WRIGHT STATE UNIVERSITY

BITs & PCs

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

January 2002 Wright State University Dayton, Ohio 45435 Vol. 18 No. 4

Important Dates

January 10
CECS and CONH Volleyball, 4-8 PM, Student Union Gym

January 21
NO CLASSES–Martin Luther King, Jr. Day Holiday

January 24
Engineering and Computer Science Co-Op Day

February 1
Last day to apply for June graduation

February 5
Last day for all but freshmen to drop a class with a grade of "W"

February 17-23
National Engineers Week

February 18
CECS Open House

February 26
Last day for freshmen to drop a class with a grade of "W"

March 11
Last day of classes

March 12-16
Final Exams Week

March 25
Spring Quarter classes begin

A New Mode of Transportation?

What has four wheels, seven sets of pedals, and can get you from place to place? Dr. Junghsen Lieh's Tri-4 Car. Dr. Lieh from the Department of Mechanical and Materials Engineering and two students, Wilford Googe and Himanshu Iyer, have been working to create a four-wheel cycle that can be used for exercise and recreation purposes. This project, sponsored by the Dr. James Brandeberry, College of Engineering and Computer Science, Dr. Richard Bethke, and the Department of Mechanical and Materials Engineering, came about after research showed that most of the four-wheel cycles in the market are made for one or two people. The cycles that can seat four people are generally powered only by the two people sitting in the front. The Tri-4 Car can be peddled by the passengers hands as well as their feet and can seat four people at the same time.

The exercise utility of the vehicle comes from the fact that a person can use their hands, their feet, or both to power it. Of the four passengers, three can pedal with their hands and/or feet. A fourth person seated in the front will pedal with his/her feet and will steer the vehicle.

As a recreational vehicle, it can be used for transportation or enjoyment by the whole family or for a fun ride with friends. The finished design will have four seats plus extra cargo space in the rear. Since this is a prototype, it is expected that continuous design activities will be conducted in order to add more features, such as the ability to fold the vehicle to a smaller size and convert the four-person vehicle to a two-person vehicle when needed.

Do you have a unique name for Dr. Lieh's vehicle?

If you do, submit your suggestions for a name and if your idea is used you may win a prize package consisting of College of Engineering and Computer Science items.

To enter the *Name the Vehicle* contest, submit your name, phone number, email address and suggested name(s) to 405 Russ or email your entry to jgarring@cs.wright.edu. The deadline for entries is February 8, 2002.

Visit us on the Web at http://www.engineering.wright.edu

Employment Opportunities

The SOCHE Student Research Program has several positions for undergraduate and graduate students available in the Materials Lab at WPAFB. They offer flexible work schedules, career related work experience in their state-of-the-art labs and competitive wages (Soph. $10.80/hr; Jr. $12.15/hr; Sr. $13.50/hr; Grad. $16.55/hr). Applicants must be degree seeking students in good standing with U.S. citizenship. No experience is necessary. Positions available include the following:

Project No. AFIT9 - Haptic Operator Interface for UAV Operation and Robotic On-orbit Servicing

Major: Mechanical, Electrical, Biomed. Engineering
Description: This research will develop haptic interfaces to enhance operator effectiveness in remote control of unmanned aerial vehicles and space manipulators. Haptic interfaces that provide an operator with kinesthetic and touch feedback offers the potential of more effective control of remote systems such as UAV's and space manipulation devices. This task will involve the development and evaluation of alternative implementations of haptic feedback in a search for combinations of input and output variables that produce better control and reduce operator workload and training time. Engineering disciplines that this work may utilize are: aircraft flight, sensor and fire control; robotics and real time computer control; spacecraft attitude control; and human factors. Applicants should have experience in one or more of these and an interest in exploring and learning in all of them. Computer-related skills likely to be required or that must be acquired include: use of software including Matlab/Simulink, Mathematica and Robotica, the latter a Mathematica-based package to generate symbolic equations of motion; code writing in C and C++; and implementation of computer graphical displays.

Project No. 197A - Microstructure and Properties of Metal Composites

Major: Chemistry, Materials Science, Physics
Description: The work involved with this project shall include computer programming to support microstructural analysis efforts, metallographic preparation of samples, optical microscopy, scanning electron microscopy and x-ray diffraction. Analysis of the data collected will be performed, and will include identification and quantification of the microstructures studied. Mechanical tests which will be performed may include tensile tests and creep tests. Basic analysis of the test date will be performed, and determination of the modes of deformation and failure will be made. Additional tasks in support of the in-house research, such as heat treatments and data collection will be assigned as appropriate.

Project No. 290A - LISSARD Component Architecture Development

Major: Comp. Science or Comp. Engineering
Description of Work: Computer Security Lab Integration. Programmer/software integrator needed to build the backbone of a computer security research laboratory. Duties will include installing and integrating computer intrusion detection tools, artificial intelligence software and commercial databases, and making general enhancements to the overall system. Some software development will also be required as needed to support ongoing graduate research. Desired qualifications, in rough order of importance (higher to lower): Programming competency in a high-order language (C++, Java, etc.). Experience in configuring Windows, Linux or Solaris-based systems. Competency with data structures and algorithm design. Experience in configuring computer networks. Background in database management. Background in artificial intelligence methods and/or machine learning. Background in computer security.

Project No. 298A - Studies in Metallic Materials with High Structural Efficiency

Major: Materials Science, Mech. Engineering
Description: The student will conduct studies to measure the diffusion of boron in titanium. This project will involve performing metallography, heat treatment, and microstructural characterization. The student will assist in data collection of particulate reinforcements in model DRA systems by producing reinforcement and metal powders of controlled and narrow powder size distribution. The student will also perform miscellaneous duties to support the in-house research in amorphous metals.

Project No. 333 - Microstructure Evolution During SPD of 4N A1

Major: Chem. Engineering, Mat. Science, Chemistry
Description: The effect of deformation processing path on the grain size developed in 99.99% (4N) aluminum will be determined. Samples will be subjected to severe plastic deformation (SPD) via rolling, ECAE, conventional extrusion, and forging to different levels of strain at nominally identical strain rate. Following processing, samples will be prepared from each route for SEM examination to determine the average grain-subgrain size, grain-size distribution, and misorientation distribution via orientation imaging microscopy. The results for the various deformation methods will be analyzed to determine that method which produces the finest grain size.

Interested students can get an application via the SOCHE website at: http://www.soche.org. Applications must be submitted with a resume and transcript. For more information, call (937) 258-8894.

Employment Opportunities

ITRI News

ITRI Fall Workshop 2001

On October 25, the Information Technology Research Institute (ITRI) presented its 2001 Dayton area Fall Workshop. The topic for the workshop was *The Role of Industry in the Academia-Industry-Government Partnership for Economic Development*. WSU's President, Dr. Kim Goldenberg, and the Dean of the College of Engineering &Computer Science, Dr. James E. Brandeberry welcomed over 100 participants to the event at the Holliday Inn's conference facility. Frank Samuel, the Governor's Science and Technology Director, was the Keynote Speaker.

Presentations by local business technology leaders included:

- James Clark, CTO and Vice President, Corporate Technology and Strategy for *NCR*
- Dick Wendling, Senior Vice President, Systems Development for *Lexis-Nexis*
- Jeff Almoney, CTO and Vice President, Application Services for *Reynolds & Reynolds*
- Al Wofford, President of *CDO Technologies*
- Mike Beauchamp, President of *MTL Systems*
- Franz Dill, Chief Scientist, Analytics Center of Expertise for *Procter & Gamble*

The afternoon included a panel discussion with representatives from WSU, local industry, and government on ways to improve the collaboration among all key stakeholders in using new information technology as an engine for regional growth.

IEEE-CS BIBE 2001

On November 4-5, 2001, the second International IEEE Symposium on Bioinformatics and Bioengineering (BIBE 2001) took place in Bethesda, MD. This year's Symposium was sponsored by the IEEE Computer Society in cooperation with ITRI. Dr. Bourbakis, ITRI Director, is the founder and General Chair of BIBE. Mrs. Miller, ITRI Administrative Assistant, served as the Registration Chair this year.

The BIBE meeting had its roots in the mid-1990s, when bioinformatics began to firmly establish itself as a subset of computer science. Since bioinformatics ultimately grapples with the data generated by the fruits of bioengineering, it's important for BIBE to address both sides of the equation. Bioinformatics has become a growing kernel of interest within the IEEE Computer Society.

The first day's talks addressed interoperability of biological databases, phylogenetic trees, biological information sources, and protein structure prediction. The second day's bioinformatics track covered gene expression and gene regulation, biological data mining and knowledge discovery, and sequence search and alignment. The Bioengineering track covered several areas such as bio-imaging for brain surgery and breast cancer, visually impaired people, and applications of the electronic nose.

VOLLEYBALL

College of Engineering and Computer Science
vs.
College of Nursing and Health

All students, faculty, and staff are invited to play.

Thursday, January 10
4:00 PM - 8:00 PM
in the
Student Union Gym and Atrium

Those interested in playing should R.S.V.P. to the Nursing Student Council via email at WSUNSGCOUNCIL@aol.com or call Renee Lahey at 775-5508.

Refreshments will be served.

FACULTY FACTS

Abdul Awwal, Ph.D., CSE, has received funding in the amount of $5,000 from the University of South Alabama for his proposal entitled “Developing Effective Strategies and Performance Metrics for Automatic Target Recognition.”

Nikolaos Bourbakis, PhD., ITRI, presented a paper entitled “An Intelligent Assistant for Navigation of Visually Impaired People” at the 2nd IEEE International Symposium on Bioinformatics and Bioengineeering-BIBE2001 in Bethesda, Maryland on November 4 & 5, 2001. Dr. Bourbakis is founder and General Chair of BIBE. He also presented a paper “Smart Cars as Autonomous Intelligent Agents” at the 13th IEEE International Conference on Tools with Artificial Intelligence-ICTAI2001 in Dallas, Texas on November 7-9, 2001.

Ardeshir Goshtasby, Ph.D., CSE, has received $58,000 from Kettering Medical Center for his proposal entitled “Registering MR Brain Images to an Atlas.”

Ramana Grandhi, Ph.D., ME, has received funding from Dayton Area Graduate Studies Institute (DAGSI) in the amount of $30,000 for his proposal entitled “DAGSI Cost Share: Development of a Thermo-Mechanically Induced Geometric Variance Estimator.”

Thomas Hangartner, Ph.D., BIE, has received additional funding from the Procter and Gamble Company in the amount of $236,157 for his proposal entitled “Evaluation of a Novel Treatment for Osteoarthritis of the Knee.”

Craig Harvey, Ph.D., BIE, has received additional funding in the amount of $39,192 from the U.S. Department of Transportation, Federal Aviation Administration for his proposal entitled “Controller Pilot Data Link Communications (CPDLC) Program.”

Sharmila Mukhopadhyay, Ph.D., ME, has received $95,000 in funding from the Procter and Gamble Company for her proposal entitled “High Pressure Plasma Processes.”

T.K. Prasad, Ph.D., CSE, has received funding in the amount of $23,920 from the Dayton Area Graduate Studies Institute (DAGSI) for his proposal entitled “Mixed Signal Modeling for System Level Stimulation.”

Ling Rothrock, Ph.D., BIE, has received funding from Micro Analysis and Design, Inc. in the amount of $10,000 for his proposal entitled “Support Situation Understanding in National Missile Defense.”

Arnab Shaw, Ph.D., EE, has received $25,000 in funding from Sverdrup Technology, Inc. for his proposal entitled “Order Statistics for FOPEN Target Detection.”

Raghavan Srinivasan, Ph.D., ME, has received funding in the amount of $27,000 from Edison Materials Technology Center (EMTEC) for his proposal entitled “Paper Abrasivity Testing - Phase II” and $46,452 from the U.S. Department of Energy for his proposal entitled “Continuous Severe Plastic Deformation Processing of Aluminum Alloys.”

Mitch Wolff, Ph.D., ME, has received $76,000 in funding from Dayton Area Graduate Studies Institute (DAGSI) or his proposal entitled “Flow Physics of Incomplete Combustion Products Interaction with Film Cooling Air in High Pressure Turbine Stages,” $3,300 from Dayton Area Graduate Studies Institute (DAGSI) for his proposal entitled “Computational Fluid Dynamics I,” and $8,500 from the Ohio Aerospace Institute for his proposal entitled “Ohio Space Grant Consortium Campus Allocation.”

Are you interested in a co-op position for spring or summer quarter? Then you should attend the...

Engineering and Computer Science Co-Op Recruiting Day

Thursday, January 24, 2002
1:30 pm - 4:30 pm
Russ Engineering Center Lobby

Talk to employers about co-op opportunities. Bring copies of your résumé and dress professionally!

PARTIAL LIST OF COMPANIES PARTICIPATING IN CO-OP RECRUITING DAY

A.O. Smith
Bar Code Application Consulting, Inc.
CACI
Delphi Chassis
General Electric Aircraft Engines
NASA Glenn Research Center
Norcold, Inc.
SOCHE

NOTE: In order to participate in the co-op day, you must be registered with Career Services. For more information, contact Kim Gilliam in Career Services at (937) 775-2556.

Sponsored by:
Career Services and the College of Engineering and Computer Science

YOUR FIRST YEAR ON THE JOB
and **PIZZA PARTY**
by
Mr. Thomas Wendt
Director, ASME Midwestern Regional Office

4:00 p.m. - 5:30 p.m.
Tuesday, January 22
145 Russ Center

Sponsored by:
WSU Student Section of ASME

- Learn about the following:
- How to conduct yourself in meetings
- Pay plans & bonuses
- General cost of living issues
- Continuing education opportunities
- Presentation skills

In an informative presentation by Mr. Thomas Wendt, Director of ASME's Midwest Regional Office, you will find the answers to these and many other questions. Mr. Wendt will take you through that year on the job, as well as provide you with information on "How to Do Your Job" and tips on "Getting Ahead."

In this presentation, Mr. Wendt will draw on his experiences as the Director of Operations and Engineering for Wisconsin Energy Corporation todescribe the typical job functions and provide you with some insight into the first year on the job. Please be sure to attend this enlightening and fun presentation. The presentation will be followed with a pizza party.

Please pay $1.00 for the pizza before Tuesday at noon in the ME Office, 209 RC.

BITs & PCs
College of Engineering and Computer Science
Wright State University

Dean James E. Brandeberry, Ph.D., P.E.
Editor Jenny Garringer

BITs & PCs is a monthly newsletter published by the College of Engineering and Computer Science to inform students about activities, news, opportunities and changes occurring in the College. It reports on the achievements of faculty and students; changes in organization, policy and curriculum; scholarship and employment opportunities; and engineering and computer science student club activities.

The current issue of *BITs & PCs* is available on the Web at **http://www.cs.wright.edu/bitsandpcs/.** Copies are also available in the College office, any Department office, literature racks in the Russ Center Atrium, Russ Center Study Lounge, or the Student Club Room.

The next issue of *BITs & PCs* will be published the week of February 1, 2002. To submit items for this issue, call the College of Engineering and Computer Science at **(937) 775-5001**, or send email to **jgarring@cs.wright.edu** by January 23, 2002. The College of Engineering and Computer Science reserves the right to edit all material for publication.

SCHOLARSHIPS AND FELLOWSHIPS

The American Society for Engineering Education (ASEE) is accepting applications for the National Defense Science and Engineering Graduate Fellowships. These three-year graduate fellowships will be awarded to approximately 200 recipients, each receiving a stipend of at least $23,000 in addition to full tuition and required fees. Additional information and applications are available via the ASEE website at http://www.asee.org/ndseg. Completed applications must be postmarked by January 16, 2002.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is accepting applications for undergraduate and graduate scholarships, undergraduate senior project grants, and grant-in-aid for graduate students.

- → *UG/GRAD SCHOLARSHIPS* - Awards range from $3,000 to $10,000. Deadline: December 1, 2001.
- → *UG SENIOR PROJECT GRANTS* - Awards of up to $5,000. Deadline: December 1, 2001.
- → *GRANT-IN-AID* - Awards up to $7,500. Deadline: December 15, 2001.

More information and applications are available in the Dean's Office, 405 Russ.

The Association of State Dam Safety Officials is currently accepting applications from junior and seniors enrolled in a civil engineering program or related field and are interested in pursuing a career in hydraulics, hydrology or geotechnical disciplines, or in another discipline related to the design, construction and operation of dams. Applications are available online via their website at http://www.damsafety.org or in 405 Russ. Applications must be submitted by February 15,2002.

The Canton Regional Society of Professional Engineers is offering Grant-in-Aid to engineering students whose legal residence is in Stark County, Ohio and expect to receive a bachelor's degree in engineering during the period of June 2002 and January 2003. Applications are available in 405 Russ. The deadline for submissions is January 18, 2002.

The National Academy for Nuclear Training is accepting applications for undergraduate scholarships. The $2,500 scholarships are available to sophomores, juniors, and seniors majoring in nuclear engineering, power generation health physics, mechanical engineering, electrical engineering, or chemical engineering with nuclear or power option. Those interested must be a U.S. citizen and enrolled full-time with a 3.0 GPA. Applications must be submitted by February 1, 2002 and application packets are available in 405 Russ.

The National Aeronautics and Space Administration (NASA) is accepting applications for its Graduate Student Researchers Program. Fellowships of up to $24,000 are awarded for 1 year, and are renewable, based on satisfactory progress and available funding, for a total of 3 years. U.S. citizens who are full-time graduate students, or undergraduate students who have been accepted to a graduate program at an accredited U.S. college or university, are eligible for this program. Students from traditionally underrepresented groups are encouraged to apply. The application deadline is February 1, 2002, with award notification in May 2002. The fellowship announcement is available at http://education.nasa.gov/gsrp/.

The National Research Council is accepting applications for its 2002 Postdoctoral and Senior Research Associateship Programs. The programs provide opportunities for Ph.D., Sc.D. or M.D. scientists and engineers of unusual promise and ability to perform research on problems largely of their own choosing, yet compatible with the research interests of the sponsoring laboratory. These awards range from one to three years in length with annual stipends ranging from $34,000 to $61,000. Interested students can obtain information on specific research opportunities and participating federal laboratories, as well as application materials online at: http://www.national-academies.org/rap. Deadline for applications are January 15, April 15 and August 15, 2002. For questions and assistance contact:

National Research Council
Associateship Programs (TJ2114/D7)
2101 Constitution Avenue, NW
Washington, DC 20418
(202)334-2760
Email: rap@nas.edu

The Society of Manufacturing Engineers (SME) Education Foundation is accepting applications for a variety of scholarships for both undergraduate and graduate students. The amounts range from $1,000 to $12,000. For more information visit http://www.sme.org/foundation. The deadline for applications is February 1, 2002.

The Society of Women Engineers (SWE) is accepting applications for undergraduate and graduate scholarships. The Society will give out more than 100 individual scholarships ranging in size from $1,000 to $5,000. The scholarships are open only to women pursuing an undergraduate or graduate degrees in an accredited engineering or computer science program. Applications are available in 405 Russ or online at http://www.swe.org. Applications for sophomore, junior, senior, and graduate scholarships must be postmarked no later than February 1, 2002. Incoming freshman scholarship applications must be postmarked no later than May 15, 2002.

The U.S. Nuclear Regulatory Commission (NRC) Graduate Fellowship Program is designed to support students pursuing masters' degrees who are interested in engineering or scientific career opportunities with the NRC. Students in the following fields are encouraged to apply: chemistry, earth sciences, engineering (chemical, electrical, materials, mechanical, or nuclear), health physics, material sciences, mathematics, and physics. To be eligible, students must have exceptional undergraduate academic records, complete a bachelor's degree no later than August 31, 2002, be interested in a career with the NRC, and have U.S. citizenship. The fellowship provides a monthly stipend of $2,400 and full tuition and fees for up to 24 months. For more information and application materials, contact Pat Pressley via phone at (865) 576-3409 or by email at nrced@orau.gov.

Applications are now being accepted for

DAGSI Competitive Scholarships

for the 2002-2003 academic year.

Visit

www.dagsi.org

to get a downloadable application form.

For more information, contact:
College of Engineering and Computer Science
Office of the Dean
405 Russ Engineering Center
Phone: (937) 775-5001
Email: dean@engineering.wright.edu

Scholarships provide full tuition for both full-time and part-time study in the M.S. and Ph.D. programs. Full-tuition scholarships with an annual assistantship ($15,000) are available for full-time Ph.D. students.

Applicants must be admitted to the WSU School of Graduate Studies in an engineering or computer science program of study before their DAGSI application can be processed.* **(Please Note:** The graduate school admission process may take 2-3 weeks to complete). Two letters of reference are required with each application. Reference letters can be forwarded directly to the Dean's Office, separately from the application. Please see your advisors early.

Completed DAGSI Competitive Scholarship applications **must** be submitted by

5:00 PM on March 15, 2002,

to Room 405 Russ Engineering Center.

* If you have not been admitted in your program of study by March 15, 2002, your DAGSI application will not be reviewed.

Are you interested in pursuing a Master' s degree or a Ph.D.?
Are you interested in going into officer training after graduation?

FREE PIZZA!!

Then you should attend the

U.S. Air Force Information Session and Pizza Party

FREE POP!!

Wednesday, January 23, 2002
11:00 AM - 1:00 PM
145 Russ Engineering Center

Speakers will be on hand to discuss the many opportunities the U.S. Air Force can offer engineering and computer science students.

Students interested in attending should RSVP to the Dean's Office, 405 Russ, (937) 775-5001 or email jgarring@cs.wright.edu.

Watch your email and for flyers giving more specific information in coming weeks.

Upcoming Events

College of Engineering and Computer Science

Open House

Monday, February 18, 2002
1:00 PM - 5:00 PM
Russ Engineering Center Lobby
held in conjunction with
National Engineers Week
February 17-23, 2002

- √ Learn about our engineering and computer science programs
- √ Tour our state-of-the-art facilities and the campus
- √ Obtain information about admissions, financial aid, and cooperative education
- √ Receive a copy of our Employment Guarantee
- √ Hear a special presentation at 3 PM by WSU students: "Why Choose WSU"

For more information:
Phone: (937) 775-5001 Email: dean@engineering.wright.edu
or visit us on the web at http://www.engineering.wright.edu

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