Tulane University
School of Engineering
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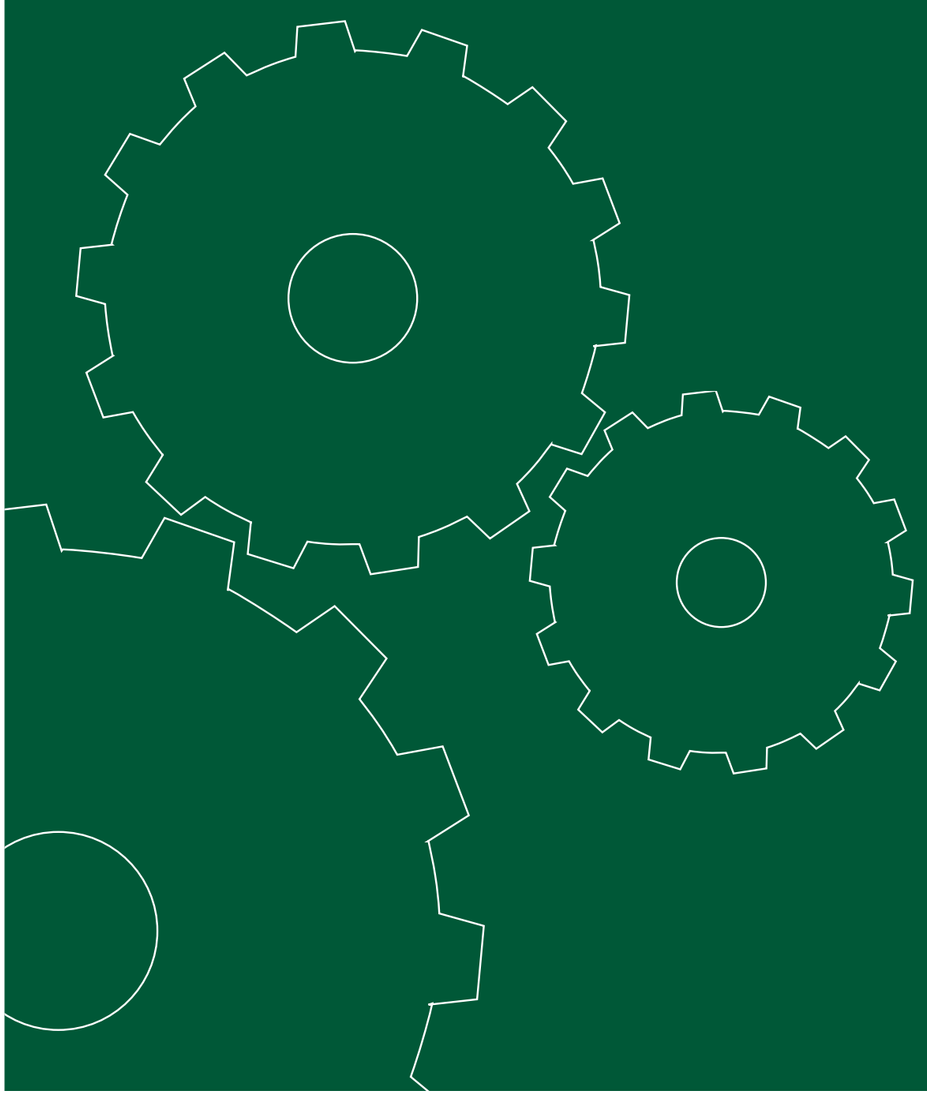
New Orleans, LA 70118



Tulane University

2002 ANNUAL REPORT

ENGINEERING

EXCELLENCE IN EDUCATION
INNOVATION IN RESEARCH

SCHOOL OF ENGINEERING

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WE ARE MORE COMMITTED THAN EVER TO EXCELLENCE AND INNOVATION

It is with great pleasure and enormous pride that we present this report on the activities of the Tulane University School of Engineering during calendar year 2002. This is the first time in recent memory that we have published such a report and it is really quite a shame that we have been remiss in doing so. Our School of Engineering, established in 1894, enjoys a rich tradition of high quality undergraduate and graduate education, cutting edge scholarship, and extensive professional and public service. An annual report such as this is an excellent way to chronicle our achievements and their relevance in the world of engineering and science. It is our intention to hereafter publish such a report at the end of each calendar year.

The School of Engineering at Tulane University is not large. As we began the current academic year in the fall of 2002, our ranks consisted of 54 faculty members, 22 staff members, and approximately 700 undergraduate and 200 graduate students. Despite this modest size, we have enjoyed a remarkable level of productivity and international recognition. We also welcomed our most qualified freshman class ever, as measured by average high school class rank and average cumulative SAT score.

We received word that all six undergraduate programs that had been reviewed in the fall of 2001 by the Accreditation Board for Engineering and Technology (ABET) were successful in receiving accreditation under the new EC 2000 outcomes-based criteria. Efforts toward greater diversity in enrollment began to show remarkable results. Research grants and contracts awarded to the school by government and industry nearly doubled over the previous fiscal year. And generous gifts from alumni and friends, allocated directly to the School of Engineering, have seen growth thanks to our Endowment funds. These are but highlights in a year marked by research breakthroughs in advanced materials, bioengineering and technology, energy and environment, and information technology and computational science – all spearheaded by our School of Engineering.

We hope that you enjoy reading about the achievements of our school during the past year. We are certain that you will see why we take such great pride in being one of America's best engineering schools at one of America's greatest universities.

Nicholas J. Altiero

Dean Altiero outlines a vision for the School of Engineering.

3RD ANNUAL TULANE ENGINEERING FORUM

The Tulane Engineering Forum, sponsored by the School of Engineering and the Society of Tulane Engineers, held a very successful 3rd Annual Forum in September 2002 and provided an opportunity for professionals to learn from industrial and academic experts at this one-day conference. This year's topic was *National Energy Policy and the Future of Energy Production,* and featured a panel of distinguished industry and government officials. Also featured were concurrent sessions focusing on construction/ maintenance, information technology, manufacturing, petrochemical, power and transportation. Engineers in attendance were able to earn six professional development hours.

The 2003 Tulane Engineering Forum will be held Friday, September 26, 2003 at the Hilton Riverside and Towers in New Orleans.

Read more about speakers, topics and register online at www.eng.tulane.edu/tef.

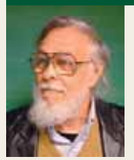
RECOGNIZING EXCELLENCE IN TEACHING AND AWARDING OUTSTANDING RESEARCH

2002 LEE H. JOHNSON EXCELLENCE IN TEACHING AWARD RECIPIENT

PROFESSOR KYRIAKOS PAPADOPOULOS

Kyriakos Papadopoulos is a Professor of Chemical Engineering at Tulane University, having joined its faculty in 1981 and having served as department chair from 1998 to 2001. He received his BS (1978), MS (1980) and DEngSc (1982) in chemical engineering from Columbia University. His industrial experience includes Merck Sharpe & Dohme Research Laboratories (Summer 1985) and Eniricerche (June 1987-July 1988). His research is in the stability of dispersions and their transport through porous media. A member of the Editorial Board of Colloids & Surfaces, Dr. Papadopoulos has developed the "capillary video-microscopy" technique that has uniquely led to the visualization of several new phenomena, on which he has published in the last nine years. He has taught a variety of undergraduate and graduate courses. In addition to being the recipient of the 2002 Lee H. Johnson Excellence in Teaching Award, which he also received in 1990, he has been honored with four departmental awards and one campus-wide teaching award at Tulane.

2002 OUTSTANDING RESEARCHER AWARD RECIPIENTS



PROFESSOR FREDERICK E. PETRY

Dr. Fred Petry received BS (Loyola University) and MS (Louisiana State University) degrees in physics and a PhD in computer and information science from The Ohio State University in 1975. He has served on the faculties of The University of Alabama in Huntsville and The Ohio State University, and is currently a Professor in the Department of Electrical Engineering & Computer Science. His recent research interests include representation of imprecision via fuzzy sets and rough sets in databases, GIS and other information systems, and artificial intelligence including genetic algorithms. His research has been funded by NSF, NASA, DOE, NIH, and various DOD agencies, as well as industry. He has directed 20 PhD students in these areas in the past 15 years.

Dr. Petry has over 280 scientific publications including nearly 100 journal articles/book chapters and five books written or edited. His monograph on fuzzy databases has been widely recognized as the definitive volume on this topic. He is currently an associate editor of IEEE Transactions on Fuzzy Systems, Neural Processing Letters and area editor of information systems for Fuzzy Sets and Systems and has been general chairperson of several international conferences. He received the K.S. Fu Award from NAFIPS in 1986 and was selected as an IEEE Fellow in 1996 for his research on the use of fuzzy sets for modeling imprecision in databases.

PROFESSOR NATALIA A. TRAYANOVA

Dr. Natalia Trayanova joined the faculty at Tulane School of Engineering in 1995. She is currently a Professor of Biomedical Engineering and the Director of the Computational Cardiac Electrophysiology Laboratory. She received her MS degree in physics from Sofia University, Bulgaria in 1980 and a PhD from Bulgarian Academy of Sciences, Sofia, Bulgaria (section in bioengineering) in 1988. She was a Postdoctoral Fellow and Research Assistant Professor at Duke University from 1988 to 1995. Her broad research interests center around understanding the normal and pathological electrical behavior of the heart. The majority of her current externally funded research focuses on ventricular defibrillation. Her research is currently supported by NIH (2 grants), NSF, and the American Heart Association (2 grants, including the Established Investigator Award). She has also received funding from industry and the Whitaker Foundation.

Dr. Trayanova is the author of more than 150 scientific publications including approximately 80 refereed journal articles and book chapters. She is currently an associate editor of the IEEE Transactions on Biomedical Engineering, and serves as a reviewer to 17 scientific journals. Dr. Trayanova is also a reviewer to federal granting agencies such as NIH (CVA Study Section) and NSF. In 2002 she was awarded a Distinguished Fulbright Visiting Professorship at the University of Oxford, UK. She has also received numerous teaching awards.

LEE H. JOHNSON EXCELLENCE IN TEACHING AWARD

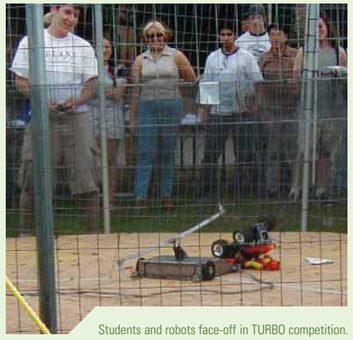
This award was established in 1976 by the Society of Tulane Engineers to recognize teaching excellence by a member of the School of Engineering Faculty. In 1980 the Society changed the name to the Lee H. Johnson Excellence in Teaching Award as a tribute to Dean Johnson upon his retirement after serving as dean for 22 years. It is presented each spring at the Society of Tulane Engineers Awards Banquet.

OUTSTANDING RESEARCHER AWARD

Recognizing the need to honor deserving scholars and to increase the visibility of the school's research activity, the Outstanding Researcher Award was established in 2001 by the faculty of the School of Engineering upon the recommendation of the School of Engineering Research and Graduate Studies Committee. The Award is given according to the following criteria:

- The quality and quantity of publications, with particular emphasis given to archival publications, research treatises and citations of published work.
- The total amount of research funding.
- The contributions to the mission of the university in graduate education, training and mentoring, including graduate students and post-doctoral scholars.
- National and international recognition as evidenced by honors and awards, journal editorships and participation in editorial boards, national and international scientific committees and boards, and professional patents.

UNDERGRADUATE



Students and robots face-off in TURBO competition.

E-WEEK KICKS OFF YEAR OF E-VENTS

March 11-15, 2002 saw **Engineering Week** hit the scene. Hosted by the Engineering Student Council (ESC), the week began with a "cheap pizza" lunch and ended with a crawfish blowout and faculty auction. Sandwiched in between were events ranging from a presentation by Keynote Speaker **William Conway**, Chairman and CEO of Modjeski and Masters, Inc. to special activities for high school students hosted by Tulane engineering student organizations. A special event involved our students serving lunch to the homeless at the Ozanam Inn Shelter.

ENGINEERING STUDENTS CONTINUE THE TRADITION OF LEADERSHIP

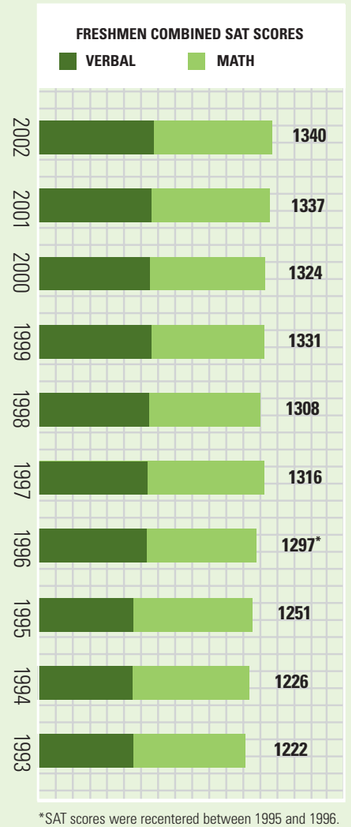
The Tulane Engineering and Computer Science Honor Society (TECHS) was extraordinarily active this year. In addition to their usual activities of hosting prospective students and mentoring new freshmen, TECHS organized the second annual Tulane University Robotic Battle Olympiad (TURBO) during E-Week. Contestants designed and built robots to meet constraints of cost, size, and power. Teams from Tulane, Xavier, and Dillard Universities competed in a series of timed events in which robots battled to the death. In October, the TECHS Charity Shindig raised $1200 to buy new band uniforms for Woodson Middle School.

A new organization, the Society of Hispanic Professional Engineers (SHPE) was chartered in fall of 2002. In spite of being a new organization, it has been quite active, hosting a series of social events, outreach dances, resume workshops (with NSBE) and tutoring at the New Orleans High School of Science and Math.

The National Society of Black Engineers (NSBE) has been very active and has gained a new corporate sponsor, Schlumberger. ABC 26 news featured the Black Inventors' Display at Tulane's Black Arts Festival. Twelve students attended the Spring Regional Conference in February, winning the Academic Tech Bowl Championship (**Jamie Granger Austin**, **Darryl Dickerson**, **Fatima Otori** and **Aisha Otori**) and taking third place in Undergraduate Technical Research (**Darryl Dickerson**). Twenty-three members attended the National Convention in March 2002. **Nina Watson** was a scholarship winner and **Bryan Harrell** placed second in the Regional Hype Contest. NSBE has an active outreach program running a pre-college initiative at St. Augustine High School and organizing a new chapter at Redeemer Seton High School.

Campus-wide, engineering students continue to excel. **Laura Pennebaker** (CS) is serving as Chief of Staff and **Darryl Dickerson** (BME) as Chief Financial Officer of the Associated Student Body, which represents undergraduate and graduate students to the University administration. **Matt Pang** (EE) was elected president and **Janelle Bakke** Vice President for Public Affairs of the Undergraduate Student Government.

Society of Women Engineers' Big Sister/Little Sister reception during orientation.



*SAT scores were recentered between 1995 and 1996.

INDIVIDUALLY DESIGNED MAJORS

Dr. Walker with IDM student, Ginger Spencer

The Engineering Science major was re-engineered in 2002, emerging with a new focus and a new name: **Individually Designed Majors (IDM)**. Under the old design, students enrolled in a mandatory menu of required courses, ranging from Heat Transfer to Circuits to Chemical Engineering Design. Only seven slots for career-relevant elective courses were open.

The new program allows enormous flexibility in the choice of science, technical, and liberal arts. The major boundary condition is that a student's self-designed major must meet the distribution requirements of at least 48 hours of engineering topics and 20 hours of humanities and social sciences, in addition to math and science courses. A faculty committee, with one representative from each of the school's five departmental units, approves of each proposed IDM.

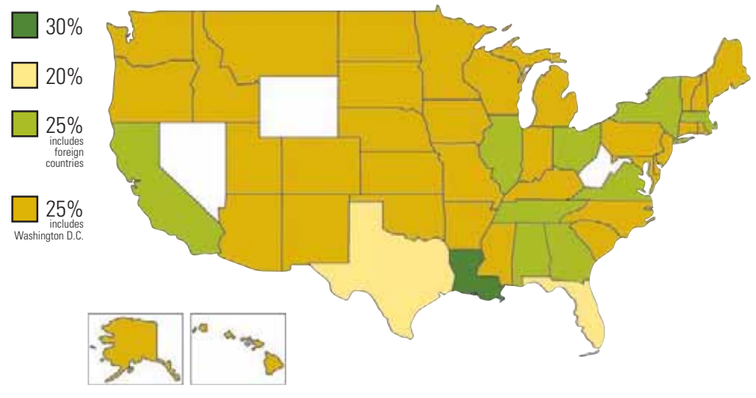
Under the new program, students' transcripts will actually list the title of the new IDM, for example, "BSE in Engineering Finance." According to Prof. **Cedric Walker**, Director of the IDM Program, "this change overcomes a major shortcoming of the old program, under which all graduates were simply listed as earning degrees in Engineering Science. Now they can enter the job market with a clear statement of their expertise right at the top of their resumes."

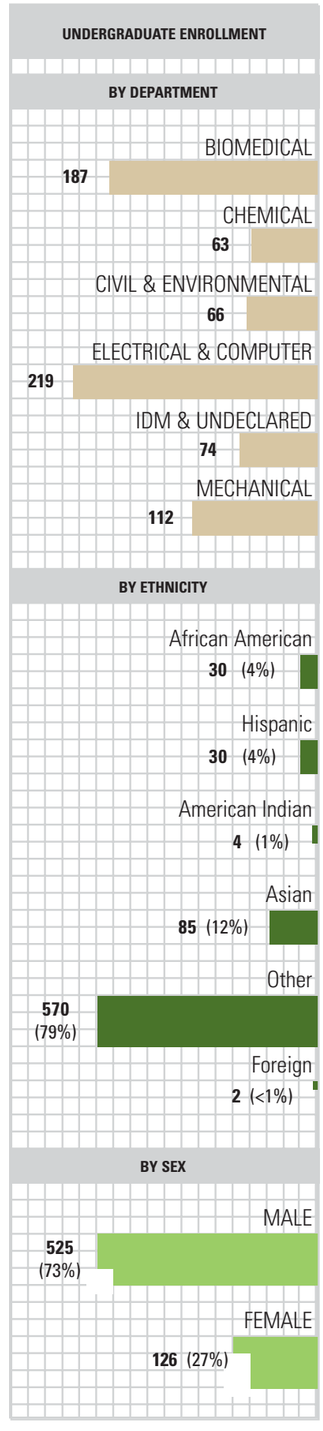
IMPROVING THE EXTERNAL PROGRAMS

The Study Abroad Program is becoming a vibrant international opportunity for our undergraduate engineering students. The program, which has existed for many years, is expanding both the schools of choice and the availability of time periods, be it a semester or a year. For example, the program at the Technical University of Dresden is a sophomore semester abroad program. Other opportunities are being explored in Australia, Colombia and Hong Kong. The 2002 applications showed a great increase over recent years.

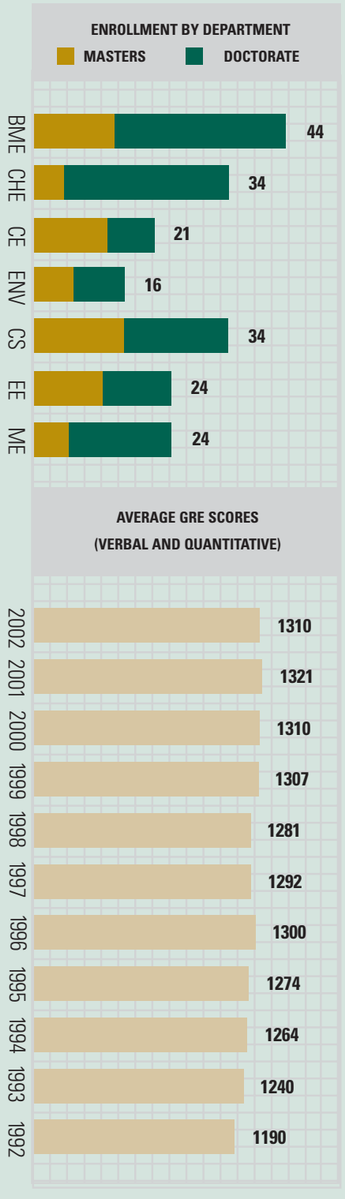
While our students have been obtaining internships for years, this year we set out to formalize the program. Springing from a growing database of companies and a compartmentalized email distribution system to students, the increased opportunities for **The Internship Program** have been significant. Our vision is to have the premier internship program for undergraduate students in the United States. Our best advertisement for the program will come from the companies and the students who jointly profit by the experience. If your company has internship opportunities, contact Dr. Jack Grubbs at jgrubbs@tulane.edu.

UNDERGRADUATE ENROLLMENT BY STATE





GRADUATE



OUR GRADUATE STUDENT BODY: QUALITY AND DIVERSITY

For the fourth year in a row, our incoming graduate student class has a total in the verbal and quantitative components of the GRE higher than 1300.

One of the reasons that the School of Engineering is able to attract such outstanding graduate students is the continuing success of our Louisiana Board of Regents Fellows program. Since this program started, in 1995, we have had more than thirty-five students that have benefited from the generous BOR Fellowships, with a total support of more than $3 million. Our proposals for Graduate Fellows have always ranked within the first three in the State and our school has received more Graduate Fellowships than any other school or college in Louisiana.

Women and minority students are attracted by the quality of our graduate programs. Last year, 11% of our graduate students were members of minority groups and 30% were women.

DUAL-DEGREE PROGRAM UNDERSCORES IMPORTANCE OF DIVERSITY

Capitalizing on a very successful dual-degree undergraduate program between **Tulane University** and **Xavier University**, a historically black university, a new Xavier-Tulane Five Year Bachelor/Master's Program was developed. Selected outstanding Xavier students complete the undergraduate component in science at Xavier and the master's degree requirements in engineering at Tulane. The students take prerequisite undergraduate courses at Tulane during their senior year at Xavier. Summer research and a thesis round out this robust program.

Presidents Cowen and Norman Francis of Xavier University sign the agreements with Dean Altiero on April 4, 2002.

2002 WAS A BANNER YEAR FOR RESEARCH FUNDING

This past year, our new grant awards increased from $5.3 million to $10.4 million. As this new income is being spent by the principal investigators, our annual research expenditures are expected to also jump to more than $8 million. The School of Engineering is well-positioned to make yet another quantum jump in research funding that will bring us recognition as a research university.

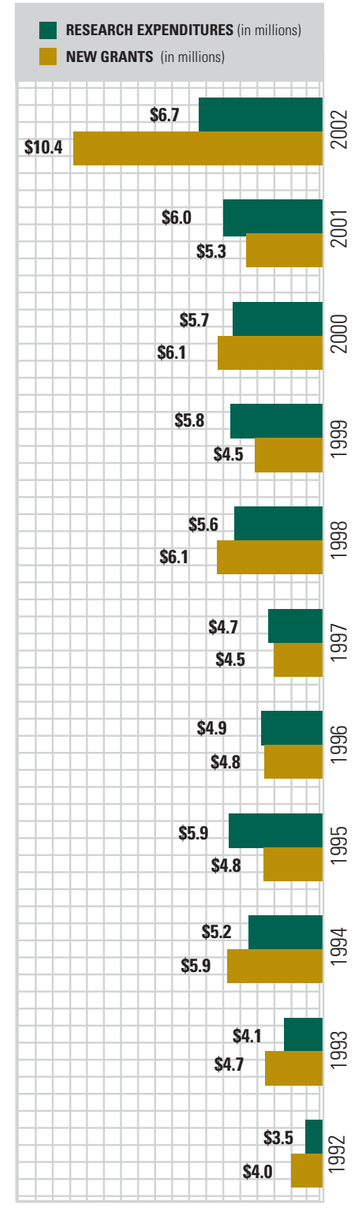
This recent jump in research funding is due by no small measure to the establishment and funding of three new interdisciplinary research centers in the school.

The **Center for Computational Studies** (CCS), which was jointly established and administered with the LAS, is supported by a grant from the Department of Energy.

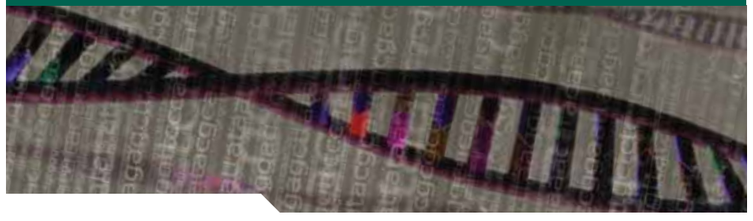
The **Center for Ballistic Missiles Research** (CBMR) is supported by a grant from the Department of Defense. Faculty from the Departments of Electrical Engineering and Computer Science as well as Mechanical Engineering and Physics collaborate in the activities of this center.

The **Tulane Institute for Macromolecular Engineering and Science** (TIMES) is supported by NASA. It is housed in Chemical Engineering and faculty from Mechanical Engineering, Physics and Chemistry participate in its activities.

These new research centers, along with other interdisciplinary projects are helping make Tulane an international focal point in applied scientific research.



COLLABORATION IS CORE OF NEW CENTER



The Livingston Digital Millennium Center for Computational Science brings together the resources of Tulane and Xavier Universities to create an interdisciplinary research center.

The concept of an infrastructure where people could overcome the barriers of their disciplinary fields and work together was born from collaboration between mathematics, biomedical engineering and chemical engineering departments.

In 2001, the center began to receive funds from the U.S. Department of Energy and quickly established a technology center in the Richardson Building. The Silicon Graphics Inc. supercomputers with multiple processors and individual workstations are the backbone of the CCS. "The SGI network provides a high-speed computing facility with a lot of shared memory," says **Donald Graver**, Professor of Biomedical Engineering and an associate director of the new center.

Among the many projects taking advantage of this computational power are studies of the structure and dynamics of DNA, development of a comprehensive computational model of the electrical activity of neuroendocrine cells, dynamics of interfaces in viscoelastic fluids and surface and interface processes on the atomic level. Much of this research requires complex computations and 3D modeling featuring a large number of particle interactions. Such delicate analysis necessitates the use of high-definition graphics and image processing. Until recently such models were very difficult to produce. Today, **Dr. Donald Gaver** (Biomedical), **Dr. Daniel DeKee** (Chemical) and postdoctoral researcher **Dr. Ali El-Afif** are able to study microscopic physiochemical hydrodynamics. **Dr. Natalia Trayanova** (Biomedical) can visualize an individual hypothalmic nerve cell as a series of multidimensional graphs and **Dr. Daniel Lacks** (Chemical) can create complex computational simulations to help prevent metal corrosion.

DR. KAY C DEE NAMED PROFESSOR OF THE YEAR

When Kay C Dee, Assistant Professor of Biomedical Engineering, began attending schoolwide faculty meetings six years ago, she heard assertions such as, "Everybody knows if you want to get good teaching evaluations, you have to give an easy class." As a new faculty member, these broad statements about education disappointed Dee. She said," Maybe everybody knows that, *but I don't.*"

"Her contribution to the department is enormous," said Rich Hart, Professor and Chair of Biomedical Engineering. Dee has developed new courses, including *Brave New World,* a study of ethics and scientific thought. Plus, she instituted *Teaching Engineering,* a now required course for graduate students. Dee joined with other department faculty members in revising the undergraduate curriculum,

STATE AN ASSUMPTION TO A CURIOUS ENGINEER, AND YOU CAN BET SHE WILL ASK FOR PROOF

Dee got busy investigating the learning literature. She began to treat learning as a scholarly activity. And in the process, Dee became an exemplary teacher. This year the Council for the Advancement and Support of Education and the Carnegie Foundation for the Advancement of Teaching have recognized her as the 2002 Louisiana Professor of the Year.

Tulane recruited Dee from Rensselaer Polytechnic Institute, where she earned a PhD in 1996. She came to Tulane to start a new sub-discipline – cell and tissue engineering – in the biomedical engineering department.

which is now used as a model for departments around the nation.

"We, as a team, put our students first," said Dee. "We're willing to put our time and energy into making our department and our courses better." Dee ran statistics from teaching evaluation data, which disproved several of the "everybody knows" comments she'd heard when she first came to Tulane. For one thing, Dee said, at least in engineering, there is "no correlation between the perceived difficulty of a class and overall instructor effectiveness."

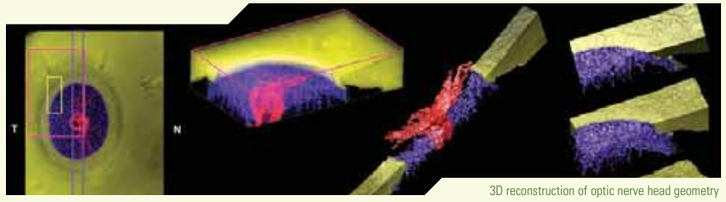
Article and photo used courtesy of Inside Tulane. Article by Arthur Nead. Photo by Paula Burch.

Biomedical Engineering students in lab

A NEW TEACHING LABORATORY

In order to develop active-learning experiences for our classes, the Biomedical Engineering Department has developed new junior-level 'bridge' courses that interweave fundamental engineering analysis with biomedically-relevant problems. The topics for these courses are Cell and Tissue Engineering, Biomechanics, Biomaterials, and Bioelectricity. In addition, the department has long offered a course titled *Biomedical Electronics* that is a bridge-type course. The department successfully applied for funds from the Louisiana Board of Regents (P.I.'s: Gaver and Hart) and the National Science Foundation (P.I.'s Gaver, Dee, Hart, and O'Neal [Psychology]) to develop the laboratory facilities for these courses and evaluate their efficacy. These grants have allowed us to develop a new teaching laboratory that is located in Boggs 241.

BIOMEDICAL



3D reconstruction of optic nerve head geometry

TULANE ENGINEERING IS "FAR-SIGHTED"

A collaborative research project between Tulane's Department of Biomedical Engineering and the LSU EYE Center has had its 5-year half-million dollar renewal grant funded by the National Eye Institute, beginning July 2002. The grant, entitled *IOP-Related Force and Failure in the Optic Nerve Head,* follows a 4-year collaborative grant between the Principal Investigator, Claude Burgoyne at the LSU Eye Center, and Professor **Richard T. Hart** as Principal Investigator of the Tulane subcontract. In the renewal, Professor **J-K Francis Suh** joins Professor Hart on the Tulane portion of the studies.

The Society For Biomaterials Ophthalmology Special Interest Group awarded its first Student Recognition Award to **Chris Wallace** during the society annual meeting in Tampa, FL, April 26. A three member panel judged all ophthalmic student presentations–paper and poster–on scientific content, completeness of presentation and ability of the student to discuss their work. Chris received a $250 cash prize.

Professor **Eric A. Nauman**'s NIH R03 proposal entitled *Intraocular Pressure–Mediated Damage to the Optic Nerve Head* has been awarded funding for three years, beginning July 2002 by the NEI (National Eye Institute). The proposal aims to take a tissue engineering approach to recreate the mechanical environment of the supporting tissues for nerve tissues in the optic nerve head. The award amount for the three years, including indirect costs, totals $423,675.

Carol Mullenax has been selected as a finalist for Association for the Advancement of Medical Instrumentation's Young Investigator Competition. At AAMI's annual conference in Minneapolis this June, Carol will give a talk entitled, *An Electrophoretic Method to Deliver Topical Drugs to the Eye.*

Professor Donald P. Gaver has been elected a Fellow of the American Institute for Medical and Biological Engineering and was inducted into the College of Fellows, Class of 2002 on March 1, 2002.

Professor Paul Nunez, his graduate student Brett Wingeier, and Professor Richard Silberstein of the Brain Sciences Institute in Melbourne, Australia authored the article associated with the July 2001 cover of the journal *Human Brain Mapping*, which pictures the phase structure of human alpha rhythm suggesting brain wave interference patterns.

Professor David A. Rice has been awarded The Freedoms Foundation at Valley Forge 2001 George Washington Award for outstanding achievement over a period of years, reflecting the high ideals of human dignity and fundamental principles of a free society. Previous award recipients include Chief Justice William H. Rehnquist (1998), Dr. Alton Ochsner (1979), and John H. Glenn, Jr. (1963).

Professor Cedric F. Walker has been awarded funding from the Brown Foundation for work on two projects in collaboration with **Dr. Eckhard Alt**, Adjunct Professor of Biomedical Engineering and Professor of Medicine. The total awarded funds for *Development of a Novel Implant Device for Outpatient Heart Failure Monitoring* and *Development of a Novel Implant Device of a Magnetic Resonance Imaging Compatible Stent* is $840,000, with funds divided between Tulane Health Science Center and the School of Engineering.

James Crawford Downs, Jr., Ph.D. in biomedical engineering and holder of three other Tulane degrees: a bachelors in economics (1991) and masters in economics (1992) and biomedical engineering (1998), was selected as the student speaker for Tulane's commencement at the Superdome on May 18, 2002.

Kathleen L. Rea Fureigh received first place honors in Biotechnology at the at the 2002 Louisiana EPSCoR Graduate Student Poster Competition.

Carol Mullenax has been awarded an American Association of University Women Educational Foundation Selected Professions Fellowship for her final year of study. Also, Carol's paper entitled "If I'm Going To Work In Industry, Why Join ASEE???" has won the best paper award in the Graduate Student Experiences session at the 2002 ASEE Annual Conference and Exposition.

Kyle K. White has been awarded the Louisiana Engineering Foundation's Vincent A. Forte Graduate School Fellowship for 2002. This $2,000 award is presented to students enrolled in an accredited engineering program.

Darryl A. Dickerson and **Richard M. Morency** were finalists in the Bachelor's-level research competition of the 2002 ASME International Mechanical Engineering Congress and Exposition. Darryl's presentation of "Effects of Sterilization Techniques and Culture Time on the Creep of Collagenous Ligament Analogues" won second place. Richard's presentation of "Development and Application of a Combined Imaging and Modeling Technique for Determining Biomechanical Response of Roller Coaster Passengers" won Honorable Mention.

Weihui Li is the recipient of a $500 Special Travel Award for presenting authors at the Joint EMBS-BMES Conference held in Houston.

THE FUTURE OF NANOTECHNOLOGY IS AT TULANE TODAY

Yunfeng Lu, Assistant Chemical Engineering Professor, is engaged in research to create some interesting and useful small things.

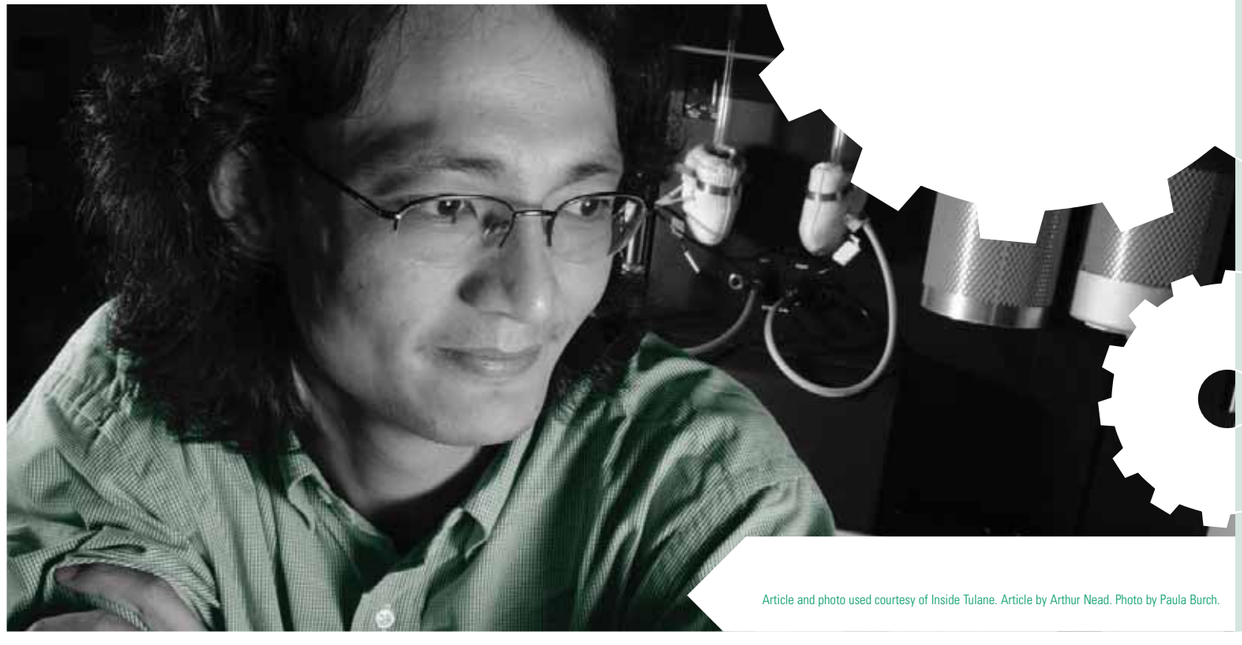
Lu's specialty is the field of nanotechnology. Nanotechnology presents us with an opportunity amounting to a new industrial revolution. It will revolutionize the way medicines, electronic components, and other products are manufactured and used. A few of the anticipated benefits include detecting cancers before they spread, creating materials with super strength and vastly increasing data storage and processing capabilities.

NANOTECHNOLOGY PRESENTS US WITH AN OPPORTUNITY AMOUNTING TO A NEW INDUSTRIAL REVOLUTION

Many aspects of nanotechnology are already moving from the realm of fundamental research to commercial applications. "I have a research grant to develop a thin film material for use in separating the different layers making up a computer microchip," says Lu. Using a fabrication process unique to the scale of nano-structures, Lu's computer chip film is "self-assembled" by the predictable, spontaneous actions of individual molecules.

He has also designed fabrication techniques for nano-composite thin films for use as super-tough coatings. "These films are modeled on the structure of seashells," says Lu. "If you look at a section of an abalone shell under an electron microscope, you see layers of calcium carbonate. Between them are layers of organic bio-polymer, a protein. Cracking cannot propagate through the whole structure—you can only break individual layers. So the structure is very tough."

Lu also is working on materials with medical and biological applications. He has developed a nanomaterial that self-assembles in the form of an onion-like structure of concentric spheres. The structure can be used for the timed release of drugs or other chemicals by placing them inside the spheres at the manufacturing stage.



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COMING TOGETHER ON POLYMERS

Dr. Kim O'Connor with students in the lab

The Tulane Institute for Macromolecular Engineering and Science (TIMES) is a research and education initiative to build on existing expertise in polymer engineering and science. TIMES is a home-away-from-home to sixteen faculty members in engineering and science representing six departments. Professor **Daniel De Kee** is the Director and Professor **Brian Mitchell** is the Associate Director of the new interdisciplinary research venture.

This year, TIMES was awarded a $2.5 million grant from NASA for research in polymers. Specifically, the grant covers the development of new high-performance, high-temperature materials for use in space. Specialized polymers will help NASA in the construction of re-entry shields, astronaut suits, fuel tanks, computer chips, aircraft wings and more. TIMES' impact will reach far into space, but it may have a significant effect much closer to home. Louisiana ranks second in the nation in resin production but has fallen far behind in the area of polymeric parts. By creating courses, publications and seminars on polymers, Tulane will help provide a trained workforce for the state and keep jobs here in Louisiana.

The Tulane Institute for Chemical Sciences is a collaboration between the Departments of Chemical Engineering, Chemistry and Biochemistry. The objective of the institute is to foster interdisciplinary research and to enhance the visibility of research in the chemical sciences both internally and to constituencies external to Tulane University.

CHEMICAL

STUDENTS CONTRIBUTE TO RESEARCH AND TO THE COMMUNITY

The Chemical Engineering department fosters an environment where undergraduates are given every opportunity to participate in research. Many of our undergraduates carry out research projects with journal publications as desired outcomes.

Christopher Rives, **Djordje Nikolic**, **Alex Lei**, **Carlos Villa** and **Carrie Giordano** have participated in journal paper submission and publication with Professors Dan Lacks, Kyriakos Papadopoulos and Kim O'Connor. **Carlos Villa** and **David Johnson** earned accolades in the paper competition of the student chapter of the AIChE Region C conference meeting this year in Puerto Rico, placing 3rd overall and 3rd in section respectively. **Hong Song** is the recipient of the Outstanding Graduate Student Award, American Institute of Chemists Foundation. He is also the recipient of the Outstanding Teaching Assistant Award, Omega Chi Epsilon (Alpha Iota Chapter).

Many of our students are active in community and volunteer services. **Jonathan Dendy** does tutoring at Allen Elementary. **Catherine Oswald** is the *CACTUS* Project Coordinator for Blood Services. Catherine runs all the campus blood drives. She is also a volunteer for the New Orleans Childrens Hospital. **Louise Lawson** is the Secretary for the Louisiana Section of the American Society of Agricultural Engineers. **Michelle Walton** volunteers with Odyssey House, a drug rehabilitation home. **Eric Hampsey** sings with his church choir and with other church groups. **Handekea Azene** was featured in the Times Picayune as a participant on the LAMP program.

A vibrant **Graduate Student Seminar Series** has been set up by the graduate students. They have also established a media center to facilitate development of communication media for conference presentations.

Louise Lawson and Grace Tan at the Atomic Force Microscope

Daniel De Kee organized a three day symposium on: *Heterogeneous systems: Suspensions, Composites and Multiphase Materials* at the 74th Annual Meeting of the Society of Rheology October (2002) and co-organized a symposium on the Rheology and Fluid Mechanics of Nonlinear Materials at the ASME International Meeting in November 2002. The book *Transport Processes in Bubbles, Drops and Particles*, Second Edition, by Daniel De Kee and R.P. Chhabra was published by Taylor and Francis in 2002.

Richard Gonzalez served as a panelist for the SBIR program run by the National Science Foundation. Richard was a member of the Senate Committee on diversity 2001-2002, the Senate Committee on honorary degree recipients and the Senate Committee on equal opportunity.

Richard Gonzalez, **Brian Mitchell**, **Yunfeng Lu**, **Vijay John**, **Kyriakos Papadopoulos**, **Dan Lacks** are Principal Investigators of National Science Foundation grants and **Kim O'Connor** and **Daniel De Kee** are principal investigators on NASA grants.

Vijay John participated in workshops on Nanomanufacturing (Puerto Rico) and Self-Assembly (Italy). The workshops were sponsored by the National Science Foundation and the U.S. Army Research Office.

Daniel Lacks received the R.V. Bailey Teaching Award in Chemical Engineering and was invited to seminars at Northeastern University, University of Wisconsin, Rensselaer Polytechnic Institute.

Victor Law also received the R. V. Bailey Teaching Award. He conceived and designed the Executive Master of Engineering in Chemical Engineering program. Vic is an active participant in the Tulane-Entergy Energy Research Institute.

Yunfeng Lu is one of only 26 researchers throughout the country to be selected as an Office of Naval Research Young Investigator. The designation comes with a $300,000 grant that will help fund Lu's research in developing high-efficiency solar cells. Lu's research could be used for widely diverse purposes, from creating a heat-absorbing coating for soldiers' cold-weather clothing to providing the solar panels that power the space station.

Brian S. Mitchell and **Kim O'Connor** were promoted to full professors.

Brian Mitchell is the recipient of an Alexander von Humboldt Foundation Research Fellowship Award. Brian will be spending his sabbatical (Spring '03) at the German Space Agency in Cologne, Germany. Brian was elected Chair of the AIChE New Orleans Local Section. He accompanied students to the AIChE Southern Regional Conference in San Juan, Puerto Rico in April.

Kim O'Connor gave invited talks at Rice University and at Cooper Union College. She organized a session and gave an invited talk at the NASA Cell Science Conference.

Kyriakos Papadopoulos received the Lee Johnson Award for Overall Excellence in Undergraduate Education in the School of Engineering. He also gave an invited lecture at Columbia University.

THE GOVERNMENT FINDS HELP THROUGH TULANE PROFESSOR

Associate Professor Laura J. Steinberg of the Civil and Environmental Engineering Department has been appointed a member of the Science Advisory Board of the Environmental Protection Agency.

"Typically, the EPA comes to the Science Advisory Board for guidance," says Steinberg, whose two-year term began in October. "The agency may be considering a particular problem and needs some scientific guidance on how to deal with it—what research needs to be done, or how to evaluate existing research."

THE SCOPE OF ENVIRONMENTAL ENGINEERING HAS CONSIDERABLY BROADENED SINCE THE 1970'S DUE TO LAWS AND REGULATIONS RESULTING FROM GROWING ENVIRONMENTAL CONCERNS

Steinberg is on the SAB's Drinking Water Committee, which is assigned to provide guidance to the EPA's Office of Water, Administrator of the Safe Drinking Water Act. "Traditionally, environmental engineering meant design of water and waste treatment systems," says Steinberg.

She is interested in studying natural hazards and their impact on infrastructure. She recently completed a study funded by the National Science Foundation that postulated cases of toxic chemical releases triggered by natural disasters. "What I am interested in is how to respond to these releases in the midst of a natural disaster, and how to prevent them from occurring," says Steinberg. To obtain data, Steinberg travels to disaster sites throughout the country and sometimes farther afield. In 2000 and 2001, Steinberg traveled to Turkey to gather information after a massive earthquake. The EPA appointment isn't the first time the government has tapped Steinberg's engineering expertise. After the September 11 tragedy, she was contacted by governmental agencies concerned about the potential effects of terrorist acts.

"The government believes that natural-hazards researchers have some expertise in this area, because these are both types of unexpected events," says Steinberg. "So I was an invited participant at a meeting at the White House conference center last year on infrastructure vulnerability. My contribution was how critical infrastructure can be better engineered to meet the demands placed on it by unexpected events."

Steinberg also was a participant at a National Science Foundation meeting,"Preparing for the Unexpected," held last year next to the site of the World Trade Center.

Article and photo used courtesy of Inside Tulane. Article by Arthur Nead. Photo by Paula Burch.

BLESSEY HALL REDEDICATION AND NAMING CEREMONY

On April 11, 2002, President Scott Cowen and Dean Nicholas Altiero welcomed friends and members of the Tulane community, Professor **Walter E. Blessey** (CE '40, G '43) and his wife Ruth, Walter E. Blessey, Jr. (CE '67) and his family to the rededication and naming celebration of the Civil Engineering Building. **Dr. Robert Englekirk** (CE '59), (who led the fund raising campaign to renovate and rename the building in Blessey's honor) and his wife were among the many key contributors who honored the Blessey Family by attending the event.

The renovation of this historical building could not have been accomplished without the generous gifts of many individuals. Several key donors were also in attendance, including Mrs. June Hildebrand, whose gift honors her late husband, **William C. Hildebrand** (ME '41), and Mr. Scott Derickson whose father, **Gayden Derickson** (CE '34), had previously donated the Donald Derickson Library. A generous bequest from Mrs. Gayden (Nancy Maugh) Derickson provided funds to establish the Derickson Departmental Office Suite.

A reception in the newly renovated building followed the ceremony with current civil engineering students providing tours of the building. Walter E. Blessey Hall is one of the four original buildings on Tulane's campus. The renovation successfully combined elements of the old architecture with current needs of faculty, staff and students.

Prof. Walter E. Blessey

CIVIL & ENVIRONMENTAL

Dr. Reda Bakeer served as President of the American Society of Civil Engineers New Orleans Branch from October 2001 through September 2002 and continues to serve on the ASCE La Section Board of Directors, having been appointed in 2001.

Dr. Glen Boyd was nominated for the ASCE 2002 ExCEED New Faculty Excellence in Teaching Award.

Dr. Anthony J. Lamanna and co-authors were awarded the Thomas Fitch Rowland Prize for a paper which appeared in the ASCE Journal of Composites for Construction.

Dr. Robert N. Bruce, Jr. was elected to the Board of Directors of the Louisiana Transportation Research Center Foundation.

Dr. Jack Grubbs served as a contest director for the Interdisciplinary Contest in Modeling (ICM), an international competition for high school and undergraduate college students. The ICM is sponsored by the National Security Agency, Institute for Operations Research and Management Sciences, the Society for Industrial and Applied Math and the Mathematical Association of America. The 2002 contest focused on environmental issues.

Tulane's National Concrete Canoe Competition Team at the 2002 ASCE Student Chapter Deep South Regional Conference

ASCE Student Chapter members constructing steel bridge for competition at the 2002 Deep South Regional Conference

Tulane University won first place in the national Big Beam Design Competition. Five senior civil engineering students designed, built and tested the Tulane beams under the direction of **Dr. Paul Ziehl**, beating out students from Vanderbilt, Texas A & M, University of Illinois and others.

Civil Engineering student **Johana Husserl** won first place in the Louisiana Section ASCE 2002 Student Paper Contest.

ASCE Student Chapter Does it Again!
It's almost unheard that a student chapter wins a national award two years running – but that's exactly what happened when the Tulane University Student Chapter of ASCE received the ASCE Zone II Vice President's Award for 2002. The award is given in recognition of the activities of the chapter for the calendar year 2002. There are some 75-student chapters in Zone II. The chapter leadership is already pointing to this year for a "3-peat" performance.

Emily McArthur has been one of the top student athletes at Tulane since her freshman year, excelling both on the field and in the classroom. She can be found in the Green Wave Soccer record book among the career leaders in assists, and she has twice made Conference USA Academic Honor Roll. McArthur was one of 188 Division I student-athletes from across the nation, and the only Tulane student-athlete, to be selected to attend the spring NCAA Leadership Conference.

SPAAR FELLOWS PROGRAM

Dramatic changes are in the cards for the Department of Civil and Environmental Engineering with the $4.4 million bequest from the Estate of Catherine G. Spaar of San Antonio. Her late husband, William H. Spaar, was a 1922 graduate of Tulane's engineering school.

The bequest established the Spaar Memorial Endowment Fund with 80% of the annual income earmarked for support of graduate students in the department. The funds have enabled the faculty to strengthen their research efforts with six Spaar Fellows now aboard. They are **Katherine Kleinpeter**, **Mustafa Lök**, **Ana Maria Ocampo**, **Adam Ridge**, **Firat Sever** and **Nathan Webb**.

The remaining 20% of the annual income is used for infrastructure needs such as laboratory upgrading and maintenance of facilities.

MISSILE DEFENSE RESEARCH TAKES OFF

The world's unsettled political climate has heightened the U.S. government's interest in creating defenses against ballistic missile attacks. And while missile-defense technology is still in development phase, many of its first and essential steps will take place here on campus, thanks to a $2.64 million contract awarded to Tulane by the U.S. Department of Defense's Missile Defense Agency.

WE PROVIDE BETTER INFORMATION EARLIER ALLOWING MORE TIME FOR DECISION-MAKING IN THE PERIOD OF ENGAGEMENT

"We work on fundamental research," says Bill Buckles, Professor of Computer Science in the Department of Electrical Engineering and Computer Science and Tulane's missile-research project leader. Tulane researchers will produce abstract solutions and methods of operation, largely in the form of algorithms, which are step-by-step solutions to problems.

"We're basically working on sets of projects." says Buckles, "that would result in methods that would increase the time available to make engagement decisions. Other tasks are geared to maximizing the effectiveness of sensors aboard missile interceptors in satellites and on the ground. In particular, these tasks involve improving sensor performance in a debris-filled environment where a previous engagement, harmless boost-stage hardware or decoy objects produce a cloud of debris.

Tulane has been involved in missile research going back to the 1980's, when the Strategic Defense Initiative Program was under way, according to Buckles. He anticipates the Missile Defense Agency and related agencies will begin to look upon Tulane as a prime people resource. He expects that "they will send young officers here for a period of time, and they'll send civil servants who plan a career path in this area."

The result of this will be, says Buckles, "a complete educational and intellectual community, where we will have people coming in from other institutions, teaching short courses, and our people going elsewhere to teach short courses, spreading the word about Tulane and its faculty and students."

Article and photo used courtesy of Inside Tulane. Article by Arthur Nead. Photo by Paula Burch.

A NEW GENERATION OF FACULTY

One of the important events for the Department of Electrical Engineering and Computer Science was the addition of three faculty in academic year 2001-02.

Dr. Dale Joachim, a graduate of Michigan State University, joined us in August 2001 after serving as the principal investigator of R&D projects at Sanders/Lockheed. **Dr. Jing Peng** joined us after serving as a faculty of computer science in Oklahoma State University and is interested in machine learning, content-based image retrieval, and pattern classification.

Finally, in this year, **Dr. Uvais Qidwai** who received his Ph.D. from University of Massachusetts in 2001, joined the department and is interested in research in image processing, digital signal processing, algorithmic research, and nondestructive evaluation.

Additionally, **Dr. Brij Singh**, a graduate of the Indian Institute of Technology (1996), and **Dr. Marin Simina**, a graduate of Georgia Institute of Technology, both joined us the previous year.

Considering that the department has an open search for filling four other faculty positions in the next two years, the department will have about ten faculty who will complement the existing faculty in using their diverse talent and years of experience in solving challenging research and educational problems.

EECS uses all necessary Leads to connect an efficient Circuit

ELECTRICAL & COMPUTER SCIENCE

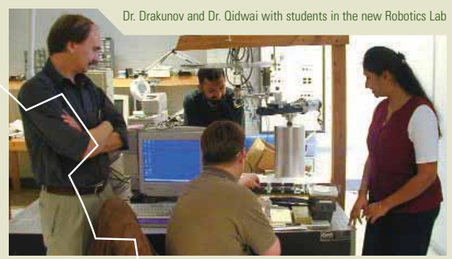
ROBOTICS MINOR IS CROSS-DISCIPLINARY

Dr. Sergey Drakunov has been named the director of the new program offering a minor to students in the School of Engineering in Robotics and Intelligent Systems. This area of studies does not fit neatly into a single conventional engineering discipline, but draws the aspects of mechanical engineering, electrical engineering, computer science and computer engineering. Offered as a minor, it will allow students to focus their studies toward robotics and intelligent systems while retaining a widely recognized major.

Robotics and Intelligent Systems program was developed in recognition of the increasing importance of robotics, and more widely intelligent systems. It is widely agreed that the next generation of the automatic systems will exhibit autonomous behavior that is very close to human intelligence.

This minor will introduce students to robotics and other intelligent systems applications as found in a range of applications: construction, manufacturing, power generation, transportation, medicine, and space exploration.

Dr. Drakunov and Dr. Qidwai with students in the new Robotics Lab



Director of the EECS Graduate Program, **Dr. Boumediene Belkhouche** has lead the department in bioinformatics and biometrics research activities, spanning several disciplines including molecular biology, biochemistry, pharmacology, medicine, and computer science.

Dr. Mark Benard served as the EECS Associate Chair for Undergraduate Studies and received the Best Teacher Award in the department.

Dr. Paul Duvoisin is organizing and participating in IEEE Region 5 Robotics Contest. He also accompanied our students to the 2002 IEEE Paper Contest.

Dr. Johnette Hassell coordinated the introductory computer science courses offered by the department for all departments in School of Engineering.

Dr. S.T. Hsieh served as Director of US/China Energy and Environmental Technology (EETC). He created several forums for Tulane and DOC representatives to collaborate with China scholars.

Dr. Dale Joachim is working with Audubon Zoo recording and monitoring bird sounds.

Dr. Cris Koutsougeras completed the EECS Web-Site design and has started to bring ".Net Technology" into classrooms.

Dr. Andrew Martinez and his colleagues at NRL have registered two patents entitled *Autonomous Survey System* and *Shipboard Wave Measurement System.*

Dr. Uvais Qidwai serves as advisor for the Digital Hobby Group (DHG). The DHG is formed by students who have interest in designing autonomous and intelligent robots.

Dr. Fred Petry received the NRL Summer Distinguished Researcher Citation and SoE Outstanding Research Award in 2002.

Dr. Jing Peng led the department in conducting and inviting several well-known speakers to the department.

Dr. Marin Simina traveled with the four EECS Graduate Student winners to attend the FLAIRS Conference in Florida. The cost of the travel was shared by one of EECS industry partners.

Dr. Brij Singh is leading the efforts in the new area of nanotechnology and strengthening departmental ties with National Science Foundation by attending several of NSF workshops.

NEW PROGRAM OFFERS STUDY ABROAD

Beginning Fall 2002, seniors in Mechanical Engineering can spend one semester abroad at the Institut Français de Mecanique Avancée (IFMA) in Clermont-Ferrand, France. This program is the result of an exchange agreement made between the IFMA and the Mechanical Engineering Department.

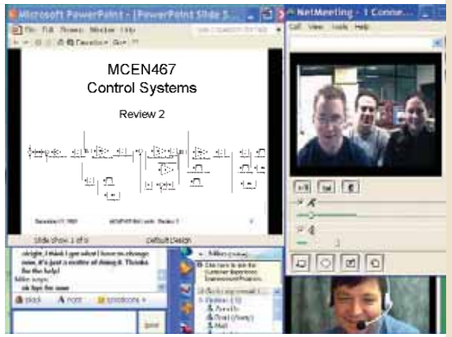
IFMA, the French Institute for Advanced Mechanics, provides training for high-level, multi-skilled engineers who specialize in manufacturing design of mechanical and automated equipment for industry. IFMA possesses the latest technology

The Institut Français de Mecanique Avancée (IFMA) in Clermont-Ferrand, France

THIS PROGRAM ALLOWS SENIORS TO COLLABORATE WITH THEIR FRENCH COUNTERPARTS ON RESEARCH PROJECTS WHILE THEY CONTINUE TO PROGRESS TOWARDS THEIR ENGINEERING DEGREE

in an academic environment, which fosters collaborative work and an international focus. **Dr. Michael Larson** of mechanical engineering and Dr. Jean Luc Paris of IFMA oversee this program.

In order to continue their normal progress towards a degree in mechanical engineering, students may have to take some courses through a Distant Learning Program. In Fall 2002, Professor Mike Lynch taught the course MCEN 467-Control Systems through this program.



Brad Lawson, **Melissa Ritz**, and **Matthew Dreyfuss** (ME 03) continue to take courses at Tulane University, online from Clermont-Ferrand, France

ALL-WOMEN TEAM TO COMPETE IN MINI BAJA COMPETITION

Student activities are an important part of the experience and learning in the Department of Mechanical Engineering. Several mechanical engineering professional societies have student chapters at Tulane. These include the American Society of Mechanical Engineers (ASME), and the Society of Automotive Engineers (SAE).

These student organizations are actively pursuing projects that are interesting, fun, and worthwhile. For example, the Society of Automotive Engineers student chapter participates in a national vehicle competition called the Mini-Baja competition. The students build their own vehicle and compete against entries from other engineering schools.

For the first time, an all women's team from Tulane will participate in the SAE 2002-03 Mini Baja competition in Orlando, Florida. This is in addition to the men's team that has been participating in this competition since 1997.

The Mini Baja teams work in the mechanical engineering design shop that was recently renovated with the help of funds donated by faithful alumni and friends of the department.

2002 FREEMAN SCHOLAR

Dr. Efstathios E. Michaelides, Leo S. Weil Professor of Mechanical Engineering and Associate Dean for Research and Graduate Studies, is the recipient of the American Society of Mechanical Engineers 2002 Freeman Scholar Award. The Freeman Scholar Award is awarded biennially since 1926 to an engineer for distinguished contributions in the field of fluid dynamics. This is the first time a Louisianian has received this honor and only the second time for a Southerner. Professor Michaelides also gave the *Freeman Scholar Lecture* at the International Mechanical Engineering Conference and Exhibition (IMECE-02) on November 19, 2002 on the topic *Particles, Bubbles and Drops in Fluids and Heat Transfer Engineering Processes.*

Dr Michaelides continued his work on multiphase flows and heat transfer sponsored by DOE, ONR and USGS. He and his research team published three journal articles and presented their work in seven international conferences in locales ranging from Dallas, TX to the small medieval town of Barga, Italy.

Dr. Christopher Freitas, SW Research Institute presents Prof. Efstathios Michaelides the award with other Freeman Scholar Award Committee members Prof. Michael Gillet, Penn State; and Prof. David Stock, Washington State University

After the success of the 4th International Conference on Multiphase Flows that took place in New Orleans in May of 2001, Dr. Michaelides has been appointed Vice-Chair for the 5th International Conference that will take place in Yokohama, Japan in May 2004. In addition, Dr. Michaelides was elected to join the Executive Committee of the Fluids Engineering Division of the ASME.

Dean Nicholas J. Altiero serves as Chairman of the Board of Trustees of the National Institute for Global Environmental Change (NIGEC). He served on the Board of Directors of American Society for Engineering Education from 2000 to 2002 and was elected ASEE Vice-President for Institutional Councils for 2001-02.

Drs. Michael Larson and **Asher Rubinstein** are conducting experiments and generating computer models which will allow us to predict how and when materials will rupture under different types of lasers. This research is funded by the U.S. Missile Defense Agency as is the research of Dr. Buckles in EECS.

Dr. Calvin Mackie along with two other Tulane faculty members are the recipients of a $2.5 million National Science Foundation grant to coordinate a team of Louisiana universities to further the education of minority science students. He was selected the 2002 College-level Educator Black Engineer of the Year by the U. S. Black Engineer Information Technology.

Dr. Monte Mehrabadi co-organized a symposium on Mechanics of Granular Materials in the 2002 ASME International Mechanical Engineering Conference and Exhibition (IMECE) held in New Orleans, Nov. 17-22.

Dr. Robert Watts was the invited luncheon speaker at the IMECE 2000 Advanced Energy Systems Division. He also was invited to debate global warming. The book he edited: *Innovative Energy Strategies for CO2 Stabilization* was published by Cambridge University

MECHANICAL

FOCUS ON RESEARCH

ME faculty members worked on a range of projects in 2002, ranging from exploring implications of urban heat island mitigation on air quality and heat-related mortality to developing improved urban atmospheric modeling capabilities that use remotely sensed surface characteristic data.

Research has been conducted to implement desiccant and heat pipe dehumidification systems to improve the indoor air quality of all types of buildings. Desiccant and heat pipe dehumidification systems are two energy-efficient, cost-effective, and environmentally safe technologies which are used as stand-alone systems or with conventional air-conditioning. Other research is being conducted on the local applicability of photovoltaic roofing shingles which keep the rain out and contain a material that generates electricity from sunlight. The shingles cover a portion of the roof generating up to 3kW. The rest of the roof is covered conventionally. This project demonstrates energy savings for residential and commercial entities.

The Mechanical Engineering Department continued to host the South Central Regional Center of the National Institute for Global Environmental Change (NIGEC). Through support from the US Department of Energy, the South Central Regional Center of NIGEC funds approximately $1.2M of regionally-relevant climate change research annually.

Research in Advanced Materials and Mechanics, another ME Department targeted strength area, continued with projects funded by MDA, NASA, and DOE. These projects include understanding how materials fail under the action of lasers and studying the endurance and reliability of microelectronic components. As computer components are getting smaller and lighter, they must also be strong enough to withstand transportation and harsh environments such as outerspace.

A team comprising of three ME students pictured above: **Robbie Klein** (right), **Alex Hessler** (2nd from right), and **Jon Cook** (far left), all of Class of 2002, won the Tulane University Robotics Battle Olympiad (TURBO) Competition. This popular event, which drew 15 competing teams, took place during National Engineering Week.

Melissa Ritz (ME 03) placed third in the ASME regional student poster competition held in Beaumont, TX in April. She described her research entitled, *On the stability of DCDC specimens in Fracture Mechanics.* The work, carried out under the direction of adviser Dr. Michael Larson, will serve as an aid for researchers investigating the cracking of brittle materials.

CALENDAR YEAR 2002 GIFTS

DEAN'S CIRCLE ($10,000 and above)
Rose Mary D. Bernstein
Robert E. Englekirk
Irwin Frankel
Gerald and Agatha Haydel
Marjorie B. Janssen (Estate)
Gary and Leslie Kirstein
James H. Miller, Jr.
E.V. Richards, Jr. (Estate)
Lionel J. Skidmore
Jack B. St. Clair

BENEFACTORS ($5,000 to $9,999)
Mr. and Mrs. William Cavanaugh III
George L. Crain
John Dane III
Wallace B. Diboll, Jr.
Brian W. and Maria Oden Duffy
James B. Eaton, Jr. (Estate)
Douglas G. Mayberry
Leilani T. Stritter
A. L. Jung, Jr.

FELLOWS ($2,500 to $4,999)
Bernard Villars Baus
Warren R. Bourgeois III
Glenn T. Costello
Paul Dorman
Hugh M. and Frances M. Keifer
Henry J. Lartigue, Jr.
Robert and Gayle Longmire
Waldemar S. Nelson
J. Denis Powers
Harry F. Quarls
Herbert J. Roussel, Jr.
Jerry and Bonnie Saacks
Alan J. Stone
Joseph E. Wall, Jr.

MEMBERS ($1,500 to $2,499)
Richard B. Ashman
Shelley P. Baumann
Joseph E. Bavaria
James V. Boone
Mr. and Mrs. Dan M. Cliffe
Robert E. Craig III
Steven L. Dehmlow
Mr. and Mrs. Thomas J. Feehan
Frank R. Groves, Jr.
Wermund E.S. Hansen
Warren E. Ibele
Albert P. Keller, Jr.
Leon Klein, Jr.
Arnold J. Lloyd
John R. McGaha, Jr.
Jesse N. Perrett, Jr.
Elizabeth Rice Perrin
Shepard F. Perrin III
Robert A., Jr. and Mary Frances Pierpont
Jack M. Roehm
Richard K. and Claudette Schmidt
Michael Valliant
M. Franz Vogt
Eric H. Weimers

HOORAY FOR YAHOO! FOUNDER CHAIR

David Filo, who earned his BSE in Computer Engineering from Tulane in 1988, endowed the Yahoo! Founder Chair in Computer Science and Electrical Engineering. Filo, along with friend Jerry Yang, began their company in 1994. Yahoo! Inc., a global Internet communications, commerce and media company, offers a branded network of services to millions of users daily. Today, many Tulane Engineering students look to David Filo as a role model whose success they hope to emulate.

Tulane University President **Scott Cowen** welcomed Filo back to the campus on December 20, 2002 when Professor **Bill P. Buckles** was invested in the **Yahoo! Founder Chair in Computer Science and Electrical Engineering**. Cowen noted that Filo's gift is especially valuable to the School of Engineering as it provides a permanent source of support for research and teaching. "Teaching at all levels–including core courses–holders of endowed chairs have the opportunity to impact the educations of hundreds of students and thus augment Tulane's ability to attract and retain the very best undergraduate and graduate students."

As Dean **Nicholas J. Altiero** explained to the audience, "an endowed faculty chair is the most prestigious honor that a faculty member can be given and it is an internationally recognized measure of the faculty member's contributions and stature." The Yahoo! Founder Chair in Engineering will enable Tulane to recruit and retain worthy successors to Professor Buckles looking far into the future.

Buckles, whose research has been supported by NASA, NSF, the State of Louisiana and the Missile Defense Agency, received the NASA Technical Innovation Award in 1980 and 1982. Professor Buckles, a Tulane faculty member since 1987, has received three departmental teaching awards in the past decade.


Alumnus David Filo, co-founder of Yahoo! Inc.

Other endowed chairs are:
Catherine and Henry Boh Chair in Civil Engineering
Herman and George R. Brown Chair in Chemical Engineering
John L. and Mary Wright Ebaugh Chair in Mechanical Engineering
Entergy Chair in Electrical Power Engineering
Alden J. "Doc" Laborde Chair in Engineering
Cornelia and Arthur L. Jung Chair in Mechanical Engineering

ENVISIONING ENGINEERING CAMPAIGN MOVES FORWARD

The Tulane Engineering campaign gives alumni, corporations, foundations and friends the opportunity to shape the future of the School of Engineering – through gifts that provide outstanding opportunities for learning and discovery in engineering and computer science. The engineering campaign targets endowment funds – permanent gifts that provide funds both now and for the future. Endowed funds, provided by generations of Tulane Engineering alumni and their families, support many critical functions in each department as well as for the School as a whole.

MAJOR GIFTS IMPACT THE SCHOOL OF ENGINEERING.

The School of Engineering was named as the recipient of major gifts that provide significant immediate impact as well as establish funding for future needs. The largest contribution was the gift of Catherine G. Spaar whose husband, **William H. Spaar**, was a 1922 graduate of the School of Engineering. Mrs. Spaar's bequest directed the use of her gift for permanent endowment by the Department of Civil and Environmental Engineering. Income from the endowment will provide graduate student fellowships and funds for infrastructure for the department in perpetuity. Alumni and friends also made significant contributions that established new scholarships, created specific purpose endowment funds, added to existing endowment funds and in numerous ways provided financial assistance for faculty and students.

PROVIDING IN THE PRESENT FOR THE FUTURE

Scholarships and fellowships don't just happen; thoughtful individuals create them with a concern for the future. They are established by those who have both foresight and a commitment to helping others. In many cases, they are created to say "thanks" for support the donor may have received in the past. Tulane School of Engineering is fortunate to have 36 endowed scholarships, each of which helps one or more students pay for their education; each of which helps Tulane attract the best and brightest students from around the world. In a letter written to a scholarship donor, one student recently stated, "I had always hoped to attend college but the financial burden had been insurmountable…through your generosity, I attend, with great pride, this fine institution. What I have gained here at Tulane, the education and support, is invaluable."

ENGINEERING SCHOLARSHIP FUNDS CONTINUE TO INCREASE

The School of Engineering recently received another endowed scholarship fund through the bequest of Marjorie B. Janssen. Mrs. Janssen honored her husband's memory with a gift that provides permanent scholarship support for students in Engineering through the Hermann John Janssen Memorial Scholarship Fund–Endowed. **Hermann Janssen** earned his BSE in Chemical Engineering from Tulane in 1940 and a MSE in 1958. Other endowed scholarships are:

Andy Alward Memorial Scholarship Fund
Emmett Franklin Bankston Scholarship
Thomas S. Booksh Memorial Scholarship Fund Endowed
Catherine and Henry Boh Scholarship Fund
Robert N. Bruce, Jr. Scholarship Fund in Civil Engineering
Joyous and William C. Van Buskirk Scholarship in Biomedical Engineering
Earl Calkins Scholarship Fund in Engineering
John Anthony Cochrane, Jr. Memorial Scholarship Fund
Frank E. Davis Memorial Scholarship Fund
Donald Derickson Memorial Scholarship Fund
Robert J. Drueding and Hermine Garsaud Drueding Memorial Scholarship Fund
James Woodrow Fouts Scholarship Fund
David Walker Godat, II Memorial Scholarship Fund
Marie M. Giacomino Endowed Fund
Herbert M. Hein Scholarship Fund
The W. C. Hildebrand Scholarship Fund
Kaiser Aluminum Scholarship Fund
Claude Kelly Scholarship Fund
Edmund Campbell Ker Scholarship
W. E. Koch Engineering Scholarship Fund
The Frances and Hugh Kiefer Endowed Scholarship Fund
Leon Klein Scholarship Fund Endowed
Henry and Elizabeth Lehmann Scholarship Fund in Engineering
John J. Metzger, Jr. Endowed Scholarship Fund
Cheri Anthony Miranne III Memorial Scholarship
Randall K. Nichols Award and Scholarship in Chemical Engineering Fund
The Solomon Oppenheim (ChE '17) Scholarship
The Shepard Francis Perrin Scholarship in Engineering
The John Riess Memorial Scholarship Fund
John R. Riley Scholarship Fund in Chemical Engineering
Nelson Betts Roltsch Memorial Fund
Modoc H. Rykoski Scholarship Fund
Raymond B. Scudder Scholarship in Engineering
Jared Siegel Memorial Scholarship Fund in Engineering
Vincent V. Uybarreta Scholarship Fund
The Leo S. Weil Scholarship Fund
The William and Catherine Spaar Memorial Scholarship Fund

Endowed Scholarship Funds in Engineering had a market value (as of 1/31/03) of $7,640,670.

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Charitable Gift Fund
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and others who wish to remain anonymous

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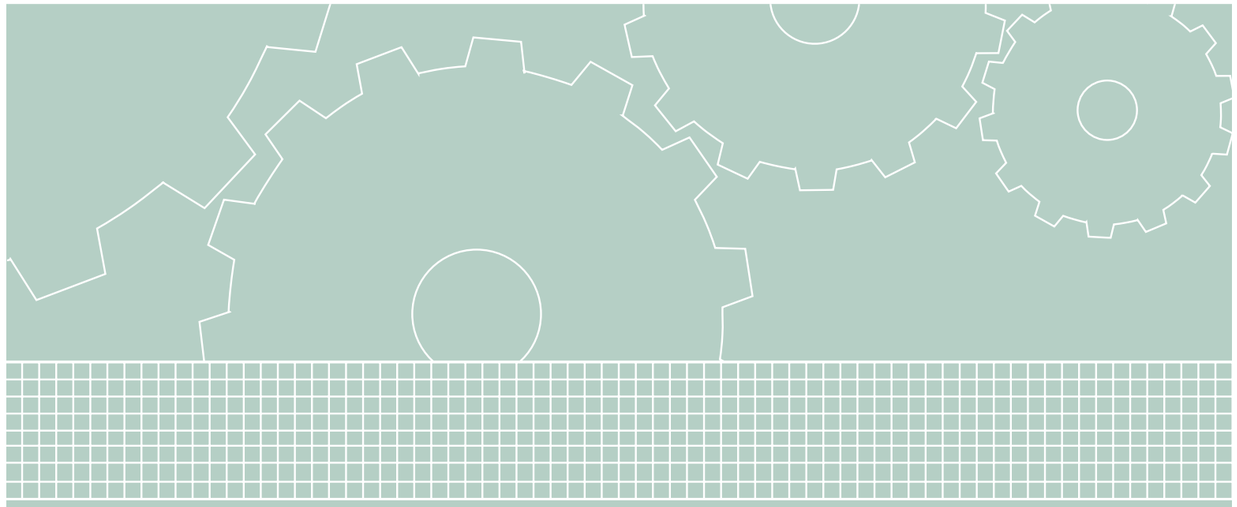

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