

## Faculty member publishes new grammar book for engineers

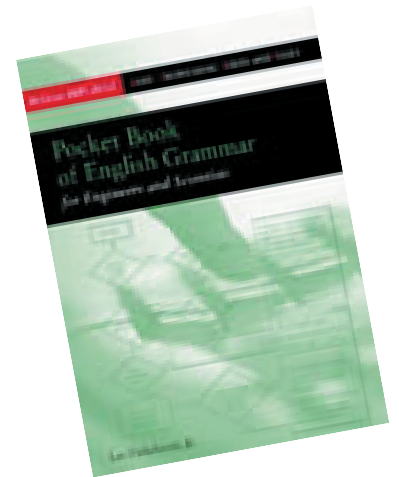
Dr. Leo Finkelstein, Director of Technical Communication for the College, recently published his second title, *Pocket Book of English Grammar for Engineers and Scientists*. The book is intended to answer the grammar needs of students of the sciences, but can be used by anyone looking for assistance with technical or business writing.



Dr. Finkelstein's innovative approach draws on engineering and science examples to explain key grammar concepts manner to which students can relate. It utilizes diagrams, tables, and flow charts to help science-minded students determine the correct use of such things as commas, prepositions, and the subjunctive mood. The book is conveniently indexed and cross-referenced and includes a thorough glossary

of grammar terms complete with examples to assist anyone in need of concise answers to grammar questions.

The *Pocket Book of English Grammar*, released in bookstore in February is the second title Dr. Finkelstein has produced as part of McGraw-Hill's BEST (Basic



Engineering Series and Tools) series and is available in the *Local Authors* section of the Student Union Bookstore. The second edition of his first book, the *Pocket Book of Technical Writing*, was published last January.

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NEWS

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VISIT US ON THE WEB AT:  
[www.engineering.wright.edu](http://www.engineering.wright.edu)

### Need a job or co-op?

Mark your calendars...

## ENGINEERING AND COMPUTER SCIENCE RECRUITING DAY

Thursday, July 28, 2005  
1:30pm – 4:00pm

Russ Engineering Lobby

For more information contact Career Services at  
(937) 775-2556

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# 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.

**Amer, Maher S. (MME)**  
*Molecular Modeling of Polymeric Nanocomposite Materials*  
 Universal Energy Systems, Inc.  
 2/1/05-2/28/06.....\$124,643

**Goshtasby, A. Ardeshir (CSE)**  
*Probe Assisted, PET/CT Guided Surgery For Colon Cancer*  
 Ohio State University  
 9/1/04-8/31/05.....\$53,872

**Hangartner, Thomas N. (BIE)**  
*Postmenopausal Evaluation and Risk Reduction*  
 Pfizer, Inc.  
 1/1/01-12/31/07.....\$13,500

**Hangartner, Thomas N. (BIE)**  
*Evaluation of a Novel Treatment in Patients with Osteogenesis Imperfecta*  
 Proctor & Gamble Company  
 6/1/04-5/31/06.....\$5,052

**Hill, Raymond (BIE)**  
*Developing an Agent-Based Modeling Approach for Improved Decision Support and Adaptive Planning in Support of Operational Air Forces*  
 CACI Technologies, Inc.  
 2/18/05-12/16/05.....\$75,000

**Slater, Joseph C. (MME)**  
*Turbine Engine Modeling*  
 P.C. Krause and Associates  
 1/12/05-2/28/06.....\$8,500

**Walsh, Charles (WCI)**  
*Wright Centers of Innovation – Corporate Matching Account*  
 Lighthouse Technologies  
 12/1/04-11/30/05.....\$2,000

**Walsh, Charles (WCI)**  
*Wright Center of Innovation for Advance Data Management and Analysis Technology Commercialization Initiative*  
 Montgomery County Commissioners  
 8/8/04-12/31/05.....\$135,000

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

## ANNUAL RECOGNITION AWARDS CEREMONY

Friday, June 10, 2005  
 4:30pm  
 Student Union Apollo Room

Join us as we honor outstanding students, faculty, and friends.

Don't forget to RSVP by May 27 to (937) 775-5001  
 or email [jenny.garringer@wright.edu](mailto:jenny.garringer@wright.edu).



## Order of the Engineer Ring Ceremony

The **Order of the Engineer** (OOE) was established to promote professionalism among engineers and graduates of accredited engineering programs. The College of Engineering and Computer Science holds two induction ceremonies each year: one at the end of fall quarter, and one at the end of spring quarter.

The next induction ceremony will be held on Friday, June 10, 2005 at 7:00pm in the Student Union Apollo Room. Engineering seniors graduating in June 2005 or August 2005, graduate students, alumni, and faculty are encouraged to register and participate.

The \$15 registration fee covers membership and the steel ring. Registration and fees must be received by the Office of Conferences and Events no later than May 27.

For a registration form or more information about the ring ceremony, visit <http://www.engineering.wright.edu> and click on *What's New*.

## BITs & PCs

College of Engineering and Computer Science  
 Wright State University

### Dean

James E. Brandeberry, Ph.D, P.E.

### Managing Editor

Jenny Garringer

### Editor

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.es.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 May 2, 2005. To submit items for this issue, call the College of Engineering and Computer Science at (937) 775-5001, or send email to [jenny.garringer@wright.edu](mailto:jenny.garringer@wright.edu) by April 15, 2005. The College of Engineering and Computer Science reserves the right to edit all material for publication.

# 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 **Rochester Institute of Technology IEEE student chapter** has announced its fifth annual Student Design Contest. Student design teams are encouraged to enter their projects for a chance to win up to \$5,000. Fairchild Semiconductor, the RIT Electrical Engineering department, and the IEEE Region 1 are sponsoring the contest, and as an IEEE-sponsored event, the projects must fall under the technical categories within the IEEE. The entry fee is \$50 per team and \$20 per person, and the application deadline is April 1, 2005. Applications can be submitted at [iee.rit.edu/sdc5](http://iee.rit.edu/sdc5), and additional details and contest rules can be found at [www.rit.edu/ieee](http://www.rit.edu/ieee).

The **American Institute of Steel Construction (AISC) Education Foundation** has announced the availability of a graduate fellowship funded by the US Steel Corporation. One \$2,500 award will be made to a full-time civil or architectural engineering student who is a U.S. citizen and is or will be doing masters-level work at any graduate school in Minnesota, Wisconsin, Illinois, Indiana, Iowa, Nebraska, Oklahoma, Texas, Hawaii, Maryland, Alaska, Ohio, or Delaware. All entries must be received no later than April 11, 2005, and the fellowship will be granted in August 2005. For more information on the application process, please visit 405 Russ.

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. The Associateship Programs have contributed to the career development of over 11,000 scientists and engineers. 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 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).

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, where 4.0 is the highest
- 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.

## DO YOU HAVE AN IDEA THAT COULD MAKE THE WORKPLACE (AND THE WORLD) A SAFER PLACE?

### ASME INTERNATIONAL WANTS TO GIVE YOU MONEY FOR IT.

Each year ASME International's Safety Engineering and Risk Analysis Division sponsors the Student Safety Engineering Design Contest. The team submitting the winning entry receives \$2000 for the students, \$500 for their advising professor, and \$400 travel allowance to present the paper at the 2005 ASME International Congress in Orlando Florida. The second place entry receives \$500 plus \$200 for its advising professor. At least one representative of the winning team must present the paper in person at the 2005 ASME International Mechanical Engineering Congress and Exposition in Orlando, Florida.

Entries must be papers describing an engineering analysis, design, or study intended prevent injury, illness, and death. Submitted papers must demonstrate an understanding of a safety problem and provide a solution from an engineer's perspective. Individuals or teams of students may prepare entries. Senior design or other in-class projects are especially welcome.

All entries must be submitted by May 20, 2005 to Brian G. Brady, P.E., 6 Croydon Dr., Bellmore, NY 11710

For more information visit [divisions.asme.org/serad/studentprograms](http://divisions.asme.org/serad/studentprograms)

# COLLEGE INFORMATION

NSPE members:

Match your wits with experienced professional engineers and engineering students throughout the country in the:

## 2005 NSPE

### MILTON F. LUNCH ETHICS CONTEST

NSPE's Board of Ethical Review (BER) provides a real fact situation that involves a professional engineer who establishes a Web site and indicates that his company will seal engineering drawings for a standard prescribed fee per page. Given the facts, you are asked a question about the ethics of the engineer. Contestants are to develop a discussion and conclusion using the format of the NSPE BER and are to give references citing only specific sections of the NSPE *Code of Ethics for Engineers*. The discussion and conclusion sections should comprise no more than 750 words.

Entries will be judged on the following criteria:

- Quality of the entry in form and presentation
- Demonstration of understanding of the implications concerning ethical or unethical behavior
- Comprehensive analysis of the case and arguments supporting conclusions

An award of \$500 will go to the NSPE state society or NSPE chapter of the winning entry and the authors will receive another award totaling \$500, as well as a certificate and recognition in *Engineering Times*.

All entries must be received by April 15, 2005 and can be mailed, faxed, or e-mailed to:

2005 NSPE Milton F. Lunch Ethics Contest  
NSPE Legal Department  
1420 King Street  
Alexandria, VA 22314  
(703) 519-3763 – fax  
mcannon@nspe.org

More information and the entire fact situation and question are available at <http://www.nspe.org/ethics.eh01-test.asp>



*works for you!*

<http://www.libraries.wright.edu/services/refworks/>

1. Create a private database of references unique to your interests
2. Search, add, and de-dupe article citations from many different engineering databases
3. Format and reformat bibliographies in common citation formats.

RefWorks is tooled to help manage your research interests. Create your own database of citations. Place references in folders according to topical interests, research projects, or paper drafts. Annotate your private database references. Search your database by keywords, authors, journals, notes, etc.

RefWorks is a web-based citation management utility. RefWorks is available from the web. Create your account at WSU and then RefWorks can be used wherever and whenever you need to work.

RefWorks makes bibliographies a snap. Select the references you want to use in your bibliography. Choose your citation style and let RefWorks draft your bibliography. Take the headaches out of the first draft!

Common citation styles include: APA, MLA, Chicago, and Turabian. Engineers might choose AIAA, American Ceramics Society, ASCE, IEEE, or NASA Tech styles. Even individual styles for notable journal publications are represented.

If you would like more information about creating your own database, managing your own citations, or auto-drafting your bibliographies, contact Phil Flynn, Engineering Librarian, [phil.flynn@wright.edu](mailto:phil.flynn@wright.edu), 775-2533. Phil has office hours in 404 Russ on Thursdays from 2:00 p.m. to 4:00 p.m.

# UPCOMING CECS EVENTS

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The Groundbreaking of the  
**KRISHAN AND VICKY JOSHI RESEARCH CENTER**  
housing the Wright Center of Innovation  
for Advanced Data Management and Analysis

Monday, April 11, 2005  
3:00pm to 5:00pm  
Student Union Apollo Room  
Wright State University

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## A TRIBUTE TO JIM BRANDEBERRY, FOUNDING DEAN

Monday, May 23, 2005  
4:00pm to 6:00pm  
Student Union Apollo Room  
Wright State University

The reception will include an exciting presentation and program that starts at 4:30pm.

## Important Dates

May 25	Last day to apply for August graduation
May 30	UNIVERSITY CLOSED – Memorial Day
June 4	Last Day of spring quarter classes
June 6-11	Final Exam Week
June 10	CECS Awards Ceremony – 4:30pm Order of the Engineer Ring Ceremony -7:00pm
June 11	Spring Quarter Commencement
June 13	First day of A and C term summer quarter classes
July 14	Last day of A term classes
July 18	First day of B term classes
August 18	Last day of B and C term
August 21	Last day to apply for December graduation

Office of the Dean

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

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