

Engineer receives Outstanding Alumni Award



David A. Strobhar

David A. Strobhar, P.E., founder and president of Beville Engineering, Inc., is

the 2004 Outstanding Alumni Award winner from the College of Engineering and Computer Science. Beville Engineering is the leading supplier of human factors engineering services to oil and chemical processing companies around the world. A 1980 Wright State graduate, Strobhar has completed projects at both the southern tip of Australia and the North Slope of Alaska.

Beville Engineering specializes in the analysis of operator performance issues and has contracted with nearly all the major petrochemical companies. From workload studies to review and design of control room

alarms and displays, Beville Engineering stays busy with fast-paced, hands-on projects. Based on the knowledge and skills that he acquired at Wright State, Strobhar has developed many new methodologies that have become industry standards.

Strobhar is a frequent presenter at trade conferences and has authored various trade magazine articles. Recently he wrote a chapter for *Instrument Engineers' Handbook: Process Software and Digital Networks*. He is a registered professional engineer in the state of Ohio and currently serves on the College of Engineering and Computer Science's External Advisory Board.

High schoolers design devices and drop eggs in Russ atrium

On Friday, March 5, 2004, teams of students from six area high schools gathered in the Russ lobby for the 2004 High School Egg Drop Competition. Sixty-six students made up the 31 teams who competed in designing devices to protect raw eggs from falls ranging from 17 to 45 feet.

Students were awarded based on their device's ability to prevent breakage after falls from each level of the Russ building, as well as their ability to hit the target below. First place went to Joe Walton, Jimmy Vandenbrock, Hannah Carrigg, and Megan Closser, of Chaminade-Julienne Catholic High School. Awards were also given for most accurate,

most creative, lightest, and most spectacular failure.

Prizes were donated by area businesses and included gift certificates to Wal-Mart, the Mall at Fairfield Commons, the Dayton Mall, and Young's Dairy, as well as movie passes to Regal Cinemas, and a Portable DVD Player from Circuit City.

The Dayton Daily News and Channel 7 covered the event, which was sponsored by the Wright Engineering Council. Participating students arrived from Chaminade-Julienne, Greenon, Springfield North, Greenville, Troy Christian, and Stebbins.

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NEWS

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www.engineering.wright.edu

FACULTY FACTS

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

Amer, Maher (MME)

Elected a visiting Fellow of the University of Cambridge, England. He will spend this summer there before starting his sabbatical leave at Max Planck Institute, Germany. Dr. Amer's collaborative research in both institutions will focus on molecular interactions at the surface of carbon nanotubes.

Bourbakis, Nikolaos G. (ITRI)

ITRI I-LEARN: IT's Enabled, Intelligent and Ubiquitous Access to Educational Opportunities for Blind Students
Arizona State University
1/1/04-8/31/05.....\$200,000

Bourbakis, Nikolaos G. (ITRI)

Invited speaker at the OVALS Life Sciences

Conference held in Louisville, KY on March 9, 2004, where he spoke on "3-D MRI Robotic Brain Surgery." He is an invited speaker at the Bioinformatics Symposium at the University of Minnesota on April 15, 2004 as well, where he will speak on "Invivo Cells Biosignatures." He has also been invited to speak on Information Security at the University of Dayton Department of Electrical and Computer Engineering on March 26, 2004.

Hangartner, Thomas N. (BIE)

Postmenopausal Evaluation and Risk Reduction
Pfizer, Inc.
1/1/02-12/31/04.....\$6,916

Grandhi, Ramana V. (MME)

Robust Analysis and Prediction for Integrated Design of Structures (RAPIDS)
NextGen Aeronautics, Inc.
1/1/04-12/31/04.....\$33,000

Narayanan, Sundaram (BIE)

Fendley, Ryan D. (BIE)

Quantitative Assessment of Multi-Year Performance Metrics
LexisNexis
2/9/04-3/15/04.....\$9,733

Rizki, Mateen M. (CSE)

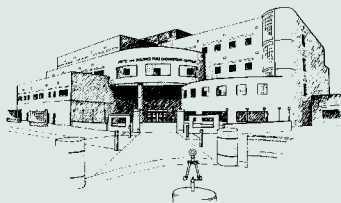
Hybrid Evolutionary Learning for Pattern Recognition Contract (HELPR) to Three-Dimensional Target Classification
Department of Defense, Air Force, Air Force Research Laboratory
10/1/02-9/30/04.....\$102,201

Xue, Kefu (EE)

A Radar Signal Processor to Extract Consistent Scattering Centers of a Man Made Target from SAR Range Profile Data
MRLets Technologies, Inc.
2/12/04-6/30/05.....\$59,914

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.cs.wright.edu/bitsandpcs/>. Copies are also available in the College office, any Department office, literature rack 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 May 3, 2004. To submit items for this issue, call the College of Engineering and Computer Science at (937) 775-5001, or send email to ygarringer@cs.wright.edu by April 19, 2004. The College of Engineering and Computer Science reserves the right to edit all material for publication.

CLUB NEWS

American Society of Mechanical Engineers (ASME)

ASME Events for April :

First meeting of quarter: Wednesday, April 7 at 12pm



Rowdy 'Round Town Project

Regional Conference – April 1-3, 2004 @ The Ohio State University

For information on what takes place at these conferences try these websites:

- <http://www.asme.org/students/> --- click on "Student Section Information", then click on "ML-1 Student Operations", then review pages 48-65.
- <http://rcsgei.eng.ohio-state.edu/~asme/>
- <http://regions.asme.org/regionv/>

Wright Engineering Council (WEC)

As a sponsor of National Engineers Week, WEC enjoyed a very busy winter quarter.



Organizing the annual **Nerd Fashion Show**, we awarded the golden, silver, and bronze pocket protectors to Ed Gemin, Todd Dobbmeyer, and Nick Baine respectively.

WEC also held the annual **movie night** on Wednesday of E-week, and sponsored the **Breakfast with the Dean** on Friday.

At the second annual **E-Week Party**, Michael Gessner and Andrea Thompson, both sponsored by WEC, were announced Mr. And Miss Engineer.

WEC also sponsored the annual **High School Egg Drop Competition**, held in the lobby of the Russ Engineering Center.

On March 6th, WEC and Tau Beta Pi hosted the annual **Euchre Tournament**.

FELLOWSHIPS & SCHOLARSHIPS

Described below are scholarship and fellowship programs available to CECS students.

The **US Navy** is looking for bright, well-rounded engineers to participate in its *Nuclear Propulsion Officer Candidate* (NUPOC) program. Those interested may apply as early as the second semester of their sophomore year, and as late as post-graduation, and must attend a personal interview with a Navy Admiral. Accepted applicants will train to be officers and leaders on-board the Navy's nuclear carriers and submarines. Benefits include:

- \$10,000 signing bonus
- Military pay while you complete your education at WSU
- Competitive salary with guaranteed pay increases as you advance in rank
- Full medical and dental insurance
- 30 days paid vacation per year
- Postgraduate education opportunities

In addition to the NUPOC program, the Navy is also offering positions for qualified individuals teaching at the Nuclear Power School in Charleston, SC. Participants would be commissioned officers in the US Navy, with no sea duty obligation. For information please contact Lieutenant, junior grade, Teri Lawson at 800-553-1146 ext. 127, or e-mail her at lawsont@cnrc.navy.mil.

The **Associated General Contractors of Ohio Education Foundation** currently has several scholarships available geared toward students pursuing construction-related degrees. All students applying must be U.S. citizens, have a 2.5 GPA, and be an undergraduate in at least the second year of a construction related degree program during the 2004-2005 academic year. For applications and more information on the many scholarships available through this program, please visit 405 Russ or go to www.agcoho.com

The **Naval Research Laboratory (NRL)** sponsors a postdoctoral fellowship program that is designed to increase the participation of highly trained scientists and engineers in scientific and technical areas of interest in the Navy. Scientists and engineers at participating naval laboratories help shape and execute the programs that support Naval Forces in their future operational needs. Competitive stipends based on experience are offered.

Relocation and travel allowances along with a comprehensive benefits package including health, life, and disability insurance are also offered. All applicants must be U.S. citizens or permanent residents, or must hold a green card. Permanent resident status eligibility for fellowship positions may vary with each laboratory. Before appointment, each participant must present evidence of having received a Ph.D. or equivalent degree. The applicant must submit a 5-10 page research proposal that relates to a specific research opportunity. Applications are accepted on an ongoing basis. For application material and detailed information, visit www.asee.org/nrl.

Culture Works sponsors the Leonard P. Roberts Memorial Scholarship Fund, and annually awards scholarships of up to \$4,000 to upper-level undergraduate students majoring in performing arts, visual arts, engineering, and business administration enrolled in one of the Miami Valley's four-year colleges. Students will be ranked based on their GPAs in their major, their overall GPAs, their involvement in the arts, a personal essay, two letters of recommendation, as well as financial need. Each application must include the following:

- Completed Leonard P. Roberts Memorial Scholarship Application Form for 2004-05
- Copy of Wright State academic transcript
- Copy of 2004-05 Student Aid Report, which reflects the estimated family contribution. If not available, submit a copy of 2004-05 Financial Aid Form (FAFSA)
- Printed copy from ROX of 2004-04 financial aid award notification from Wright State that identifies your current scholarships, grants, and loans. (2004-05 awards will not be available)
- One-page typed essay stating goals and accomplishments, campus and community involvement, and involvement in/appreciation for the arts
- Two current letters of recommendation, one of which must be from the department chair of your field of study

The student must send one original and five copies of each of the six items listed above. All materials are due by 5:00 PM, Thursday, April 15, 2004. More information and applications

are available in the Office of Financial Aid and at www.cultureworks.org.

The **Cincinnati/Dayton Division of Kroger** established the Garnes/Ward Scholarship in 1990 in memory of two minority store managers. The program has provided financial assistance and paid summer internships for more than 94 students and over \$300,000 in scholarships are granted. In order to be considered for the \$3500 scholarship, applicants must meet the following criteria:

- Must be of a racially ethnic minority background
- Must be classified as a Junior or Senior during the 2004-2005 academic year
- Must have a GPA of 2.5 or greater
- Must be available to complete the 10 week internship in its entirety
- Must be able to work 40 hours (including nights & weekends) for the 10 week internship at one our 103 neighborhood stores in the Cincinnati/Dayton area
- Must be able to lawfully reside and work in the U.S. permanently at the time of application for the scholarship.

Business majors, majors in Business fields, and Pharmacy majors are preferred, but other majors will be considered. All applications must be turned in by April 17, 2004. For more information, please contact the Career Services Office at 775-2556, or the Office of Student Life at 775-5838, or contact the Kroger Human Resources Department at (513) 782-3497.

The **National Science Foundation** is offering \$30,000 graduate fellowships, accompanied by full tuition, to six qualified mechanical or civil engineering students accepted to Polytechnic University. The position begins on June 1, 2004. Fellows spend ten hours per week at a high school site and five hours per week in preparation, serving as a science resource by designing and conducting sensor-based experiments. They will develop and conduct technology workshops for high school teacher, and collaborate with them to prepare lab activities. They will also conduct research in faculty directed projects in their field. Fellows must maintain a full load of graduate study and demonstrate progress toward their assigned thesis/dissertation research. More information is available at <http://gk12.poly.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. \$11.70 hr; Jr. \$13.15 hr; Sr. \$14.50 hr; Grad. \$17.90 hr; PhD \$21.60 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.

Title - 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.

Title - DARPA AIM Phase Field Code Development

Majors - Computer Science, Materials Science, Mechanical Engineering

This involves writing, testing, and documenting 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.

Title - Nanoscopic Surface Preparation and Sensor Materials Characterization

Majors - Physics, Chemistry, Materials Science

Description - 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.

Title - Atomistic and Continuum modeling of quantum dot structures

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

Description - 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.

Title - Electromagnetic Simulation

Majors - Electrical Engineering, Physics, Math

Description - 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.

Title - New Defenses Against Steganography

Major - Computer Science

Description - 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)

Resume &

Transcript/Advising Report

For more information

Call 937-258-8894

Part-time UNIX Administrator/Programmer

General Dynamics Advanced Information Systems is seeking a UNIX Administrator/Programmer to assist in the Speech, Communication, Research, Engineering, Analysis, and Modeling (SCREAM) laboratory at Wright Patterson Air Force Base. This group performs research, development, and evaluations of speech technologies. The lab facilities consist of a network of leading edge machines running both Linux and Unix operating systems.

The UNIX Administrator/Programmer will help support the group with running experiments by script and code writing. Schedule hours will be somewhat adaptable. Responsibilities will include, but are not limited to:

- Running large scale Speaker Identification (SID) experiments across multiple machines
- Developing new speech recognition experiments
- Developing new methods to run experiments
- Interface developments

Requirements:

- At least 2 years of completion toward a Bachelor's Degree in Computer Science, Computer Engineering, or related discipline
- Experience working in a UNIX/Linux environment
- Experience with PERL and shell scripting
- Experience programming in C/C++
- U.S. Citizenship: applicants selected will be subject to a Government security investigation and must meet eligibility requirements for access to classified information (current Department of Defense security clearance strongly preferred)

The **ideal candidate** will also possess:

- Experience with Tcl/Tk scripting
- Experience with MATLAB
- Signal processing knowledge

Apply Today

Please see the career section of www.GD-AIS.com

Position: UNIX Administrator/Programmer – Part-Time Flexible (#3628)

EXCEL Experience

The Home Group, LLC, a property investment company in Fairborn, is seeking a student who has working knowledge of EXCEL to work one day a week for four hours. The position would require inputting data into an EXCEL spreadsheet and generating graphs and tables. The rate of pay is \$50 for the half day's work. The position begins the first week of May and is for a duration of one year.

If you are interested, please call:

Michael Di Flora, President
The Home Group
919 S. Central Avenue
Fairborn, OH 45324
754-9792

Inventors Competition accepting applications

Each year the National Inventors Hall of Fame presents the Collegiate Inventors Competition to recognize and encourage student involvement in the manifestation of technology breakthroughs. Entries are judged based on originality and inventiveness, as well as the social, economic, and environmental value of the new idea, and the scope of its use.

Awards include a \$50,000 Grand Prize, a \$25,000 Graduate Student Award, a \$15,000 Undergraduate Student Award, and a \$5,000 honorarium presented to the advisor of each winning project.

Students may enter individually or in teams of up to four students. At least one student must have been enrolled full-time at a college or university within 12 months prior to the entry date and all team members must have been enrolled part-time or better within the past 24 months.

Finalists must attend the final judging session and awards presentation November 13-15, 2004 in Washington, D.C. Judges and finalists will meet face to face. Winners must be present to claim their prizes.

The deadline for the 2004 competition is June 1. For additional information and a downloadable application packet, visit www.invent.org/collegiate. To recommend someone for an Award, send an e-mail to collegiate@invent.org, or call (330) 849-6887.

Accelerated Commissioning Program offered to EE, CSE majors

The Air Force ROTC has a unique One-Year Commissioning Program available for electrical and computer engineering students.

Students must meet these basic requirements:

- Be able to attend and successfully complete a 6-week training encampment during Summer 2004
- Have a realistic degree program (including AFROTC classes) to graduate/commission no later than August 2005
- Meet weight and/or body fat standards and pass a medical exam
- Pass the physical fitness test (running, push-ups, sit-ups)
- Meet all other contracting standards and requirements

Students with a GPA of 2.5 or higher may qualify for an "Express" scholarship for their final year of college. This would cover up to \$15,000 for tuition/fees, \$510 in textbook money and a tax-free stipend of \$400 per month. For more information, contact Major Bernie Fullenkamp at bernie.fullenkamp@wright.edu or Colonel Jeremy Martin at jeremy.martin@wright.edu.

ITRI rounds out workshop series

Nanotechnology workshop

On February 27, 2004 ITRI hosted a workshop to bring together experts in the field of nanotechnology and micro-electro-mechanical systems from Wright State University, Ohio State University, and the University of Dayton for research collaboration.

SKM Grant Workshop

The final workshop for the 2003 phase of the Secure Knowledge Management (SKM) grant was held on March 9, 2004. Faculty from WSU, University of Cincinnati, UD, OSU and Kent State University presented their research on 16 different projects. The \$1.3 million dollar SKM grant was awarded to ITRI from the Air Force Research Laboratory (AFRL) via the Wright Brothers Institute. ITRI coordinated the work among the five universities. ITRI has received an additional grant of \$436,000 from AFRL to continue the project in 2004.

Faculty member publishes new edition

Dr. Leo Finkelstein, Director of Technical Communication at CECS, recently published the second edition of his *Pocket Book of Technical Writing for Engineers and Scientists*. The book, arranged specifically for science and engineering students, succinctly and practically outlines the process of producing some of the most common technical pieces in an informal manner.

This edition features several new components, which add to the overall appeal of the book. A discussion of appropriate use of visuals in technical writing is included. Another new chapter discusses technical compositions as they relate to team writing. The topic of grammar and style receives a chapter in this second edition, as does the concept of ethics. Also included is a threaded example. A piece of technology is referenced throughout the book as the subject of each type of document.

Pocket Book of Technical Writing was released January 30 as part of McGraw Hill's BEST (Basic Engineering Series and Tools), and is currently available in the *Local Authors* section of the Student Union Bookstore.

Important Dates

May 25	Last day to apply for August graduation
May 31	UNIVERSITY CLOSED Memorial Day
June 5	Last day of spring quarter classes
June 7-12	Final examinations
June 11	CECS Awards Ceremony - 4:30 PM Order of the Engineer Ring Ceremony - 7:00 PM
June 12	Spring Quarter Commencement
June 14	First day of A and C term summer quarter classes
July 15	Last day of A term classes
July 19	First day of B term summer quarter classes
August 19	Last day of B and C term classes
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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