Twenty-six years ago, Erwin Tomash (EE,’43), acting with the advice of a group of friends in the computing industry, founded the Charles Babbage Institute (CBI). After an organizational period, the Institute came to its permanent home at the University of Minnesota. CBI is an organized research unit of the University’s Institute of Technology with strong ties to the University Libraries. The CBI director, Arthur L. Norberg, holds the Engineering Research Associates Land-Grant Chair in the History of Technology and is a Professor of Computer Science. CBI is

- an historical research center that conducts and fosters research on various aspects of the history of information technology,
- an archival center whose principal objective is to promote and to develop national collections of historically significant materials in the history of information technology, and
- a clearinghouse for information about the location and contents of historical materials.

The CBI staff has always been small, with two historians and two archivists, with some graduate student assistants.

The CBI Historical Research Program

The historical research program of CBI addresses a two-fold goal: First, staff identify areas in which to collect archival materials. Second, historians explicate and interpret major events and developments in the history of information technology. In CBI’s early years, emphasis centered on the first goal, as we developed a collecting strategy and identified those people and organizations whose materials would contribute significantly to a CBI archives. As the archival staff became increasingly knowledgeable about the sub-discipline of computer history, historical research in CBI shifted more toward interpretation.

The range of research projects undertaken and publications resulting from them cluster in the areas of technical developments in computing, computer business, education and technical research, the growth of academic computer science programs, security and privacy, the role of government in the evolution of computing, and the mathematical background to computing. CBI produced 7 books and more than 50 scholarly articles over the past two-and-a-half decades, but let me comment on only three of the books.

continued on page 2
The objectives of a Minnesota research project involved both an investigation of the wellspring for the Minnesota computer industry and a focused study of Engineering Research Associates, Inc., (ERA), a St. Paul firm, which was the foundation of many computer companies in the area. This study eventually included an investigation of the Eckert-Mauchly Computer Company (EMCC) (Philadelphia) and Remington Rand in the 1950s (Remington Rand purchased both EMCC and ERA in 1950 and 1951, respectively). This study will culminate in a book on the three firms Computer and Commerce by Professor Norberg to appear from MIT Press in spring 2005.

Dr. William Aspray considered seven historical issues in his book about von Neumann *John von Neumann and the Origins of Modern Computing* (1990). Among the several historical issues investigated were: the change that arose in numerical methods in the period 1945-1957 to accommodate the computer; the evolving role of computation in the sciences; the changes in the scientific and the technological disciplines to which the computer was applied; the importance of the Institute for Advanced Study (IAS) at Princeton as an international center of scientific computation; and the establishment of computing as a mathematical science. The book and articles resulting from this project provided an important new perspective on the range of United States activities in early stored program computing.

The Defense Advanced Research Projects Agency (DARPA) afforded CBI another opportunity with a contract to prepare a history of its Information Processing Techniques Office (IPTO) for its most influential years 1962 to 1986. This study was designed to be a scholarly analysis of the programs and management style of IPTO. To understand the importance of IPTO for the community, staff examined a number of projects IPTO supported and their results in four technical areas: time-sharing, networking, artificial intelligence, and graphics. Norberg and Dr. Judy E. O’Neill published their report as a book entitled *Transforming Computer Technology* (1996).

The National Science Foundation supported several other research projects covering such topics as the history of scientific computing, software development, and the history of NSF support for computing.

**The CBI Archives Collecting Program**

The CBI Archives Collection, totaling some 6,000 cu. ft., contains manuscripts and records, near print materials (not published), over 300 research-grade oral histories, and over 150,000 photographs. The near print materials, which continue to be a major source of information for visitors to the archives, contain product literature, technical manuals and reports, educational reports, U.S. government computing items, reports on international computing, and reports of consulting organizations. CBI acquired the records of many major U.S. companies, among which are CDC and Burroughs, and a selection of smaller companies, C-E-I-R, Inc., Applied Data Research, and some records of the Honeywell Corporation. Surrounding this core of collections is a selection of the papers of individuals who played important roles in the computing activity.

Along the way, CBI staff grappled with the two central issues of archival collecting for the 20th century. First, the volume is enormous, and decisions about collecting have to be made judiciously. And second, the records generated by scientific and engineering organizations were viewed as a separate subset of the first problem. CBI organized a major project to conduct research on appropriate methods for handling these large quantities of records. To assist other organizations interested in areas other than information technology to address their own collecting, CBI published a guide to the appraisal of large quantities of business records.

CBI has been a leader in use of the Internet and the World Wide Web to supply information on its collections and research programs. In 1994, archivist Bruce Bruemmer took all of the archival finding aids and converted them to an Internet Gopher listing. Shortly thereafter, he reworked the style of CBI’s finding aids (lists of collection contents) and made them compatible with HTML style. CBI’s new web site was rich in content and its effect on reference service was dramatic. More and more researchers appeared at CBI with a list of box and folder numbers instead of a vague idea about collections. In 1999, Elisabeth Kaplan, as the new archivist of CBI, led efforts to further enhance the search capabilities and content of the CBI web site (www.cbi.umn.edu).

**Conferences**

Over the years, CBI has sponsored, co-sponsored, and participated in conferences of all kinds related to history and archives. The relevant point about these conferences is the range of topics and venues. History programs have been conducted at the University of Manchester, England (international computing); at the Nixdorf (Computer) MuseumsForum, Paderborn, Germany (software); at Rockefeller University in New York City (computing and communications); Minneapolis, Minnesota (40th anniversary of ERA, Inc.); Philadelphia, Pennsylvania (issues in the history of computing); Washington, D.C. (history of Sperry Univac); and Seven Pines, Wisconsin (CBI’s scientific computing research, and research by CBI/Tomash Fellows). In addition, CBI staff participated in literally hundreds of professional meetings sponsored by other organizations and professional societies around the world. Many of the presentations at these meetings resulted in publications by CBI staff.

Quietly, and with determination, CBI has provided a legacy for the history of information processing, one for which our sponsors can take just pride. But the task is far from completed. Information technology people continue to push the frontiers of information processing, introducing new concepts and artifacts that require our constant attention. Our collections continue to grow. Our service will continue to be needed. Our involvement with the information community will continue to be rewarding. And when the next technological wave overtakes the information wave, the archive will be there waiting for another century’s researchers.

-Arthur Norberg
The department concluded another very successful faculty recruiting season this year. We received more than 400 applicants. Among them, 14 highly qualified candidates in the areas of algorithms, AI, computer systems, computer security, databases, human-computer interaction, programming languages, computer networks, and distributed systems were invited for interviews. In the end, we hired three extremely talented young researchers from major research universities: Nicholas Hopper and Antonia Zhai both from Carnegie Mellon University, and Abhishek Chandra from the University of Massachusetts at Amherst.

Nicholas Hopper specializes in cryptography and computer security as well as theoretical computer science. He has done extensive work in the area of steganography. His hiring is part of our effort to continue strengthening the computer security area in the department. Antonia Zhai's main research areas are in compiler and computer architectures, especially for the future generations of high performance microprocessors employing speculative multithreaded architectures. Abhishek Chandra has been working in operating systems, distributed systems, and multimedia with the goal of constructing robust, self-managing systems.

As a premier research department in the country, our faculty members are at the forefront of their research areas. With our strategic recruiting over the past few years, faculty expertise in the department now encompasses virtually all aspects of Computer Science & Engineering. Our faculty keeps pace with the ever-changing needs of the IT industry by constantly updating the curriculum to provide our students with up-to-date instruction and technology, so that they possess the required skills and training to practice “life-long” learning after they have graduated. These efforts have made our graduates among the most sought after and among the most employable in the IT industry.

In this newsletter, I would also like to bring to your attention a very special and unique unit closely associated with our department but one which is not known widely among our students and alumni. This is the Charles Babbage Institute (CBI). Its director has always been a tenured professor in our department. We are very pleased that Professor Arthur Norberg, the present director of CBI, has written an article in this newsletter to showcase CBI. We have also included an article presenting current activities in the Digital Design Consortium. The Digital Design Consortium was established three years ago with a generous donation from Linda and Ted Johnson. Its faculty members are primarily from our department and the School of Architecture and Landscape Architecture.

We hope that you find these and other articles in the newsletter both interesting and informative. The department newsletter is a means for us to communicate with the various constituents of our departments—alumni, students, and faculty at peer institutions. We would very much like to hear your comments and feedback, via letter, e-mail, or by phone. (Detailed contact information appears on the back cover of this newsletter.) We look forward to hearing from you.

-Pen-Chung Yew
A New Center Serving Software Engineering Needs: UMSEC - University of Minnesota Software Engineering Center

Mats Heimdahl - Director, UMSEC, Associate Professor
John Collins - Director of Graduate Studies, Software Engineering

As a new academic year is approaching, we have some exciting news for the software engineering community in Minnesota; a new center focused on your needs - the University of Minnesota Software Engineering Center (UMSEC). We formally created UMSEC in February 2004 to strategically align our software engineering research efforts, educational offerings, and outreach activities. The mission of UMSEC is to bring together faculty, students, and industry to advance the science and practice of software engineering through research and education.

Since 1997, the CSE department has offered the highly successful Master of Science in Software Engineering (MSSE) degree in collaboration with the Center for the Development of Technological Leadership (CDTL). Within the CSE department, we have a strong research program in software engineering and closely related fields such as databases, human machine interaction, and programming languages. Finally, the department has for several years sponsored local interest groups such as the Twin Cities Software Process Improvement Network (TwinSPIN). With UMSEC’s creation, we will increase the coupling between research, education, and outreach allowing for closer industry involvement in our research efforts and more rapid technology transfer from researchers to software engineering professionals.

UMSEC is committed to:
- Nurturing innovative basic and applied research in software engineering and related areas;
- Educating future generations of software engineering researchers, practitioners, and policy makers in cutting edge software engineering techniques, tools, and business practices; and
- Supporting the public service mission of the University of Minnesota by forging partnerships with local industry to help enhance the economic basis of the State of Minnesota.

To celebrate the creation of the new center, UMSEC will host a kick-off workshop during the third week of August. This free of charge, open to the public event will feature a program of internationally renowned speakers. UMSEC will also host a software engineering speaker series and a variety of open seminars throughout the year. For more information about UMSEC and our planned activities, please visit our web site at www.umsec.umn.edu.

We are all excited about the creation of UMSEC and we hope you share our excitement. Since our goals include aligning UMSEC and industry interests, your feedback and comments on how UMSEC can help your organization are always welcome.

-Mats P. E. Heimdahl

Master of Science in Software Engineering

Since the MSSE program began in 1997, 250 students have enrolled, including the 80 students currently in the program. The program is a rigorous two-year graduate program for software professionals seeking to expand their leadership skills, and their theoretical and practical knowledge of software development. Candidates must be working professionals with at least one year of full-time, on-the-job software development experience and a B.S. or B.A. degree in computer science or a related field. Admission to the program is competitive. Classes are held one day a week, on alternating Fridays and Saturdays, and are taught by our regular faculty as well as business professionals with extensive research, teaching, and corporate experience. By all accounts the program is highly successful and we are looking forward to expanding the program offerings over the next few years.

For more information regarding the Master of Science Program in Software Engineering, please contact the Director of Graduate Studies (dgs@umsec.umn.edu) or get the information online at www.umsec.umn.edu (click on the MSSE Program link).

-Mats P. E. Heimdahl
Design Consortium Bridges Disparate Disciplines

Responding to a challenge three years ago from UM alumnus Ted Johnson, Computer Science faculty members Baoquan Chen, Victoria Interrante, and Gary Meyer together with colleagues Lee Anderson and Andrzej Piotrowski from the Architecture Department put their heads together and discussed how advances in computer graphics, visualization, and interactive techniques could be applied to the problem of architectural design. The result is a collaborative research project called the Digital Design Consortium (DDC). With the assistance of a $1.5 million donation from the Johnson family and a subsequent $130,000 equipment grant from the NSF, the DDC now has a state of the art virtual reality laboratory in the Digital Technology Center. This lab on the ground floor of the recently renovated Walter Library features a high quality laser range finder, one of the largest tracked spaces outside of the military, and a soon to be constructed floor to ceiling projection system.

The research of the DDC addresses the entire architectural design process: from the acquisition of data regarding the construction site, to the design of the building that will be situated at the location, to the selection of the materials that will be used to fabricate the structure. The goal of the DDC is to exploit emerging digital technologies and to develop computer based design techniques that are appropriate at distinct points in the design of a new building. The DDC is developing separate tools that allow the architect to deal with the changes that occur in physical scale, point of view, design intent, and level of detail as the design progresses from an outline on a site plan, to a model of an actual building, to a set of finished construction drawings.

The members of the DDC have made good progress on several interesting projects. Baoquan Chen and Andrzej Piotrowski have developed tools to laser scan and digitize buildings on the U of M campus and other landmarks (including the Stone Arch Bridge) in the Twin Cities area. Their software allows people to virtually walk through the digitized scenes, which are depicted in either regular photo-like appearance, or unconventionally in artistic drawing styles, such as painterly and pen-and-ink. Lee Anderson and Vicki Interrante have been attempting to facilitate the architectural design process by using the large area tracking system and head mounted display in the DDC laboratory. Their recent research, funded by an NSF ITR grant, has explored differences in distance judgment between individuals working in the real world and those operating in a virtual immersive environment. Gary Meyer has been experimenting with the use of video projectors to illuminate a three dimensional object and make it appear to have a different surface finish. This technique, when coupled with an interactive design program, allows the user to explore the appearance of new architectural paints and coatings.

Recently, the DDC members have been planning an Open House, at the end of the summer, to demonstrate their projects to architectural design firms. The goal is to make local and national companies aware of the research that is being conducted at the U of M and to enlist their membership in the DDC’s industrial affiliates program. Becoming an industrial affiliate provides a way for a company to learn about new cutting-edge equipment without purchasing it themselves, develop contacts with students who may become future employees, and gain access to expensive research at a fraction of the total cost. The industrial affiliates program provides the DDC members with important practical connections for their work, the possibility of shared intellectual property rights, and an alternative source of funding for their research projects.

The Digital Design Consortium is a unique collaboration involving participants from two disparate fields: architecture and computer science. It is one of only a few efforts in the academic world to bring together specialists who have backgrounds in both design and information technology. Minnesota is a good place to attempt such a partnership because Minneapolis is recognized as a center of design activity (architecture, industrial, and advertising) and there are manufacturing companies within the state that produce relevant products (paints and coatings, windows). The interdisciplinary nature of the Digital Technology Center makes it the right venue to perform this type of research and its first-class facilities became available just as the DDC was getting established. The generosity of Linda and Ted Johnson provided the final catalyst necessary to make this singular partnership possible.

-Gary Meyer
COMPUTER SCIENCE AND ENGINEERING
2004 GRADUATES

Ph.D. grads left to right: Peg Howland, Chih Hua Huang, Ewa Kusmierek

M.S. grads left to right: Top: R. Matt Sampson, Subrananya Abhishek
Middle: Sandeep Karanth, Dridhar Padmanabhan Iyer, Murali Sangubhatla
Bottom: Raghuram Lanka, Lorry Lee Strothers, Shana Watters

Masters 6/03 - 5/04

Lakshman Rao Abburi
Subramanya Abhishek
Rezwan Ahmed
Rahul Prakash Akolkar
Hemanth Kumar Arumugam
Alexander Babanov
Julie Beifuss
Nitin Bhandari
Corey Bilot (6/03)
Srikanth Chirravuri
Gary Dahl
Zhaoxin Ding
Deveraj George
Geeta Gharpure

M.S. grads left to right: Top: R. Matt Sampson, Subrananya Abhishek
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MCIS Graduates 6/03 - 5/04

Amritha Amudhan
Maheshwara Chidambaram
Heather Fox
Solomon Gabriel
Lipee Samir Gami
Cheong Kiat Colin Gan
[Name Withheld]
Rima Parikh
Sonali Pendharkar
Keshif Riaz
R. Matthew Sampson
Deepak Venkataraman
Lisa Wojcik
Ke Zhang

Elena Kryzhnyaya
Daniel Lewandowski
Na Li
Yingshu Li
Ananth Lingamneni
Florence Machin
Sreeram Maguluri
Robert Martin (6/03)
Amit Paka
Rashmi Pathak
Hemant Ramnani (6/03)
Al Mamunur Rashid
Ujwala Ravinder
Alina Rimbu
Andreas Robinson
Murali Krishna Sangubhatla
Rajiv Srinivasan
Shankar Srinivasan
Navin Thadani
Venkataswaran Udayasankar
Harini Veeraraghavan
Durgaprasad Velagaleti
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Jing Wang
Yu Wei
Jered Windsheimer

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Ke Zhang
### Ph.D. Graduates, Advisors, and Dissertation Titles: 7/03 - 5/04

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<thead>
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<th>Name</th>
<th>Advisor(s)</th>
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<tbody>
<tr>
<td>Xiaoyan Cheng</td>
<td>D. Z. Du</td>
<td>08/29/03</td>
<td>Resource Efficiency in Ad Hoc Wireless Networks</td>
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<tr>
<td>Baek Young Choi</td>
<td>David H. C. Du &amp; Zhi-Li Zhang</td>
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<td>Scalable Network Traffic and Performance Monitoring</td>
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<td>Yunja Choi</td>
<td>Mats Heimdahl</td>
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<td>Toward Automated Verification of Software Specifications with Numeric Constraints</td>
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<td>Mukund Deshpande</td>
<td>Jaideep Srivastava &amp; George Karypis</td>
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<td>Raja Harinath</td>
<td>Jaideep Srivastava &amp; Zhi-Li Zhang</td>
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<td>QoS-aware Multimedia Middleware Mechanisms</td>
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<td>Bruce Hartung</td>
<td>Dan Kersten</td>
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<td>Computer Graphics and Perception: Reaching to Virtual Objects and Material Perception</td>
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<td>Shashi Shekhar &amp; D. Z. Du</td>
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<td>Ravi Janardan</td>
<td>08/29/03</td>
<td>Geometric Algorithms with Applications to Layered Manufacturing</td>
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<tr>
<td>Ewa Kusmierek</td>
<td>Zhi-Li Zhang &amp; David H. C. Du</td>
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<td>Amy Larson</td>
<td>Richard Voyles &amp; Maria Gini</td>
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<td>Getting There: Terrain Classification for Adaptive Legged Locomotion Over Rough Terrain</td>
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<td>Byoung Dai Lee</td>
<td>Jon Weissman</td>
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<td>Adaptive Middleware for High-End Network Services</td>
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<td>Sanjai Rayadurgam</td>
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<td>N. Papanikolopoulos</td>
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<td>Jamshid Vayghan</td>
<td>Jaideep Srivastava</td>
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<td>Mats Heimdahl</td>
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Honors Undergraduates

Spring 2003

Author: Vasile Bud
Title: A Different Type of Calibration
Advisor: Eric Van Wyk
Graduate School: CS, University of North Carolina at Chapel Hill

Author: Elliot Olds
Title: Minimization of monochromatic squares in an n x n grid
Advisor: Carl Sturtivant
Job: Microsoft Research

Spring 2004

Author: Ambudin Agovic
Title: An information theoretic approach to predictability analysis within dynamic systems involving intelligent agents
Advisor: Maria Gini
Graduate School: Ph.D., CSE, University of Minnesota

Author: Evan Gaustad
Title: Group Key Management Policies for a Dynamic Storage Area Network
Advisor: Yongdae Kim
Graduate School: Carnegie Mellon University

Fall 2003

Author: Joshua Beardsley
Title: Implementing SQL Constructs as a Modular Language Extension
Advisor: Eric Van Wyk

Author: Matt Rasmussen
Title: gCLUTO: a graphical interface to clustering algorithms and visualizations
Advisor: George Karypis
Graduate School: MIT

Author: John Murphy
Title: MotoGPS: An Open Source Solution for GPS Data Acquisition
Advisor: Loren Terveen

Author: Jason Sorensen
Title: A competitive analysis of automated authorship attribution techniques
Advisor: William Schuler
Graduate School: Ph.D., Math, University of Minnesota

Author: Susan Suresh
Title: Recommender system for movies telecasted on television
Advisor: John Riedl
Graduate School: CS, University of Wisconsin at Madison

Author: Amos Zoellner
Title: Star Field Recognition
Advisor: Paul Schrater

Author: Joshua Beardsley
Title: Implementing SQL Constructs as a Modular Language Extension
Advisor: Eric Van Wyk
Graduate School: CS, University of North Carolina at Chapel Hill

Author: Matthew Chadwick
Title: A Different Type of Calibration
Advisor: Paul Schrater
Graduate School: CS, University of North Carolina at Chapel Hill

Author: Mohammed Gaffa
Title: Shadow mapping and visual masking in level of detail systems
Advisor: Gary Meyer
Graduate School: Ph.D., CS, University of North Carolina at Chapel Hill

Author: Colin McMillen
Title: Toward the Development of an Intelligent Agent for the Supply Chain Management Game of the 2003 Trading Agent Competition
Advisor: Maria Gini
Graduate School: Ph.D., CS, Carnegie Mellon University

Author: Kristen Stubbs
Title: Applications of Anthropology to Requirements Engineering
Advisor: Mats Heimdahl
Graduate School: Ph.D., Robotics, Carnegie Mellon University

Author: Ryan Morlok
Title: Methods for classifying human motion in outdoor and indoor scenes
Advisor: Nikolaos Papanikolopoulos
Graduate School: CS, University of Illinois at Urbana-Champaign

Author: John Murphy
Title: MotoGPS: An Open Source Solution for GPS Data Acquisition
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Title: Methods for classifying human motion in outdoor and indoor scenes
Advisor: Nikolaos Papanikolopoulos
Graduate School: CS, University of Illinois at Urbana-Champaign

Author: John Murphy
Title: MotoGPS: An Open Source Solution for GPS Data Acquisition
Advisor: Loren Terveen

Author: Jason Sorensen
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Advisor: William Schuler
Graduate School: Ph.D., Math, University of Minnesota

Author: Susan Suresh
Title: Recommender system for movies telecasted on television
Advisor: John Riedl
Graduate School: CS, University of Wisconsin at Madison

Author: Amos Zoellner
Title: Star Field Recognition
Advisor: Paul Schrater

Author: Joshua Beardsley
Title: Implementing SQL Constructs as a Modular Language Extension
Advisor: Eric Van Wyk
Graduate School: CS, University of North Carolina at Chapel Hill

Author: Matthew Chadwick
Title: A Different Type of Calibration
Advisor: Paul Schrater
Graduate School: CS, University of North Carolina at Chapel Hill

Author: Mohammed Gaffa
Title: Shadow mapping and visual masking in level of detail systems
Advisor: Gary Meyer
Graduate School: Ph.D., CS, University of North Carolina at Chapel Hill

Author: Colin McMillen
Title: Toward the Development of an Intelligent Agent for the Supply Chain Management Game of the 2003 Trading Agent Competition
Advisor: Maria Gini
Graduate School: Ph.D., CS, Carnegie Mellon University

Author: Kristen Stubbs
Title: Applications of Anthropology to Requirements Engineering
Advisor: Mats Heimdahl
Graduate School: Ph.D., Robotics, Carnegie Mellon University

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For the fourth year in a row, Carl Sturtivant was selected by I.T. students as the best instructor of the CS&E department. He received his award at the I.T. Awards Banquet, Tuesday, April 13, 2004.

Professor Eric Van Wyk has received the prestigious National Science Foundation (NSF) CAREER award for his project “An Extensible Compiler Framework for Modular Seamless Language Extensions.” Van Wyk is the ninth CSE faculty member to receive a CAREER award.

Professor Shashi Shekhar will serve on the Mapping Science Committee of the National Research Council (NRC). For additional information on the NRC, please visit their web site at http://www.nas.edu.

Professor Eric Van Wyk has received an IBM Eclipse Innovation Grant. Eclipse is an open-source extensible IDE, allowing programmers to import new tools into their environment to analyze, debug, test, etc. their Java code. Van Wyk’s proposal was to add his extensible language tools to this IDE so programmers can extend their language, not just the set of tools that can work on their program. 285 proposals were submitted, of which 78 were selected for funding. Please visit http://www.ibm.com/university/eig for additional information.

Joshua L. Colburn, an undergraduate student in the Department of Computer Science and Engineering, is the recipient of the 2004 Paul A. Cartwright and I.T. Alumni Society Award for Outstanding Service in student activities and/or community projects. Joshua received a certificate, a stipend of $500, and a free three-year membership in the University of Minnesota Alumni Association/I.T. Alumni Society at the commencement ceremonies, Friday, May 7, 2004.

Professor Vipin Kumar’s Minnesota Intrusion Detection System (MINDS) was recently featured in a National Science Foundation’s (NSF) news clip posted at the “Office of Legislative and Public Affairs” section of the NSF page: http://www.nsf.gov/od/lpa/news/04/tip040414.htm.

Professor Nikolaos Papanikolopoulos and his research group were featured in an article “Turning Robots into a Well-oiled Machine” found at Space Daily: http://www.spacedaily.com/news/tobot-04f.html.

From the University of Minnesota’s Research News Online, June 25, 2004: According to The Institute for Scientific Information, 34 faculty members at the University Minnesota are among the most highly cited researchers in the world. The Institute identifies researchers who have made fundamental contributions to the advancement of science and technology in the most recent decade. The faculty members listed included Yousef Saad. To view the list, go to http://www.isihighlycited.com/.

Jieping Ye, a Ph.D. student of Professor Ravi Janardan, has received an Outstanding Student Paper award from the 21st International Conference on Machine Learning (July 4-8, 2004, Banff, Alberta, Canada) for his paper “Generalized Low Rank Approximations of Matrices”. He will present this paper in a single-track, plenary session on July 7. Further details may be found at http://www.aiicml.cs.ualberta.ca/banff04/icml/.

Recent Grant Awards to CSE Faculty include:

PI: Anand Tripathi
Sponsor: National Science Foundation
Title: Secure Context-Aware Distributed Collaboration Systems
Amount: $384,982

PI: Stergios Roumeliotis
Sponsor: Jet Propulsion Lab
Title: 3D Localization for Mars Rovers
Period: 04/15/2004-09/30/2004
Amount: $60,001

PI: Nikolaos Papanikolopoulos
Sponsor: U.S. Department of Transportation
Title: Finding What the Driver Does
Period: 01/01/04-12/31/04
Amount: $65,000

PI: Jaideep Srivastava
Sponsor: Fermi National Accelerator Lab
Title: CAST-CMS Application Synthesis Toolkit
Period: 10/01/2003-09/30/2004
Amount: $52,229

PI: Shashi Shekhar
Sponsor: Minnesota Department of Transportation
Title: Decision Support System for Evacuation Route-Schedule Planning: Determining Optimal Network Configuration
Period: 06/30/2004-11/30/2005
Amount: $55,000

Please mark your calendar on Friday, October 8, 2004 for the First Biennial Computer Science and Engineering Research Poster Competition
CSGSA Activities

This has been a fun and eventful year for the Computer Science Graduate Student Association (CSGSA). As usual, we kicked off the year with the annual CSGSA picnic where students and faculty alike took some time from their busy schedules to enjoy food and fun in the sun. Throughout the year, the CSGSA used their funds to support “coffee hour” every Friday where students could grab a donut and some coffee and wrap up the week with their peers. Earlier this spring, the CSGSA helped organize and execute the prospective student visit day. This included meeting with the prospective students, answering their questions, and taking them out for supper. In the evening, the CSGSA rented several bowling lanes from Goldy’s Gameroom, an on-campus bowling alley. All CS graduate students and their friends and families were invited to join in on the free festivities. Many people participated, and it was a lot of fun! Next year, the CSGSA plans on holding these same activities again, plus a student poster conference October 8 that has been in the planning stage for most of this year. The CSGSA would like to thank Unisys Corporation and the computer science office staff for the support that allows our organization to hold these events.

-Dan O’Brien

Women in Computer Science

The Women in Computer Science Program hosted a total of four luncheons during the 2003-2004 school year. In September 2003, the luncheon was held in honor of Dr. Elaine Weyuker, Bell Labs, a speaker for the Unisys Lecture Series/Distinguished Women Speakers Program. The luncheon was held after Dr. Weyuker’s talk on “Building Dependable Software through Prediction.” In November 2003, the luncheon was held in honor of Dr. Maria Klawe, Dean of Engineering at Princeton University, a speaker for the Unisys Lecture Series/Distinguished Women Speakers Program. The luncheon was held after Dr. Klawe’s talk on “Myths, Opinions, and Facts about Females and Computing.” Normally only CS women faculty, staff, and students attend these luncheons, but for Dr. Klawe’s luncheon, we invited a number of women scholars from other IT departments. This allowed many of our department’s women to network with others from our own University. In February 2004, a luncheon and workshop on “Perfectionism and Procrastination” by Melinda Le, UCCS was held. In March 2004, a luncheon and workshop on “Sexual Harassment” by Jill Lipski, Aurora Center for Advocacy & Education, was held.

Funding for the program is provided by Unisys and Office of University Women.

-Shana Watters

Graduate Student Awards

Our graduate students in the Department of Computer Science and Engineering have always been an exceptional group. This year a number of them have been recipients of various awards, honors and fellowships.

Our two Graduate School Fellowship winners were new students Kelly Cannon and Haldane Peterson. Kelly has been working with Nikos Papanikolopoulos and Hal is a student of Zhi-Li Zhang.

The department also awarded two combination fellowship and RA appointments. These were given to Mian Huang, who works with Victoria Interrante, and Anastasios Mourikis, who works with Stergios Roumeliotis.

Four Excellence in Research Awards were presented to Sean McNee, Sunghee Kim, Jieping Ye and Pamela Ludford. This award is in recognition of excellent papers presented at refereed conferences.

In addition, Andrew Drenner and Natalie Linnell were awarded the prestigious three year NSF Graduate Fellowship for 2003; Kelly Cannon has been awarded this fellowship for 2004. Honorable mentions include Monica Anderson LaPoint and Dan O’Brien.

Congratulations to all of these students.

-Georganne Tolaas

University Students Compete in World Finals of ACM Programming Contest

Three students from the CSE department and one of their coaches traveled to Prague, the Czech Republic, to compete in the World Finals of the ACM International Programming Contest held March 28 through 31. Graduate student Stefan Atev, senior Vishal Shah, and Elliot Olds, who had graduated in December, earned the opportunity to compete by placing fourth in the North Central Regional in November. They were accompanied by Bobbie Othmer, one of the coaches.

Prague was an exciting place to visit, and we did get some time to do some sight-seeing. Contest activities took most of the time. One activity was the Java Challenge provided by IBM, the corporate sponsor of the contest. Teams developed a program to play a game dealing with medieval castles and knights. Our team placed 12 in the Java challenge, among the 73 teams. The big programming contest took place on Wednesday, March 31. Our team received an honorable mention, not as good as they had hoped. They did finish higher than the other three teams that went from our region. St. Petersburg Institute of Fine Mechanics and Optics placed first, and KTH - Royal Institute of Technology from Sweden placed second. It was an exciting trip for all the students involved.

-Bobbie Othmer
Mats Heimdahl Recognized with Distinguished Teaching Award

On Monday, April 26, Associate Professor Mats Heimdahl was awarded the Distinguished Teaching Award for Outstanding Contributions to Graduate and Professional Education and was inducted into the Academy of Distinguished Teachers in a ceremony in the McNamara Alumni Center’s Memorial Hall.

The Award for Outstanding Contributions to Graduate and Professional Education recognizes contributions to postbaccalaureate, graduate, and professional education through excellence in instruction; involvement in students in research, scholarship, and professional development; development of instructional programs; and advising and mentoring of students. Candidates for this award are nominated through their colleges on all four campuses and are selected by the Senate Committee on Educational Policy. The Academy of Distinguished Teachers members provide important leadership to the University community, serving as mentors, advisers, and spokespersons for the University’s teaching mission.

“I always strive to make my students answer the questions: ‘How does it work?’ ‘Why does it work?’ and ‘Where does it work?’ With this knowledge, students are ready to face the challenges of a competitive and rapidly evolving digital world.”

-- Mats P.E. Heimdahl

Mats made a courageous and unselfish decision eight years ago as an untenured junior faculty member: He agreed to develop and build a first-of-its-kind degree program. Today the University’s Masters of Science in Software Engineering (MSSE) program is a resounding success - in high demand and highly valued by students and employers alike. University leaders cite the MSSE as a model of how the University serves local industry. “The program is a major contribution to graduate and professional education and a huge achievement for the Institute of Technology,” says a colleague. During this same time, Mats also began his research career, accomplished high-quality teaching, revised the software engineering curriculum, and advised exceptional graduate students.

Many Thanks...

We would like to express our thanks to the following alumni and friends. Your support is invaluable in helping the department. We look forward to continuing this partnership in the future. Thank you for your support!

**Corporations**

IBM Corporation
Quality Software Technology Inc.
Sprint United Management Co.

**Individuals**

Mr. & Mrs. Robert C. Allen
Timothy J. Ampe
Andrew A. Anda
Kevin C. Andersen
Rolland B. Arndt
Mary Ellen Aycock-Wright
William A. Bach
Mark A. Bakke
Christopher T. Bartz
David Bianchi
Mathew D. Bischoff
Jeanne M. Blaskowski
Timothy Boerner
William J. Bradford
Allan M. Carter
Bruce W. Clark
Brian D. Colvin
Ailian Ding
Prasanth V. Duvvur
Grant B. Edwards
Daniel J. Franklin
Matthew J. Galligan
Michael R. George
Daniel M. Golliet
Jonathan R. Gross
Mark E. Halvorson
Gregory W. Hanka
Patricia E. Hansen
Richard J. Hedger
J. Andrew Holey & Gary S. Whitford
Robert H. Hu
Kurt A. Indermaur & Jeffifer M. Timmers
Kevin P. Johnson
Thomas C. Johnson
Brady G. Kaiser
Ari M. Kaplan
John W. Kerr
Matthew E. Kramer
Paul W. Kraska
Kraig A. Kuusinen
Chong Li
Lee-Chin H. Liu
Barbara J. Lussky
Kari A. Mark
Matthew G. Massey
Blaine W. McKeever
David A. Meyer
James W. Meyer
Paul G. Michenfelder
Ashraf B. Mohamed
Mitchell E. Morehouse
Dwaraka P. Nath
Mikko J. Niemioja
Aruna Nookala
Carrie A. Mikulich Ogren & Robert S. Ogren
Christopher R. Olson
Scott G. Olson
Tingli Pan
Adrian Pasaaraiu
Paul N. Pazandak
Janice L. Pearce
Charles & Joy Pouliot
Pamela S. & Urho S. Rahkola
Michael D. Robarge
Michael J. Rogalski
Frederick W. Roos
Tom & Vickie Rosenthal
Lu Ruan
Barbara A. Ruf
Timothy D. Samsel
Matt Sandnas
Badrul M. Sarwar
Chris J. Sells
Marc G. Smith
Daryl L. Spartz
Katherine A. Spllett
Charles D. Steigerwald
John P. Strait
Steve M. Stupca
Scott A. Sussman
Neal A. Vaughn
Steven T. Vinge
John L. Vogt
Dean J. Vukas
Richard W. Wendt
Benjamin M. Weseloh
Kurt L. Wood

Mats Heimdahl

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Student Poster Competition
Friday, October 8, 2004
2nd & 3rd Floors
EE/CS Building

The goal of the student poster conference is to foster a greater sense of community within the Department of Computer Science and Engineering and to give computer science graduate and undergraduate students an opportunity to show their work to faculty, fellow students, friends, and industry partners. Anything from personal research to elaborate class projects are eligible, and prizes will be awarded to outstanding submissions. Further information will be distributed as it becomes available. Please continue to check the web site at [www.cs.umn.edu](http://www.cs.umn.edu) for updates.