

## National Engineers Week Schedule

### February 21-25, 2005

Penny Wars – donation jars located in all department offices and in 405 Russ (benefits CECS Scholarship)

Plans are underway for this year's Engineers Week, to be celebrated in CECS and internationally, February 20-26.

### Monday, February 21

1:00 PM – 3:00 PM

Mocktails Competition (Russ Lobby)

E-Week is an annual celebration involving thousands of engineers, teachers, students, and leaders in government and industry. Founded in 1951 by the National Society for Professional Engineers, National Engineers Week comprised a goal to increase public awareness and appreciation for engineering.

1:00 PM – 3:00 PM

Club Fair (Russ Lobby)

1:00 PM – 4:00 PM

CECS Open House (Russ Lobby)

The College and many of its student organizations are planning a variety of events for Engineers Week, and all organizations are encouraged to participate in these activities.

### Tuesday, February 22

1:15 PM

Introduction of Mr. & Miss Engineer Nominees (Russ Lobby)

1:30 PM

Nerd Fashion Show (Russ Lobby)

2:00 PM

Tau Beta "Pie" Eating Contest

### Wednesday, February 23

8:00 AM – 2:00 PM

Trebuchet Contest

### Thursday, February 24

8:00 PM (tentative)

Card Tournament (Union Station)

### Friday, February 25

7:00 PM

Movie Night (145 Russ)

### Saturday, February 26

7:30 PM

Ski Trip (tentative) to Mad River Mountain

Watch the televisions on the first floor or visit

[www.engineering.wright.edu](http://www.engineering.wright.edu)

for changes and updates in the schedule

## CONTENTS

Engineers Week	1
Faculty Facts	2
Outstanding Alumnus	2
SWE News	2
Employment Opportunities	3
Scholarships & Fellowships	4-5
DAGSI Information	4
Ohio Link News	6
Important Dates	6

# FACULTY FACTS

Below is a list of all new grants awarded within the College of Engineering and Computer Science, as well as other recent accomplishments by our faculty.

**Gallimore, Jennie J. (BIE)**

*Development of Specifications for an Interactive Aircraft Accident Data Collection and Analysis System*

U.S. Department of Transportation, Federal Aviation Administration  
6/23/04-6/22/05.....\$756

**Grandhi, Ramana V. (MME)**

*Multidisciplinary Design Optimization for High Reliability and Robustness*

Department of Defense, Office of Naval Research  
10/1/04-9/30/05.....\$70,000

**Narayanan, Sundaram (BIE)**

*Personal Knowledge Base*

LexisNexis  
6/10/04-12/31/04.....\$3,403

**Narayanan, Sundaram (BIE)**

**Fendley, Ryan D. (BIE)**

**Golshani, Forouzan (CSE)**

**Premus, Robert (RSCB)**

*Wright State University Certificate Program Focusing on Innovation and Entrepreneurship for High Technology*

Coleman Foundation, Inc.  
7/1/04-6/30/05.....\$21,780

**Narayanan, Sundaram (BIE)**

**Muller, Amanda C. (BIE)**

*Diverse Data Fusion, Information Theory, and Evaluation Techniques*

Anteon Corporation  
10/16/04-9/16/05.....\$10,000

**Siferd, Raymond E. (EE)**

*Reconfigurable Architectures for Mobile Joint Tactical Radio Systems (JTRS) for UAVs*

University of Dayton  
5/1/04-5/1/05.....\$28,000

**Slater, Joseph C. (MME)**

*ISAT Government SEIT Structures Reference Designs and Analytical Models*

Science Applications International Corporation (SAIC)  
9/13/04-9/30/05.....\$12,957

**Thomas, Scott (MME)**

*Thermal Management of Next-Generation Power Electronics for the More-Electric Aircraft Initiative*

Universal Technology Corporation  
7/12/04-7/12/05.....\$30,000

**Walsh, Charles (WCI)**

*Wright Center of Innovation – Corporate Matching Account*

LexisNexis  
12/1/04-12/31/05.....\$100,000

**Wolff, J. Mitch (MME)**

*Gas Turbine Engine Sensor Technologies*

Ohio Aerospace Institute  
3/15/04-4/30/05.....\$8,500

**Wolff, J. Mitch (MME)**

**Menart, James A. (MME)**

*Computational Aerothermodynamics*

Department of Defense, Air Force, Air Force Research Lab  
9.30/02-9/29/07.....\$29,000

## RANDY PHILLIPS NAMED OUTSTANDING ALUMNUS

Randy E. Phillips has been selected as the 2005 Outstanding Alumnus of the College of Engineering and Computer Science. Mr. Phillips is Director, Corporate Development, for Alcoa Inc. in New York. Here he is responsible for mergers, acquisitions, joint venture development and divestitures across a range of global businesses. He joined the company in January 2003.

Prior to joining Alcoa, Mr. Phillips was Vice President, Corporate Development, for TRW Inc. in Cleveland. From 1996 to 2002, he was responsible for the analysis and oversight of strategic business development initiatives across TRW's automotive, aerospace and information systems global businesses. From 1981 to 1996, Mr. Phillips served TRW's aerospace and information systems customers in program management, general management, systems/software engineering and strategic business development assignments in the company's Dayton, Sacramento, Redondo Beach and San Diego offices.

Before joining TRW, Mr. Phillips worked at Wright-Patterson AFB supporting the Aeronautical Systems Division with Systems Research Laboratory and Simulation Technology, Inc. He received his bachelor's degree in Computer Science/Systems from Wright State in 1982. In 1995, he completed the Harvard University Program for Senior Executives in National and International Security. He is a 1997 graduate of the Tuck Executive Program, the Amos Tuck School of Business Administration at Dartmouth College.

### BITs & PCs

College of Engineering and Computer Science  
Wright State University

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

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, and all CECS department offices.

The next issue of BITs & PCs will be published the week of March 7, 2005. 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](mailto:jgarring@cs.wright.edu) by February 21, 2005. The College of Engineering and Computer Science reserves the right to edit all material for publication.



## Society of Women Engineers

### NEWS

**Meetings:**

Odd weeks - W:4:30pm upstairs in 405 Russ

Even weeks - Th:6:30pm in the club room

Any and all are encouraged to attend. Support women in engineering!

Find us on the web at: <http://www.cs.wright.edu/~swe/>

MATLAB confounding you or not sure how to even get started using it?

We have an intro to MATLAB session coming up Feb 9 @6pm.

Contact:

[bell.59@wright.edu](mailto:bell.59@wright.edu)

[christine.esperanza@wright.edu](mailto:christine.esperanza@wright.edu)

# EMPLOYMENT OPPORTUNITIES

## **SOCHE Student Research Program**

Research opportunities at  
Materials Lab and AFIT at WPAFB

*Flexible work schedules, e.g., 12-14 hrs. wk. academic year & 40 hrs. wk. summer; full-time alternating terms; or 20 hrs. wk. year round - we will work with you!*

*Career related work experience - state-of-the-art labs*

*Earn while you learn (Soph.\$12.15 hr; Jr. \$13.70 hr; Sr. \$15.10 hr; Grad. \$18.60 hr; PhD \$22.45 hr)*

*Undergraduate to graduate students*

*Degree seeking students in good standing*

***Must be a U.S. Citizen***

*No experience necessary*

The SOCHE Student Research Program is accepting applications for positions at WPAFB for the following majors:

**Chemistry, Computer Science, Electrical Engineering, Materials Science, Mechanical Engineering, Math, and Physics.**

SOCHE accepts applications on an on-going basis for current and future job openings. Below is a **sample** of the positions we offer.

### *REVERSE ENGINEERING OF GENE NETWORKS*

**Majors - Electrical Engineering, Mechanical Engineering (with strong math background)**

This research responds to an Air Force need to understand toxicology at the cellular level. There is an ongoing research effort at AFRL in the area of toxicogenomics, which has been proposed to be a substantial part of the biotechnology research at AFRL in the future. One way to gain a better understanding of toxicology at the cellular level is to develop quantitative models of the cellular pathways involved with the cell's response to exposure to a toxic chemical. Models of various pathways and methods to determine the rate constants as well as other relevant parameters for models of pathways have recently appeared in the literature, but are not concerned with the particular pathways associated with the toxicology of hydrazine or cadmium, both of which are of interest to the Air Force. This research effort is concerned with supporting the toxicogenomics work at AFRL through the development of models of one or more of the pathways associated with liver cell's exposure to hydrazine and/or cadmium and the development of methods to estimate the rate parameters in the models so as to obtain agreement with available genomic and proteomic data. The particular research of this effort is involved with the implementation and use of existing tools for extracting, analyzing and visualizing genomic data, with the modeling of intra-cellular pathways with systems of differential equations, and with the determination of the parameters associated with the system of differential equations by comparing the predictions of the models with existing experimental data.

### *DARPA AIM PHASE FIELD CODE DEVELOPMENT*

**Majors - Computer Science, Materials Science, Mechanical Engineering**

This involves writing, testing, and documenting and new methods in the codebase to (1) add new features as determined by AFRL scientists, (2) to add new functionality, and (3) improve reliability. The codebase itself is a mixture of legacy FORTRAN code and newer C code that

uses several Application Programmer Interfaces to do mathematical computations, multimedia input and output, and xml input and output.

### *NANOSCOPIC SURFACE PREPARATION AND SENSOR MATERIALS CHARACTERIZATION*

**Majors - Physics, Chemistry, Materials Science**

Methods to influence the organization of atoms at the surface and interface of materials will be investigated. This work may include the deposition of materials, the operation of materials characterization equipment (X-ray, electron and/or ion spectroscopy, AFM, etc.) under the direction of senior engineers to determine the chemistry, morphology and/or structure of the deposited materials, as well as, the design or modification of software on lab automation or data reduction computer systems.

### *ATOMISTIC AND CONTINUUM MODELING OF QUANTUM DOT STRUCTURES*

**Majors - Physics, Electrical Engineering, Materials Science, Computer Science**

Perform finite element calculations to determine the minimum energy shape of quantum dots as a function of dot volume, using commercially available finite element software. Repeat these calculations at the atomic level by performing molecular dynamics calculation using a valence force field (VFF) potential. Develop this molecular dynamics code in MATLAB.

### *ELECTROMAGNETIC SIMULATION*

**Majors - Electrical Engineering, Physics, Math**

The student will help predict and characterize peak VHF radar cross section of targets on a dielectric ground as a function of target orientation and surface moisture. The student will develop computer code to form synthetic aperture radar (SAR) images from simulated data. The student will also compare radar images from predicted data to real world radar images in order to spot-validate prediction models. In addition, the student will characterize peak RCS as a function of target orientation for both simulated and real world radar images.

### *NEW DEFENSES AGAINST STEGANOGRAPHY*

**Major - Computer Science**

Steganography may be used to encode a hidden message in a digital image without apparent effects on the image. However, subtle effects are present, and they may be detected using new techniques based on optimal roughness and related metrics. This research will investigate these techniques for detecting, resisting, and otherwise defending against steganography and related information warfare attacks, and it will evaluate their effectiveness relative to existing methods. Specific tasks include the following (1) acquire a database of images that contain steganographic messages with various known encodings, (2) develop candidate procedures that employ optimal roughness and related metrics to detect steganographic encoding or to prophylactically resist such encoding, and (3) evaluate the effectiveness and robustness of the optimal roughness techniques relative to existing methods.

**Submit:**

**SOCHE Application (available at [www.soche.org](http://www.soche.org))**

**Resume &**

**Transcript/Advising Report**

**For more information**

**Call 937-258-8894**

# SCHOLARSHIPS & FELLOWSHIPS

The **Milwaukee School of Engineering (MSOE)** is seeking college students to participate in an innovative rapid prototyping research program that will focus on rapid prototyping applications in the biomedical, biomolecular, aerospace, architectural, manufacturing, and electronics industries. To be considered, students must have completed their sophomore year of an engineering, pre-engineering or science-based curriculum, be enrolled in a university for the fall term, and be a full-time student with a cumulative GPA of 3.00 or greater. Rapid prototyping is an automated fabrication process allowing objects to be created from a computer model without the need for molds, presses, or machining. The MSOE Rapid Prototyping Center has five state-of-the-art rapid prototyping machines, each capable of a different process – stereolithography, laminated object manufacturing, fused deposition modeling, selective laser sintering, and Z-Corp 3D printing. Accepted candidates will participate 40 hours per week from June 5, 2005, through August 13, 2005. All students will receive a \$3,450 stipend and gain invaluable experience. On-campus housing and a travel allowance are provided. Applicants must be U.S. citizens or permanent residents of the United States. Women, minorities, and individuals with disabilities are encouraged to apply. No experience in rapid prototyping is required. To apply, send the following: one-page cover letter; one-page resume; one-page statement indicating your interest in rapid prototyping and undergraduate research and why you should be selected as a participant; three letters of reference, two of which should be from previous or current faculty; and your university transcripts. Address applications to Ann Bloor; Milwaukee School of Engineering; 1025 North Broadway; Milwaukee, WI 53202-3109. More information is also available here, or at [www.msoe.edu.reu](http://www.msoe.edu.reu). All applications must be received by Friday, February 25, 2005, and only complete applications will be reviewed.

The **NASA Goddard Space Flight Center's (GSFC) Earth-Sun Exploration Division**, in collaboration with the **Goddard Earth Sciences and Technology Center** of the University of Maryland Baltimore County is offering a limited number of graduate student research opportunities. The program is schedule for June 6, 2005 through August 12, 2005, and is designed to stimulate interest in interdisciplinary Earth science studies b enabling selected students to carry out an intensive research project at GSFC, which can be applied to the student's graduate thesis. Positions are available to students interested in any Earth system science conducive to the research of NASA GSFC in Greenbelt, MD, as well as Oceanography and instrumentation research on coastal zone processes at NASA's Wallaps Flight Facility (FF) on the Eastern Shore of Virginia. Each student will be teamed with a NASA Goddard scientist mentor with parallel scientific interests. The program begins with an introductory lecture series aimed to theme popular Earth system science topics. Students will participate in the series and produce final oral and written reports on their summer research activities. In addition to the standard summer internships, two positions will be made available to interested doctoral students who require large-scale numerical modeling on massively parallel architectures for their dissertation research in Earth system science. Selected participants will be awarded a short-term summer internship to acquire hands-on training with the super computers housed at GSFC. All students will receive \$12 per hour for forty hours per week. In addition, GEST will reimburse domestic travel expenses up to \$1000 for participants needing to relocate to the Greenbelt, MD area. Housing will be provided for the program participants only at program expense and will be located on the campus of the University of Maryland, College Park, and Salisbury State University. Alternate

or additional accommodations cannot be supported. Transportation to and from NASA's GSFC will be provided. This program is open to students enrolled in accredited U.S. graduate programs in the Earth, physical, or biological sciences, mathematics, or engineering disciplines. Preference will be given to students who have complete at least one year of graduate study. Participants must be either U.S. citizens or foreign nationals in U.S. schools who are either permanent residents or who possess a valid F1 or J1 visa. All selected students will be subject to a pre-employment security background check under the current security guidelines. Application instructions are available at [gest.umbc.edu/student\\_opp/students.html](http://gest.umbc.edu/student_opp/students.html). Applications must include an updated curriculum vitae, two letters of reference, transcripts from the past two academic years, a statement of citizenship or residency, and a project proposal with the name of a suggested GSFC mentor. Any scientist at GSFC or WFF may qualify, as long as that scientist's research parallels that of the student's thesis. Applications must be received no later than February 28, 2005. Selection announcements will be made by early April.

The **National Society of Professional Engineers (NSPE)** is currently accepting scholarship applications for the following:

The *Paul H. Robbins PE Honorary Scholarship* will be awarded to an outstanding sophomore, in an ABET-accredited engineering program, for disbursement during the junior year. The application deadline for this \$10,000 scholarship and is March 1, 2005.

The *Steinman Fellowship* will be awarded to a senior from the NSPE North Central Region (IA, KS, MN, MO, NE, ND, SD) who will graduate from an ABET-accredited engineering program and enter a graduate program in engineering. The award totals \$10,000 and the application deadline is March 1, 2005.

The *William R. Kimel Engineering Scholarship* supports students from the states of Kansas and Missouri, who are in the junior year of a four-year ABET-accredited engineering program. The application deadline for this \$2500 scholarship is March 1, 2005.

More information and application instructions for these and other scholarships and internships are available on the NSPE web site at <http://www.nspe.org/scholarships/sc-home.asp> for scholarships and <http://www.nspe.org/students/st2-wnmlf.asp> for the Lunch Internship.

The **National Research Council of the National Academies** has announced the 2005 Postdoctoral and Senior Research Associateship Programs to be conducted on behalf of over 120 research laboratories throughout the United States, representing nearly all U.S. government agencies with research facilities. 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. Initiated in 1954, the Associateship Programs have contributed to the career development of over 11,000 scientists and engineers ranging from recent Ph.D. recipients to distinguished senior scientists. Approximately 350 full-time Associateships will be awarded on a competitive basis in 2005 for research in the fields of chemistry, earth and atmospheric sciences, engineering, applied sciences and computer science, life and medical sciences, mathematics, space and planetary sciences, and physics. Many of the laboratories are open to

# COLLEGE INFORMATION

both U.S. citizens and foreign nationals, and to both recent doctoral recipients and senior investigators. Postdoctoral awards are made for one or two years, renewable for a maximum of three years; senior applicants who have held the doctorate at least five years may receive awards for shorter periods. Annual stipends for recent Ph.D. recipients for the 2005 program year range from \$36,000 to \$65,000 depending upon the sponsoring laboratory, and are appropriately higher for senior award recipients. Financial support is provided for allowable relocation expenses and for limited professional travel during the duration of the award. The host laboratory provides facilities, support services, necessary equipment, and travel necessary for the conduct of the approved research program. Contact with the research advisor/mentor at the proposed sponsoring laboratory, including discussion of the proposed project, is necessary prior to submitting a formal application to the NRC. Application deadlines are May 1, August 1, and November 1 for reviews in mid-June, mid-September and mid-January respectively. Initial awards will be announced immediately following each review with notification of alternate candidates at a later time. Detailed program information, including instructions on how to apply, is available at [www.national-academies.org/rap](http://www.national-academies.org/rap). Questions should be directed to the National Research Council, Associateship Programs at (202) 334-2760, or [rap@nas.edu](mailto:rap@nas.edu).

**NISH**, formerly the National Industries for the Severely Handicapped, is currently accepting applications for its National Scholar Award for Workplace Innovation and Design. This award was established to encourage students to design creative technological solutions to barriers that prevent people with disabilities from entering or advancing in the workplace. NISH will accept workplace technology designs dealing with computer access, environmental accommodations, functional control and access, transportation and/or mobility, and communication assistance. This competition is open to any student or team of students at the graduate or undergraduate level. Both hardware and software designs are accepted. Up to three awards are given annually in amounts of \$10,000, \$5,000, and \$3,000 for first, second, and third places respectively. Matching monetary prizes will be awarded to the sponsoring department for all winners. The deadline for applications is February 28, 2005. For additional criteria for entries, view the application on the NISH Web site at [www.nish.org](http://www.nish.org).

The **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)** is currently accepting applications for its Engineering Technology Scholarship Program. Scholarships are available to engineering technology students enrolled full-time in an ABET-accredited program. Applicants the program must meet the following criteria:

- A cumulative college GPA of at least 3.0
- Enrollment in an engineering technology college curriculum with at least one full year of studies remaining in the year the scholarship will be awarded
- Potential service to the HVAC and/or refrigeration profession
- Need for financial assistance
- Leadership ability
- Recommendation from instructor and others
- Character

Applications for these scholarships must be postmarked by May 1 and are available through the Student Zone section of the ASHRAE website at [www.ashrae.org](http://www.ashrae.org). Additional information is also available in 405 Russ.

Applications are now being accepted for



## DAGSI Competitive Scholarships

for the 2004-2005 academic year.

Visit [www.dagsi.org](http://www.dagsi.org) to apply.

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 (\$18,000) are available for full-time Ph.D. students.

Applicants must be admitted into the WSU School of Graduate Studies in the 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.

Completed DAGSI Competitive Scholarship applications must be submitted on-line by **5:00 pm on March 15, 2005**. Supporting documents must be submitted by that date to room 405 Russ Engineering Center.

**IMPORTANT:** You must apply and by accepted to WSU's *School of Graduate Studies (SOGS)* before the **March 15, 2005** scholarship application deadline. To apply to SOGS please see [www.cs.wright.edu/gs/admissioninfo.html](http://www.cs.wright.edu/gs/admissioninfo.html). No DAGSI applications will be accepted from students who have not received "Conditional" or "Regular" admission from SOGS by March 15.

### Suggested timeline for seniors interested in applying for DAGSI:

**ASAP:** Apply to the School of Graduate Studies

**Mid January:** Check with your department and/or advisor to make certain you admittance status is either "Regular" or "Conditional"

**Late January:** Begin making requests for letters of reference from professors/advisors/employers. You must turn in 2 reference letters with the DAGSI scholarship application no later than March 15, 2005

**Early February:** Finalize paperwork required by SOGS to ensure that you have been admitted to your program of study, as either "Regular" or "Conditional"

**Mid February:** Complete DAGSI Scholarship Applications and forward it to the Dean's Office, 405 Russ Engineering Center (See applications for complete mailing address)

**March 15, 2005:** Final deadline for scholarship application forms

**Late March:**  
Receive notification of your award from the DAGSI office



## New Content Alerts from The OhioLINK Electronic Journal Center (EJC)

The EJC contains more than 5,000 journals. Most engineering disciplines are represented by journal content in the EJC. Participating publishers include Academic Press, ACM Digital Library, APS, Elsevier, Springer Verlag/Blackwell, Kluwer, Wiley, and others.

Create a personal EJC account through "My Login." Services available include:

- e-mail notification – New issue alert for the journals you choose; hotlinked tables of contents delivered to your e-mail account as they arrive in the EJC!
- saved searches – specify a topic, specify a frequency; your search will run automatically and you will receive by e-mail links to new articles that match your research interests.
- search history – a record of your past search strategies with options to see the previous results and an updated search, without re-keying the search.

If you would like more information about creating your own EJC account, initiating a TOC alert, or setting a notification search, contact Phil Flynn, Engineering Librarian, **phil.flynn@wright.edu**, 775-2533. Phil has office hours in Russ 404, Thursdays, 2:00 p.m. to 4:00 p.m.

## Important Dates

<b>February 20-26</b>	National Engineers Week
<b>March 12</b>	Last Day of Winter Quarter Classes
<b>March 14-19</b>	Final Exam Week
<b>March 28</b>	First Day of Spring Quarter Classes
<b>May 23</b>	Retirement Reception for Dean Brandeberry
<b>May 30</b>	UNIVERSITY CLOSED – Memorial Day
<b>June 4</b>	Last Day of Spring Quarter Classes
<b>June 6-11</b>	Final Exam Week
<b>June 10</b>	CECS Awards Ceremony
<b>June 11</b>	Commencement

Office of the Dean

3640 Colonel Glenn Hwy.  
Dayton, OH 45435-0001  
College of Engineering and Computer Science

WRIGHT STATE  
UNIVERSITY

