication was the vision of **Shu Lin**, Professor Emeritus of the Department of Electrical Engineering at UH

Mānoa, IEEE Fellow, and internationally renown in the area Error Control Coding.

The Center’s goal is to “be the leading Center for multidisciplinary research in the telecommunication technology with joint research and educational activities that promote national and international collaboration and partnership with industry.” HCAC has begun to fulfill its mission with research and educational activities currently underway.

Since joining HCAC in 2002 as its director, **Magdy Iskander**, Professor of Electrical Engineering, has organized two IEEE international wireless communication conferences in Honolulu. The Center is presently preparing for a major conference, the IEEE Antennas and Propagation International Symposium to be held in June of 2007, which anticipates an attendance of 1500. Dr. Iskander is a Fellow of IEEE, former NSF Program Director in the

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Electrical and Communications Systems, and his research is in the area of integrating propagation modeling and smart antennas designs in developing next generation wireless communication systems.

Although only a few years old, HCAC has attracted over \$1.4 million in extramural funding this year alone. The Center research sponsors include the National Science Foundation, Army Research Office, Office of the Navy, and five major corporate sponsors. HCAC is working on innovative simulation and RF design projects with Raytheon, Motorola, Kyocera Wireless, Corning and BAE Systems. The Center is a partner in the NSF

wireless communications test bed, and a microwave test and measurement laboratory. "It has been extremely satisfying to work with such dedicated and experienced science teachers. They have been able to quickly learn, apply and infuse communication technology effectively into their programs. The result has been motivated and excited students. Creating that enthusiasm is a critical step in maintaining a student's interest in math and science and hopefully will carry them forward to studies in engineering," stated Iskander.

Additionally, the Center is launching a distance learning graduate program in communications. In collaboration with the Pacific Asian Center for Entrepreneurship




Industry/University Collaborative Research Center in telecommunications "Connection One" with the University of Arizona, Arizona State, and Rensselaer Polytechnic.

HCAC's outreach activities with the community include working with three middle school teachers to establish a "wireless curriculum". These efforts are funded in large part by the National Science Foundation. The teachers with the assistance of HCAC graduate students have implemented wireless communications into their science enrichment programs and curriculum. Both teachers and students have also been to UH observing HCAC experiments, touring state-of-the-art facilities including an indoor antenna range,

& E-Business in the College of Business, HCAC is developing a distance learning graduate certificate in telecommunications and entrepreneurship.

"This is an exciting time for Hawaii to be participating and contributing in the area of Advanced Communications. We look forward to working closely with the academic, industry, and education communities to keep Hawaii at the forefront of innovation and opportunities," remarked Iskander.

If you have additional questions about telecommunications, please access HCAC's web site at <http://hcac.hawaii.edu> or contact Magdy Iskander at 956-3434. 

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2004-2005**

This report acknowledges all donors from July 1, 2004 to June 30, 2005. We have made every effort to report each donor name as accurately as possible. Please inform us of any errors so that we can promptly update our records. Some alumni and friends who support other UH colleges are recognized through publications of those colleges. If you want to support the College of Engineering, please indicate so on your next gift.

Message from the Dean

Dear Alumni and Friends,

We are very fortunate to have generous supporters who have allowed us to develop and sponsor a variety of programs to build our College. Your donations are being used for many activities, such as scholarships, outreach programs for K-12 students, convocation ceremonies for our graduating students, teaching awards for dedicated faculty, travel for students to national competitions and conferences, and many, many more. The list is long, and the student benefits are even more astonishing!



As we are the only accredited engineering program in the State of Hawaii, the College has the responsibility to provide the absolute best education and opportunity for our students to succeed in this global economy. To this end, we specifically support a number of student activities, ranging from scholarships to project funds. We would like to continually increase this support with more scholarships, funds for student projects, student travel grants, student activities center, and other activities which enhances the student's engineering experience. We have already received commitments for new scholarships for which we are extremely grateful.

With your generous support, we will continue to maintain an excellent program. If you have any concerns, comments, and/or suggestions, please do not hesitate to contact us at (808) 956-7727, e-mail us at "alumni@eng.hawaii.edu", or simply drop by our office. It will be our pleasure and privilege to hear from you.

On behalf of the entire College of Engineering, I would like to personally thank you for your continued support and wish you the best for the upcoming holiday season!

Wai-Fah Chen
Dean

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WHAT IS BEING DONE TO Increase Enrollment and Retention at the COLLEGE OF ENGINEERING?

BY MARVIN NITTA WITH SONG K. CHOI

In September, Marvin Nitta, the senior reporter for the *Quadrangle*, had a chance to sit down with Dr. Song K. Choi to discuss issues regarding the College's enrollment, retention, and future plans. This is a summary of the discussion.

The Attention towards Retention

RETENTION IS A PROBLEM that schools and universities around the country face, including the College of Engineering.

Over the past year, the College has been ramping up its efforts in retention, developing ideas that will help improve the retention rate of undergraduates.

Student Activities Center

Last month, work began on the student activities center, which will be located on the second floor of the Pacific Ocean Science and Technology (POST) Building, across from the College of Engineering's Hewlett Packard Computer Lab.

The center was possible thanks to a generous donation from the Walter Lum Foundation, which provided \$680,000 for the center and engineering scholarships.

It will consist of three rooms: A classroom-style room, with an LCD projector and conference table, which will allow students to hold meetings and practice presentations; a study room with cubicles; and a recreation lounge with couches, giving students an area to relax.

Students will have wireless internet access and a library of textbooks to use. Also, since there are other offices and departments in the POST Building, the area will be sound-proofed.

Orientation Luncheon

To help incoming freshmen and transfer students feel more comfortable, the College has established an orientation luncheon for them on the weekend prior to the first day of fall classes.

The first ever luncheon was held just prior to the start of the semester on August 20, 2005 and gave incoming students the opportunity to meet their peers, staff, and faculty, talk to upper classmen, learn about the student professional societies, and get a feel of what it's like as an engineering student.

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“This was a great event,” said Song K. Choi, Assistant Dean of the College of Engineering. “Many of the incoming students left extremely excited about school and much more knowledgeable about the program that is being provided for them at the College. I think this will become an annual event geared more and more towards ease of transition not only for the students but even for the parents.”

Scholarships

For some students, they are unable to focus on their studies because they may have to work at a job to pay for tuition. Over the past year, the College has gained some valuable scholarship funds to help engineering students pay for their education and allow them to concentrate on school.

Some of the scholarships include:

(1) The Thomas Keola Ashing Scholarship was established to assist students in the civil and environmental engineering. This scholarship honors Thomas Ahsing, a knowledgeable contributor to the concrete industry as well as an accomplished hula dancer; (2) The Walter Lum Scholarship was established for Civil Engineering students. This scholarship is in memory of Walter Lum, who was an outstanding civil engineer.



(3) The Arthur Chiu Scholarship was also established for civil engineering students. This scholarship honors Arthur Chiu, who is an emeritus professor in the Department of Civil and Environmental Engineering. And, other scholarships from major national companies, such as Lockheed Martin/Orincon, the Science Applications International Corporation (SAIC), and Northrup Grumman.

Career Day

Career Day was usually an event only held in the fall, but last spring the College expanded it to include one during the spring semester. Fifty-one companies participated in the spring Career Day, making it one of the largest Career Day events ever at CoE, UHM. For the fall event, the College is expecting more than 60 companies.

The College's Career Day is an event that not only benefits upper division students in their search for full-time job opportunities, it also allows lower division students to gain some insight into the engineering profession and learn about all the job opportunities available to them, such as internships and cooperative education programs.

Student Engineering Projects

Engineering students at the College have a unique opportunity to participate in a wide variety of student-organized projects they are able to work on for regional competitions, like Micro-Mouse, Concrete Canoe, Human-Powered Vehicle, and Mini-Baja. These projects allow students to take what they learn in class and apply it to something tangible.

It's also a great way for freshmen and sophomores to work with upperclassmen and create bonds with each other.

Each of the student professional organizations at the college has their own projects, but there are plans to expand the number of student engineering projects to possibly include projects for space and underwater competitions.

The College hopes that these efforts will create a welcoming and nurturing environment that will help students to succeed. 🌟



Expanding the Civil and Environmental Engineering Department with CERP

BY MARVIN NITTA
WITH RONALD RIGGS

“THE CIVIL ENGINEERING RESEARCH PARK has several purposes,” says Civil and Environmental Engineering Department Chair, **Ronald Riggs**. “It will provide a state-of-the-art research facility for us to expand our research program, help our graduate education program grow, allow our undergraduates to gain more research experience, and be used as a magnet to attract high quality faculty, researchers, and students.”



The construction of CERP will also help the engineering workforce grow to meet the demands of the private and public sectors; help the College of Engineering obtain its goal of becoming one of the top engineering schools in the country; and bring an increased amount of research dollars into the College.

Several locations close to the Mānoa campus on university-owned land have been considered for the project.

According to Dr. Riggs, an ideal site would have to be within a reasonable driving distance from campus, since faculty and students would have to commute between campus and CERP every day.



WITH THE LACK OF SPACE AT HOLMES HALL, THE CIVIL AND ENVIRONMENTAL ENGINEERING DEPARTMENT IS CURRENTLY WORKING TO CONSTRUCT A MAJOR OFF-CAMPUS CIVIL ENGINEERING RESEARCH PARK (CERP).

The facility has been designed to accommodate large-scale testing in structural, geotechnical, and transportation engineering, which is impossible to conduct in Holmes Hall.

It will also have controlled environmental chambers for testing under various specific environmental conditions; be able to accommodate research in construction technologies relevant to both private and military housing, retrofit of deficient bridges, and new pavements; and house other research programs, such as the Pacific Transportation Research Center.

CERP is also designed to be able to accommodate other possible engineering research programs, like corrosion and ocean engineering research.

The initial funding for designing, constructing, furnishing, and equipping the state-of-the-art 68,000 square foot facility is expected to cost about \$25 million, which will be raised by the College through both private and public sources.

However, once operational, CERP is designed to be self-sufficient. Operational costs will be covered by the charges for research projects and conducting tests for companies and organizations.

By its second year, CERP is expected to be profitable. 🌱

A Major Effort for Minority Participation in Engineering

BY MARVIN NITTA WITH JOSHUA KAAKUA

ABOUT FOUR YEARS AGO, the percentage of Native Hawaiian and Pacific Islander students at the College of Engineering was at about six percent. However, today that percentage has jumped significantly to over twelve percent due to the College's Minority Engineering Program.

The program was started with the National Science Foundation's Lewis Stokes Alliances for Minority Participation (LSAMP) grant, which promotes minority participation in the science and technology fields.

"It's an interesting grant," says Minority Engineering Program Coordinator **Joshua Kaakua**, "Because it's a joint effort between the College of Engineering and the Center for Hawaiian Studies."

The grant's principal investigator is the College of Engineering's Director of Academic Affairs, **Tep Dobry**, and the co-principal investigator is **Lilikala Kame'eleihiwa**, Director of

the Center for Hawaiian Studies at the University of Hawai'i at Mānoa.

"Lilikala is a big supporter of the program," Joshua says, "Because she not only wants to increase enrollment in Hawaiian Studies and Language, but also in the science and health fields. She sees the importance of having more Native Hawaiian students in these fields."

UH's program is part of a four school alliance that also includes the University of Alaska at Anchorage, University of Alaska at Fairbanks, and the University of Washington.

The program at the University of Alaska at Anchorage is just one example of how successful it has been in bringing in more indigenous people into the field of engineering. Within a nine-year span, the number of Native Alaskans in their engineering program jumped from just one student to near fifty percent enrollment of Native Alaskans.

Currently, there are over 40 Native Hawaiian students in the UH College of Engineering's program. However, within three years, Joshua hopes the number of Native Hawaiian students in the College will increase to over fifteen percent of enrollment.

The program is not only about encouraging Native Hawaiian and Pacific Islander students to study engineering, but it also helps to retain those students, through tutoring, weekly activities, awards, and scholarships.




There are weekly mandatory help sessions, which are led by upper-classmen in the program, to assist students with their math and science courses. There is also an effort to enroll students into all the same classes so they can help each other study.

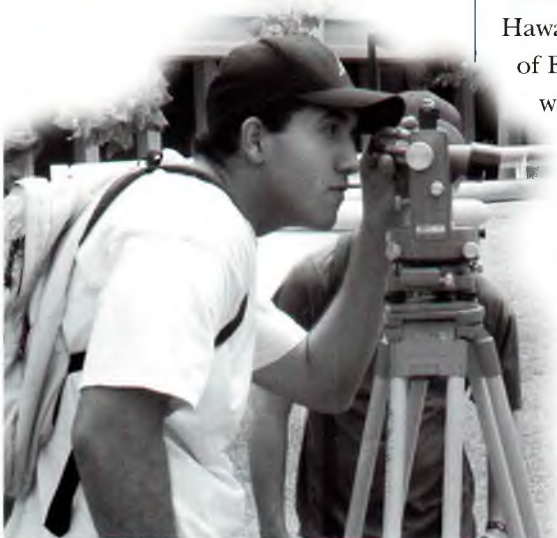
Since the program started, it has retained over 70 percent of its students.

There is a social aspect to the program as well, but the core of the program is around academics.

Every year, a group of students in the program have gone to Kahoolawe to learn from engineers about the various projects being done on the island. The students also participate in the clean up and restoration of the island. "Kahoolawe is a good place for the students to visit because it is a piko, or a center for engineering and the island is a center for Hawaiian culture," says Joshua.

Another group of students were able to visit another important scientific and Hawaiian site, the summit of Mauna Kea.

"The whole goal of the program is for students to be not only good scientists and engineers, but good Hawaiians, as well. We want them to walk in both worlds," Joshua said. 



All the students participating in the 2005 College of Engineering Summer High School Internship are a year away from attending college. However, they all **got a taste** of what it's like to be an **engineering student** and **experience engineering research** at the collegiate level.



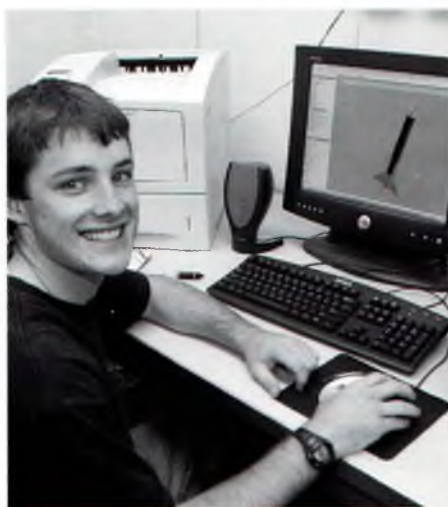
2005 College of Engineering Summer High School Internship

BY MARVIN NITTA AND
LAURA SHIMABUKURO

TWENTY-SIX STUDENTS FROM AROUND THE STATE participated in this year's internship. They were placed in areas that they were interested in and were mentored by faculty, researchers, and engineering students.

Randall Balais from Waipahu High School and **Arlyn Ramos** from Farrington High School worked with Civil and Environmental Engineering Professor **Panos Prevedouros** in the Transportation Laboratory.

Jennie Castillo from Kapolei High School, **Jonathan Kobayashi**, and **Jessica Yee** from McKinley High School, **Anthony Lo** from Maryknoll High School, **Bryce Nagareda** and **Angelo Subia** from Waipahu High School, and **Shaun Ueda** from Kalani High School worked in the Autonomous Systems Laboratory with Assistant Dean **Song K. Choi** and Research Scientist **Giacomo Marani**.



"While in the Robotics Lab, the most valuable part was the chance to apply concepts, especially in math, to something tangible. It tests the skills you've acquired in high school, really showing you how well you've actually learned that skill," Jennie said. **Luke Dryer** from Maui High School, **Neal Pang** from Roosevelt High School, **Sarah Runnells** from Keaau High School, and **Melissa Yuen** from Iolani School worked with Mechanical Engineering Professor **Mehrdad Ghasemi Nejhad** in the Composite Manufacturing Laboratory.

Evan Higa from Kalani High School, **Raymond Machi** from Iolani School, and **Owen Matsunobu** from Maui High School worked with Civil and Environmental Engineering Professor **Michelle Teng** in the Hydraulics Laboratory.

Dane Inouye from Waipahu High School and **Stephanie Ko** from Mililani High School worked in the Corrosion Lab with Mechanical Engineering Professor **Lloyd Hihara**. **Brent Kutara** and **Kevin Sin** from Iolani School and **Shaunty Kleinschmidt** from Kamehameha Schools worked on satellites with Electrical Engineering Professor **Wayne Shiroma**.

"The most valuable part of my experience was getting to work hands-on on the projects. Unlike school, the projects allowed my group to use our creativity and our own thinking more because there wasn't one set solution," said Kevin.

Jonathan Lindstrom from Nanakuli High School and **Matthew Michihara**

—continued on page 12

COLLEGE OF ENGINEERING'S

Bio-Medical Engineering Program


BY RYAN OKAHASHI WITH CARLOS COIMBRA

PHOTO: DR. LILLY LAIHO

RECOGNIZING THAT THIS WILL BE THE CENTURY OF BIO-MEDICAL ENGINEERING, the College of Engineering through the Department of Mechanical Engineering is preparing a number of initiatives to capitalize on the expertise of current faculty and to recruit new talents in the area. As an emerging field with plenty of opportunities and challenges, Bio-Medical Engineering has received much attention and research funding in the current decade. As a case in point, the 2004 discretionary budget approved \$28 billion for the National Institutes of Health, while the budget for the National Science Foundation (which also funds biomedical and bioengineering initiatives) and NASA combined fell below \$22 billion (around \$5.5 billion to NSF and \$16 billion to NASA).

The main objectives of the graduate programs in Bio-Medical Engineering, led by Mechanical Engineering Professor **Carlos Coimbra**, that are now being planned by the CoE are: 1) to fully develop a BME department that will contribute to human health and healthcare practice through basic and applied research, 2) to recruit and retain successful faculty, research staff and students, 3) to foster an environment conducive of elevating UH to a position of prominence in BME research, and to catalyze the growth of the bio-tech industry in Hawaii, and 4) to address bio-Medical issues that are unique of the people of Hawaii, and to promote outreach programs that will allow under-represented groups in Hawaii to participate in the bio-tech and healthcare industries.

Bio-Medical engineering is a multi-disciplinary field. It involves the use of engineering methods to understand, develop and promote better medical science and practice. Representative areas of expertise for which our faculty are currently engaged in research include (but are not limited to): Bio-Sensors, Tissue Engineering, Bio-Medical Instrumentation, Medical Robotics, Bio-Rheology, and Bio-inspired Design.

Currently, the Mechanical Engineering Department is offering graduate courses of interest such as Introduction to Bio-Medical Engineering, Bio-fluids, and Shape and Optimization. The ME department has requested an Authorization to Plan a Graduate Certificate Program in Bio-Medical Engineering for students enrolled in the MS or PhD program in Mechanical Engineering. Under this proposed program, a graduate student can receive a certificate in Bio-Medical Engineering after completing 15 credits of specific focus areas courses in BME, and successfully completing a MS Thesis or PhD Dissertation. The certificate program is a first step in the direction of developing a full graduate program in Bio-Medical Engineering (MS and PhD) in the CoE. A committee made of faculty from ME, ECE, CEE, BE (CTAHR) and the Medical School (JABSOM) is now being assembled to propose and develop a graduate program (and eventually a new Department of Biomedical Engineering) that will be truly multi-disciplinary in nature, and that will accomplish the four main objectives of the BME program mentioned above. 

High School Internship
—continued from page 11

from Hawaii Baptist Academy worked with Electrical Engineering Professor **Olga Boric-Lubecke** on heart sensing experiments.


Daniel Nakagawa from Punahou School worked with Civil and Environmental Engineering Chair **Ronald Riggs** on computational engineering.

Jordan Onuma from Hawaii Baptist Academy worked with Mechanical Engineering Professor **Carlos Coimbra** in the Multiphase Flow Laboratory.

Michele Yoshida from Kailua High School worked with Civil and Environmental Engineering Professor **Chittaranjan Ray** in the Environmental Engineering Laboratory.

"I think that there were two valuable parts to my experience," says Michele, "One, I was able to understand what an Environmental Engineer does, and two, I got to experience what college life was like by walking around the campus, catching *The Bus*, and meeting college students."

All of the interns enjoyed their experiences. "What helped me the most during this internship were the people. The mentors were great. They taught us well, enough to provide us with the knowledge to compete our tasks," said **Jennie Castillo**.

The internship was an opportunity for these high school students to take a behind the scenes look of what it is like to work on research at the university level. It was also an opportunity for the interns to see how our engineering faculty and students make an impact in many areas of society. Hopefully, these interns will also want to make an impact in engineering and continue their studies at the UH College of Engineering. 



Electrical Engineering Mentoring Success

BY FAYE YUEN WITH WAYNE SHIROMA

BLAINE MURAKAMI IS THE THIRD UH STUDENT IN FIVE YEARS to be honored with the prestigious Alton B. Zerby and Carl T. Koerner Outstanding Electrical and Computer Engineer Student (OECES) Award.

The OECES award, presented by the electrical and computer engineering honor society, Eta Kappa Nu, recognizes scholastic excellence, moral character, and community service among engineering undergraduates throughout the nation.

Electrical Engineering Professor **Wayne Shiroma** had mentored Blaine since his junior year at Mililani High School where his reputation for being a hard worker had already been well established. "Potential is always in the student. You're providing the opportunities for the student to realize that [potential]" said Shiroma, who had also mentored past recipients of this award, **Kendall Ching** (2001) and **Aaron Ohta** (2003).

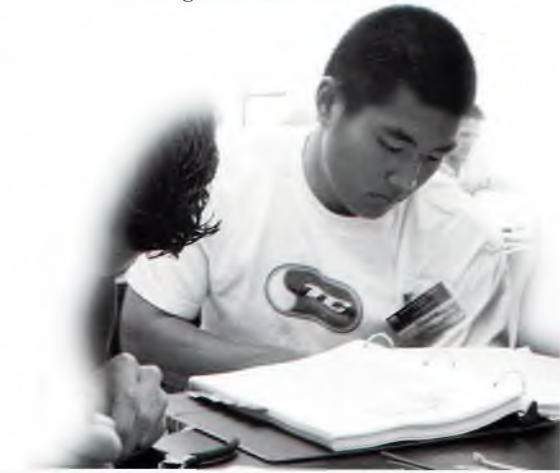
Blaine's potential to become a "top notch" engineer flourished as he entered the University of Hawai'i's College of Engineering. During his four years of undergraduate studies, Blaine was named a UH Regents Scholar, a NASA Undergraduate Fellow, had co-authored a book chapter and presented 13 conference papers. His engineering smarts and business savvy led him to co-found Pipeline Communications and Technology Inc., which was recently awarded a competitive Navy contract of over \$250,000.

Actively involved in the student chapters of the professional societies while pursuing his individual research projects has made Blaine well known and respected among his peers. As principal student investigator, he had led a team of 30 electrical and mechanical engineering students in the design, building, and testing of two picosatellites for a low-earth orbit launch.

His ability to inspire can also be seen on the soccer field where he coaches youth soccer for the Hawaii Youth Soccer Association. "Blaine is the kind of guy that excels in everything that he does, whether it be academics or athletics. His passion for engineering is as strong as his passion for surfing," says fellow student and surfing buddy, Justin Roque.

Graduated this spring, Blaine heads off to California to start his exciting career as an engineer.

Mentors such as Dr. Wayne Shiroma will continue to provide the opportunities for leadership growth and engineering experience that will help many more students reach their fullest potential. 🌊



2004 - 2005 GRADUATES

CIVIL ENGINEERING

Doctor of Philosophy

Edison Gica
Lin Zhang

Master of Science

Kainoa Aki
Matthew Alonzo
Arnaud Bossuyt
Kur-Yi Chang
Yingyot Chanthawornsawat
Jiabao Chen
Delwyn Ching
Sushant Dhal
Krispin Fernandes
Kathleen Horgan
Donn Kakuda
Scott Kawai
Gavin Masaki
Clifton Miyasaki
Kason Pacheco
Richard Pringle
Atiim Senthill
Thomas Taam
Rommell Tanglao
Albert Tiberi
John Uno
Marlon Viernes
Shujun Wang
James Watson
Wei Xia
Lan Xiao
Huiyun Zhang

Bachelor of Science

Samuel Andales
Loreto Cristobal
Jesse Elliott
James Enoka
Andrew Felkel
Bryan Gallagher
Garon Hamasaki
Jarrett Hara
Garret Hashiro
Iris Hew
Wa Lok Hoi

Chris Honda
Lauren Ishima
Micah Komine
Steven Lam
Flormina Lapurga
Kevin Lorenzo
Michael McCreary
Dustin Moises
Dustin Nohara
Nathan Papini
Maria Shiela Rivera
Jason Seidman
Uaealesi Sipelii
Amy Taniguchi
Winston Taniguchi
Emi Tanitomi
Eric Tashima
Thuydu Tran
Michael Vilorio
Julie Wong

ELECTRICAL ENGINEERING

Doctor of Philosophy

Jianhan Liu
Claudio Talarico

Master of Science

Jodie Bell
Jing Cao
Gautam Chindarkar
Joo Perng Chong
Xiangang Li
Hua Lin
Ray Jong Park
Kate Shintani
Grant Shiroma
Chenyan Song
Rory Sorensen
Xiaogang Wang
Bin Wei

Bachelor of Science

Miguel Abdala
Roy Agpaoa
Jeong-Hwan Bang
Riley Ceria

Ming Xi Chen
Kevin Chiogioji
Jason Chung
Kevin Chung
Jason Chung
Paul Cornn
Felma Duque
Ragui France
Chad Fukumoto
Shirley Gates
Laura Ha
Ryan Karamatsu
Scott Kawakami
Jason Kuan
Christopher Langdon
Steven Lee
Jason Lee
William Mar
Thomas Mizuno
Nathan Momohara
Jamie Morgan
Jack Munechika
Blaine Murakami
Mandy Nakatani
Martin Nguyen
Alison Oasay
Francisco Otibar
Craig Oyama
Sang Yong Pae
Carissa Pesquera
Izaak Richeson
Reece Tokunaga
Tri Trang
Steven Williaon

Shelley Yamada
Brandon Yoshimoto

MECHANICAL ENGINEERING

Master of Science

Christina Kulinski
Prasath Mungundu Sugadev
Manuel Munoz Hardy
Alexander Niemi
Lynnette Ramirez
Cory Soon

Bachelor of Science

Armand Baclic
Michael Bicoy
Bridget Cantu
Robin Ferguson
Glenda Grande
Suk Hong
Jesse Imamura
Michael Jose
David Katsuda
Jasen Kaya
Christopher Kinoshita
Scott Lee
Ryan Lyum
Naomi Ogawa
Michael Parker
Howard Richards
Lyrrisa Sagawa
Blake Sato
Abel Siu Ho
Beth Yamanouchi
Lance Yoneshige

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Or email us at: alumni@eng.hawaii.edu

1) Name of person submitting news; 2) Name of person regarding news; 3) Graduation year and department of person regarding news; 4) News to be posted; 5) Contact information



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