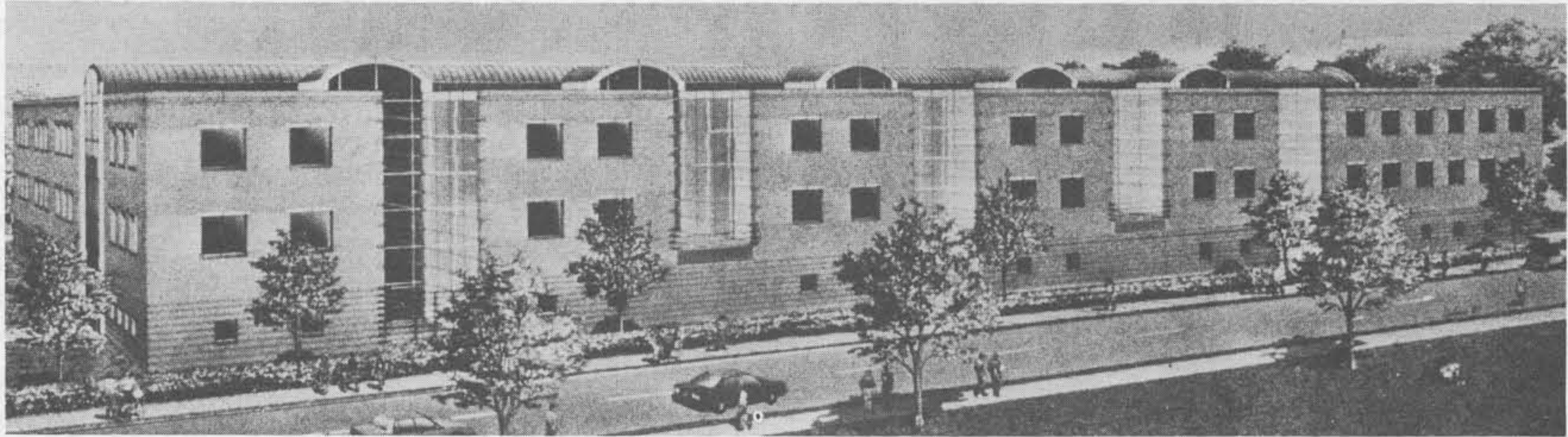

CS

Spring, 1990

Alumni News



**University of Illinois at Urbana-Champaign
Computer Science Alumni Association Constituent Group**

BILL GEAR STEPS DOWN AS HEAD DUNCAN LAWRIE TO FILL POST

Professor C. William ("Bill") Gear announced that he would resign as Professor and Head of the Computer Science Department, effective as of the end of the spring semester. Gear has been affiliated with the Computer Science Department since 1958, and was Head since 1985. Beginning in May, 1990, Gear will assume the position of Vice President/CS Division for the newly-formed NEC Research Institute in Princeton, New Jersey.

Professor Duncan H. Lawrie has been named to succeed Gear as Head of the Department of Computer Science.

Lawrie, a professor of computer science and of electrical and computer engineering, is associate director of the UI's Center for Supercomputing Research and Development. Lawrie earned two bachelor's degrees in 1966, one from DePauw University and another from Purdue University. He has been at the UI since 1967, earning a master's degree in 1969 and a doctorate in 1973.

Lawrie has been a computer science professor since 1974. He became associate director of the supercomputing center when it was established in 1984.

Funding for this newsletter and membership fees are provided by the UI Alumni Association and Department. Because of mailing costs, the only way that you can be assured of receiving future newsletters is to become a member of the U of I Alumni Association. Membership is only \$20 per year (\$25 for husband/wife), so fill out and send in the attached reply form. Also consider becoming a life member. You can pay in installments, and there are special rates for recent graduates (\$50 to \$75 less than regular rates). There are a number of benefits, including various newsletters, tour packages (especially for sports events), and group insurance plans. In addition, the CS Constituent Group receives 20% of your dues, which helps pay for this newsletter.

STATE OF THE DEPARTMENT

Bill Gear, Ph.D. '60



The excitement grows! The spring of 1990 will see the occupancy of the new addition and a new head for the department.

The building addition is scheduled to be completed in phases. In mid-February, faculty offices in the north-east and north-west sections became available, and faculty were moved from their current offices to allow for the remodeling necessary to complete the project. Before the end of the semester, the remainder of the addition will be available and the rest of the department now in the original building will be moved. At that time, further remodeling on the original building will start. This renovation will provide additional instructional laboratories, and will also upgrade the remainder of the space to today's standards. (The first part of the original building was constructed in the 50's when university rules did not permit air conditioning except for laboratory equipment and animals!) Over the summer, instructional laboratories now in temporary space will be moved into the building (although some of them may have to remain outside until the remodeling is complete) and graduate assistants, now scattered over many buildings, will be moved in.

As many of you know, I announced my wish to step down as head in 1990. Dean Schowalter convened a search committee which resulted in designating Duncan Lawrie as the new head. The new building, the growth in the department, and the many other computer-related activities on campus will make this a challenging job for

Duncan, but one which has enormous opportunities because of the strengths of Illinois.

The department has continued its successful recruiting. This year we hired five new faculty, Gul Agha, Eric Golin, Jean Ponce, Faisal Saied, and Pravin Vaidya (see their brief biographies elsewhere in this issue.) These positions were available because of departures and retirements. As we reported last time, Ted Poppelbaum retired last summer. Jim Robertson retired this January. Dan Gajski and Ryzsard Michalski, who were on leave, decided not to return. Sharon Kuck resigned and is enlarging her family. We wish all of these people success and happiness as we welcome our new colleagues and look forward to collaborating with them in education and research.

Because this is my last column as head, I would like to share a few reflections with you. That lead to a paragraph is, of course, a warning that the writer is about to ramble on about the past, hoping that the editor will be lenient this one last time. I first came to the department as a graduate student 33 years ago, about seven years after it was started. It was then called the Digital Computer Laboratory (now the name of the building). The ILLIAC and the five faculty occupied a floor of a building one block south of the current location. The graduate students offices were in a house 4 blocks away (some things have not changed) on a road that no longer exists at a location now occupied by chemistry buildings. The department was small enough that a faculty member could throw a Christmas party in his not-too-large house for all faculty, graduate students, and staff.

The research and teaching activities of the department revolved around the computer, the Illiac I which was built at Illinois. Although it had less power and memory than the first PC, it attracted people from around the world to use it. The emphasis was on what would today be called scientific computation — how to solve problems which stretched the limits of computers using a combination of clever analysis, new numerical approaches, and cunning application of the machine. The focus remained very much that for many years. The Illiac II was built and used in

experimental computations for a number of years. (Whereas the Illiac I was the only service computer on campus, the bulk of service was provided by an IBM 7094 and later an IBM 360/75 during the Illiac II days.) Although the Illiac III (destroyed in a fire before completion) was designed for pattern recognition, its motivating force was the analysis of bubble chamber photographs from high energy physics experiments, and the emphasis on scientific computation continued through the Illiac IV design days. Many computer science departments have abandoned scientific computation (or never entered it). I hope that this department will increase its strength in that area. It will continue to be a driving force for advanced computing technology, both hardware and systems, and will probably provide the major demand for massive parallel computation. Although it has a heavy numerical component, an increasing fraction is non-numeric and will provide challenging problems for all traditional areas of computer science. Computer science is a mixture of science and engineering; the science tries to understand the fundamental limitations while the engineering tries to optimize within those limitations and to develop new approaches to circumvent those limitations. I believe that the science can not function properly without the engineering and vice versa, so it is very important for the department to remain an "applied science" department. The department is approaching its 40th anniversary (and a celebration is planned in connection with the completion of the new building and remodeling of the old for the spring of 1991). This is a very appropriate time for us to consider the path of the department over the next 40 years.

When I step down as head, I plan to leave Illinois for a position with the new NEC Research Institute in Princeton, New Jersey where I will head the CS division. The institute will address long range, fundamental research in computer related issues in the physical and computer sciences. My responsibility is to build the CS division from scratch: the company provides the level of stable, long term funding needed to accomplish good research. Such funding is increasingly difficult to find in other industrial research laboratories, and the pressures for short term results are also invading academic research in the US. While I look forward to my new situation, I have many concerns for the future of US science.

I leave Illinois with many regrets since the whole of my professional life has been here except

for a two-year break between graduate school and my first faculty position in 1962. (I like to say that 50 years after entering school I am finally leaving to work for a living.) During my years at Illinois I have seen many outstanding students graduate and have had the pleasure of working with many superb colleagues. Students are the biggest plus in a faculty member's life, they are our principal product, and the pleasure of seeing their future successes is one of the great rewards of teaching. (For the colleagues I leave behind, I should also say that a good salary is also appreciated by faculty!) Although I will change from a faculty member to an alumnus, I expect to retain close ties with Illinois, as I hope you will.

My time at Illinois, and particularly as head for the last five years, has been made enjoyable by people too numerous to list. I believe that we have one of the most congenial groups of faculty and staff of any department, and all have contributed greatly to the successes of the department. The life of the head has also been made easy by their cooperation but I would like to mention three people by name who have made even the tedious parts of the job pleasurable: Barbara Armstrong who has been my secretary for over 20 years, Gayanne Carpenter who has handled departmental business for longer, and our Associate Head, Bill Kubitz. Professional colleagues from on and off campus tell me that they are delighted when Barb, rather than I, answer the phone because they know they will get the information they need more rapidly and reliably. Without Gayanne's knowledge of university operations, I don't believe that it would be possible to handle the head's job in the time available. Furthermore, she has been a source of advice and encouragement to generations of students. Bill Kubitz has been responsible for the enormous growth in our physical and computer facilities. The amount of work and responsibility has increased relentlessly, but has been executed flawlessly. Not only have faculty been able to go directly to Bill to solve their space and equipment problems, he has been able to satisfy them to the point that there have been no complaints or requests for my intervention. Thank you, Barb, Gayanne, and Bill, as well as everybody in the department. Most of all, a big thank you to the students who have made this an exciting job for 28 years.

FROM OUR PRESIDENT

Fontaine K. Richardson, Ph.D. '68

Dear Fellow Alumnus/a:

This, the first newsletter of the 1990's, contains news of our fellow University of Illinois Computer Science Alumni, including: the appointment of the new Department Head, Duncan Lawrie, the new Computer Science building construction, Bill Gear's retirement, Jim Robertson's retirement and other items. The changes that are taking place remind us that there are more changes in the future. Some involve our friends and acquaintances. Others, involve technological activities and events that can have far reaching consequences. As Alumni, we participated in the changes that took place while we were on campus. Through our Alumni Association, we have the opportunity to stay informed and influence changes that continue to take place. Please, take part in our Alumni Association: Join, Participate, and Benefit. Our challenge for 1990 and beyond, is to develop our Computer Science Alumni Association to provide for the needs of our members. We need your input, guidance, and participation.

Let me add my words of welcome to Duncan Lawrie as the new department head starting on May 1, 1990. As a long time Illini, he knows the University well and can build on the proud heritage to help shape the future of the Department. Best of Luck. Please don't hesitate to call on any of our Alumni to help in any way.

On a personal note, it is with mixed feelings that we note Bill Gear's departure from the campus and wish all the best in his new venture. As my Ph.D. advisor, he provided valued encouragement, guidance, and even an occasional kick in the pants to my efforts. As a faculty member, he has taught and lead for more than a quarter of century. His students are to be found all over the world in all sorts of pursuits. As Department Head, he has fought in the battle for more funds, provided important leadership in the new building efforts, help recruit world class additions to the faculty and still had time to continue teaching. His efforts have produced results that benefit many and will be far reaching. He will be missed by all. The good news is that Princeton, New Jersey is not all that far away from any of us.

Respectfully,
Fontaine K. Richardson, Ph.D. '68

IVAN E. SUTHERLAND GIVES GILLIES LECTURES

Ivan E. Sutherland, whose work defined the interactive computer graphics field 25 years ago, gave the 14th Donald B. Gillies Memorial Lectures on October 25-26, 1989.

Sutherland received his doctorate from the Massachusetts Institute of Technology in 1963, and taught at Harvard University and the University of Utah. From 1976-80, he was chairman of the Department of Computer Science at the California Institute of Technology, then left to establish Sutherland, Sproull and Associates, a consulting firm, and Advanced Technology Ventures, a

venture capital firm, both located in Palo Alto, California.

In 1988, Dr. Sutherland received the A. M. Turing Award for "pioneering and visionary work in computer graphics.

The Gillies lectureship, endowed through the UI Foundation with a major contribution from the Digital Equipment Corporation, was established as a memorial to Donald B. Gillies, a computer scientist mathematician and UI faculty member for 19 years before his death in 1975.

ASSOCIATE HEAD'S MESSAGE

Bill Kubitz, Ph.D. '68

Another year has passed and DCS is approaching its 40th anniversary. We plan to have an event on April 19-20, 1991 to celebrate 40 years of computer science education and research at Illinois. Tentative plans have distinguished alumni returning to give retrospective and prospective views on the field, a grand opening of our new building, and a general celebration and get together. We hope all alumni and friends will attend.

The new addition is now to be complete by April 1990. At present, the east and west ends are nearly complete but the south side and the atrium are behind schedule because of delays in obtaining the south-facing glass curtain walls. However, the glass is now mostly up and the rate of completion has increased. Once the addition is completed, the remainder of the existing building will be remodeled. That will begin in April 1990 and probably last into the fall semester. The composite building will be both functional and interesting. There is quite a bit of space just for interacting with others because of the long atrium.

In connection with our opening celebration we hope to unveil newly outfitted instructional labs as well as additional student and faculty awards. If you or your company would be interested in providing some support please get in touch with me.

In January, Professor Robertson retired from the department after a long and distinguished career. In May Professor Gear retires from the university but will begin a new career as the Vice President for Computer Science Research at NEC Research Institute, Inc. While we always hate to lose people, we have gained a large number of young and dynamic faculty in recent years who will keep Illinois at the forefront of computing research and education for years to come and lead us into the future. The faculty now numbers 45 and will probably settle out at about 50 in our new facilities.

The funding at the university is greatly improved for at least two years due to a "temporary" two year state tax increase. Hopefully this will continue into the future. The north campus development continues unabated. The Beckman Center is complete as is the Microelectronics Center. A new building is being constructed south of Beckman to house the Center for Supercomputer Research and Development, along with the computer engineering faculty, who will vacate CSL to allow it to be used by MRL and Physics. These changes will bring all the computing research activities within the Beckman "superblock" at the north end of the campus.

Undergraduate enrollment in Computer Science at the BS level is still declining slightly even while demand continues to grow. This is a national trend which is largely unexplained, although a large decrease in women has been documented, as well as a general decline in students going into science. A manpower shortage is predicted by the government although only time will tell. Graduate enrollment remains at 375 or so with the majority being doctoral students. DCS continues to produce around 25 Ph.D.s each year. Demand for both MS and Ph.D. students remains strong.

As most of you are aware, our students have for years borne the brunt of our intolerable space situation. Undergraduates have never really had a home, and in recent years graduate students have not been in DCL either. Within a year now this situation will be reversed and, for the first time ever, all our students will have a pleasant and very interesting home.

We hope all of you will plan to come to our celebration, but please feel free to stop by any time and say "hello". We would like to know what you are doing and we will certainly tell you what we are doing!

FACULTY PROMOTIONS

Thomas Kerkhoven was promoted to Associate Professor of Computer Science effective August 21, 1989. Kerkhoven joined the Department of Computer Science as an Assistant Professor in January 1986 after receiving his Ph.D. in Computer Science from Yale University in 1985. Professor Kerkhoven's areas of research are semiconductor simulation; mathematical analysis of algorithms for physical problems; nonlinear partial differential equations; scientific computation.

Kenneth D. Forbus was promoted to Associate Professor of Computer Science effective August 21, 1989. Forbus joined the Department of Computer Science as an Assistant Professor in August 1984 after receiving his Ph.D. in Computer Science from MIT in 1984. Professor Forbus's research goals are to develop a qualitative physics which captures human commonsense reasoning to support engineering problem solving, and to develop a computational model of human analogical reasoning and learning, focusing on experiential learning in physical domains.

PROFILE OF NEW FACULTY

Gul Agha

Assistant Professor, 8/21/89–Present

Ph.D. from University of Michigan, 1985

Fields of Active Research: Concurrent Languages and Systems, Distributed Processing, Object-Oriented Programming, Open Systems and Coordinated Computing.

Eric Golin

Assistant Professor, 8/21/89–Present

Ph.D. from Brown University, 1990

Fields of Active Research: Visual Programming Languages and Environments.

Jean A. Ponce

Assistant Professor, 1/6/90–Present

Ph.D. from University of Orsay, France, 1988

Fields of Active Research: Computer vision, geometric modelling and computer graphics, and robotics, with a special interest for the representation of complex curved three-dimensional objects.

Faisal Saied

Assistant Professor, 8/21/89–Present

Ph.D. from Yale University, 1990

Fields of Active Research: Numerical analysis and scientific computation; numerical methods for the time-dependent Schroedinger equation; parallel algorithms for the numerical solution of partial differential equations.

Pravin Vaidya

Assistant Professor, 8/21/89–Present

Ph.D. from University of Illinois, 1986

Fields of Active Research: Design and analysis of algorithms, computational geometry, optimization.

FACULTY AWARDS

Gul Agha, Assistant Professor of Computer Science, has been awarded a Digital Faculty Program grant from the Digital Equipment Corporation. The grant includes \$25,000 in unrestricted cash and \$35,000 equipment grant that Dr. Agha can use toward the purchase of any Digital products.

Kenneth D. Forbus, Associate Professor of Computer Science, is the recipient of the 1990 Senior Xerox Award for Faculty Research. This award is made annually by the College of Engineering and recognizes the most outstanding research conducted during the past five years by a senior faculty member. Professor Forbus's research centers around the area of qualitative reasoning.

David J. Kuck, director of the Center for Supercomputing Research and Development and professor of computer science and electrical and computer engineering, received an Alumni Merit Award from Northwestern University. The awards were given to a dozen alumni who have distinguished themselves in their professions or fields of expertise.

David Kuck, Professor of Computer Science and Director of the Center for Supercomputing Research, has been appointed as a member of the Governor's Science Advisory Council. This council will help develop a challenge-grant program and identify uses of the challenge fund, recommend priorities for the \$190 million of capital improvements at public colleges and universities to improve Illinois' research and development capabilities, and advise in the development of a science literacy program to be administered through the State Board of Education.

Chung L. Liu, Professor of Computer Science, is the recipient of the 1990 ACM Karl V. Karlstrom Outstanding Educator Award. This award is given annually to the outstanding educator who is appointed to a recognized educational baccalaureate institution and is recognized for advancing new teaching methodologies, or effecting new curriculum development or expansion in computer science or engineering, or who is making a significant contribution to the educational mission of the ACM.

Daniel A. Reed, Associate Professor of Computer Science, was named as a University Scholar.

Established in 1985, the University Scholars program is designed to encourage top-rank faculty members to continue and expand their careers at the U of I. University Scholars are nominated by their departments, and final selection is made by a committee of senior faculty members.

Dr. Reed is one of the nation's best young experimental computer scientists working on computer architecture and parallel processing, including the new Cedar supercomputer under development at the UI. He is both a National Science Foundation Presidential Young Investigator and a Beckman Associate.

Marianne S. Winslett, Assistant Professor of Computer Science, is the recipient of the 1990 Junior Xerox Award for Faculty Research. This award is made annually by the College of Engineering and recognizes the most outstanding research conducted during the last year by a junior faculty member. Professor Winslett's research centers around the areas of artificial intelligence and database theory.

CS ALUMNI NEWS

1970's

Edwin Joseph Kocinski, B.S. '72 is the Database Support Group Manager of the Ace Hardware Corporation, Oak Brook, Illinois. Joe also teaches night classes at Illinois Benedictine College in Lisle, Illinois.

Donald G. Bourdage, B.S. '73, is a Programming Development Manager with IBM Corporation's Vienna Software Development Laboratory in Vienna, Austria.

Roger E. Covey, B.S. '76, is President of System Software Associates, Inc. (SSA), who are the authors of the Business Planning and Control System™ (BPCS™), the leading-edge integrated software system designed for IBM AS/400 computers. Covey is an internationally recognized authority on manufacturing systems and strategies.

SSA provides BPCS software and related professional services to a broad variety of industries through a worldwide network of Affiliate business partners in over 30 countries.

Mr. Covey graduated from the University of Illinois with a BS in Computer Science in 1976 and received his MBA in Finance and International Business from the University of Chicago.

Jeff Jacob, B.S. '76 has recently joined Texaco Trading

& Transportation, Inc. in Denver, Colorado as a Business Analyst and is currently developing an online lease records system.

Sandy Gerecke Duffy, B.S. '77 has worked at AT&T in Lisle, Illinois since graduation. She achieved a M.S. in Computer Science from Kansas State University through the Summer-on-Campus program sponsored by AT&T. Sandy and her husband are proud parents of two children.

1980's

Captain Greg Campbell, USAF, B.S. '80 is the Research and Development Program Manager for the Defense Advanced Research Projects Agency in Washington, D.C. where he manages the Information Resource Center as well as handles certain Internet and Arpanet tasks. Prior to that, he was with the Defense Communication Agency where he received a Joint Service Commendation Medal. Greg would like to hear from other alumni visiting the D.C. area and can be reached at (703) 527-0666.

Bradley M. Claire, B.S. '80 is a System Analyst for UNISYS maintaining numerous operating systems at NASA's Johnson Space Center in Houston, Texas.

Judy Decker, M.S.T.C.S. '80 is now an Associate Professor in Computer Science at Clarke College in Dubuque, Iowa.

Anthony Wei, Ph.D. '81 is currently a Department Head at AT&T Bell Laboratories, Holmdel, New Jersey where he is responsible for a large software development project. He joined AT&T Bell Labs in 1981 after he finished his Ph.D. at the University of Illinois under Professor Roy Campbell.

Dennis Smolarski, Ph.D. '82, is an Associate Professor of Mathematics at Santa Clara University, Santa Clara, CA, and is spending the 1989-90 year on sabbatical at the University of Illinois, Department of Computer Science. Dennis recently authored the book, "The Essentials of FORTRAN" published by Research & Educational Associates, Piscataway, New Jersey.

Lynne C. Thieme, B.S. '82 is currently working at MAD Intelligent Systems in San Jose, California. Lynne and her husband, Jeff Gould, are proud parents of Alexander Edward Gould born July 7, 1989.

Brad Goodman, Ph.D. '84 is currently a member of the Speech & Natural Language Processing Department of BBN Systems & Technologies Corporation in Cambridge, Massachusetts.

Brendan Conner, B.S. '85 recently was accepted to the University of Minnesota's master's degree program in computer science. He has been employed as a Systems

Architect for SEI Information Technology, New York.

Thomas P. Deeke, B.S. '85 completed his Masters of Science Degree in Computer Engineering at the University of Southern California this summer.

James Kruse, B.S. '85 is currently working at Kelly Food Products in Decatur, Illinois as a Data Processing Manager. He was married to Vicky Swank on February 6, 1988.

Norman Ma, B.S. '86 has been employed as a Software Design Engineer for the Texas Instruments Industrial Systems Division, Johnson City, Tennessee. During that time, he completed his M.S. degree in computer science and is now applying for admission to Ph.D. programs in computer science.

Andrea Ryan, B.S. '86 is engaged and to be married on April 21, 1989. She is currently working at AT&T in Naperville, Illinois.

Yesim Uzkan, B.S. '86 will be graduating next year and hopes to enter the field of Obstetrics and Gynecology. He would like to hear from anyone who has interests in the medical field.

Mark Grippando, M.C.S. '88 is an Associate Research Systems Engineer with Electronic Data Systems, Auburn Hills, Michigan, building applications using EDS' CASE (Computer Assisted Systems Engineering) tool.

C. WILLIAM GEAR — BIOGRAPHICAL SKETCH

During his long and distinguished career as a Computer Scientist, Professor C. William ("Bill") Gear has made significant and fundamental contributions that have led to many important numerical analysis and scientific computing methods and programs in use today. He is a world-class, productive researcher whose intellectual leadership and influence extend beyond the area of numerical analysis into many vital areas of computer science. He has written many introductory computer science textbooks that helped to identify and shape several core topics in the computer science curriculum. He has produced students who are leaders in the industry and research communities. He has provided dedicated and outstanding services by being the Head of the Department of Computer Science and the President of the SIAM (Society for Industrial and Applied Mathematics) and by serving on many important University and National boards and committees.

Professor Gear has been a leading, influential researcher in the area of numerical analysis since the very beginning of this important area in computer science. Professor Gear has made significant contributions in this area. He is one of the world's authorities on stiff differential equations. In 1968, at an international meeting, he presented a method for their numerical solution which has since become standard in the field. His 1971 paper on stiff differential equations together with his computer program provided the world with the first adaptive, fully automatic computer code for

solving stiff and nonstiff differential equations. Because of its over 130 citations in *SCI* over a nine-year period, this paper was cited as a Citation Classic in *Current Contents* (February 2, 1981). By automating the selection of stepsize and order, his program has provided scientists and engineers with a easy-to-use computing tool. The program became the basis of many important programs including the "Gear package" and the "Degear program" in the IMSL library. In fact, it was often said that the field of numerical ordinary differential equations can be divided into two eras, B.G. and A.G. Before Gear's work, engineers and scientists did not have automatic methods to solve stiff equations; both stepsize and order were manually chosen. After Gear's seminal work, they are automatically chosen.

Another one of Professor Gear's significant contributions is the area of differential-algebraic equations. In 1971, when his paper entitled "Differential-Algebraic Equations" was published, this class of problems was then un-named. This paper provided the first direct numerical treatment of differential equations with constraints. The paper promoted an interest in this class of problems that has since grown to become a major research area. Because many problems in science and engineering can be naturally formulated in terms of differential equations with constraints and invariants, this area has become increasingly more important in recent years. His 1971 book, *Numerical Initial Value Problems in Ordinary Differential*

Equations, has remained a definitive treatment of the area.

Professor Gear has not only developed some of the most frequently used numerical methods and computer programs but has devoted his efforts to make numerical computation tools easy to use. He has supervised students in the development of scientific computing, software, library tools and tools for access, and integration of different software packages. His work also addresses applications of numerical methods including circuit simulation, computer network analysis and real-time simulation.

Some of Professor Gear's most recent works are concerned with the potential for parallelism in the numerical solution of differential equations. His recent work on the parallel solution of ordinary differential equations and efficient implementation of numerical methods on multiprocessor systems will no doubt lead to tools and methods that will allow us to effectively exploit the potentials of supercomputers.

Professor Gear's scholarship is also amply demonstrated by the textbooks he has written. Computer science is a young and fast moving field; excellent textbooks have made a great impact on undergraduate computer science education. His book *Computer Organization*, which was first published in 1967, is a classic text for the core course on computer organization and assembly language programming. The fact that this book is in its fourth edition speaks for its importance and values. Professor Gear has also written a set of 11 books for introductory courses in computer science. Not only is the set an excellent text for introductory courses for computer science majors, it also introduced a new concept in teaching introductory courses in computer science. It employs a language-independent, modular approach. This approach has proved to be most effective and has since been followed by many authors.

That Professor Gear is an outstanding scholar is also demonstrated by his effectiveness as a teacher both at the undergraduate level and the graduate level. Moreover, at the postdoctoral level, Professor Gear inspires, influences, and helps the development of many young careers. As a classroom lecturer, he is precise, concise, and is always to the point. He has the uncanny ability of seeing through very complex issues and presenting them in a simple and structured way. As a thesis advisor, Professor Gear is demanding and

understanding. He demands high-level, technical achievement from his students not by words but by action. His deep involvement with a student's thesis work, his insight, and his outstanding mathematical ability make working with him a truly rewarding educational experience for his students. He has produced 19 Ph.D. students who all have gone on to very successful careers. Dr. Fontaine Richardson was a co-founder and Vice President of the company Applicon, which is now a major computer-aided design company. Dennis Gannon is on the faculty of Indiana University in Computer Science and is highly regarded in the field of parallel computing. Linda Petzold is a group leader for numerical mathematics at Livermore Laboratory and a major figure in differential-algebraic equations. Two of his recent Ph.D. students were appointed to the faculty of major Computer Science Departments—James Purtilo at the University of Maryland and Anthony Chronopoulos at the University of Minnesota.

Professor Gear is a former Managing Editor of the *SIAM Journal on Scientific and Statistical Computing* which is recognized as one of the top three journals in the area of numerical mathematics. He serves on numerous boards and committees, including the Board of Trustees of the Universities Space Research Association (Chairman 1986), Executive Committee of Computer Science Network, Advisory Committee of the NSF Division of Computers and Computation Research, and Board of Governors of the Institute of Mathematics and Its Applications. He is also a member of the Turing Award Committee which selects the recipients of the Turing Award, the most prestigious award in computer science.

Professor Gear was the 1987-88 President of the Society for Industrial and Applied Mathematics which is one of the major professional societies for applied mathematicians and computer scientists with over 7,000 members. It would not be inaccurate to say that most, if not all, of the important advances in the U.S. in numerical mathematics since the mid-fifties have been made by members of this professional society. It certainly is a very distinct honor to be elected to the Presidency of the society by such a distinguished group of scientists.

In November 1987, Professor Gear received a Doctor of Honour from the Royal Institute of Technology, Stockholm, Sweden.

In 1979, Bill Gear received the Forsythe Award in recognition of his work in numerical methods. G. Forsythe was the founder of the Computer Science Department at Stanford and a pioneer in the field of numerical mathematics. The Forsythe Award honors Forsythe's vision, leadership and influence in computer science and does so by making awards to numerical mathematicians possessing these same qualities. Professor Gear was the third recipient of this most prestigious award since its establishment. Recipients of the Forsythe Award in other years include Professor G. Dahlquist of the Royal Institute of Technology in Sweden, Professor Velvel Kahan of University of California at Berkeley, and Professor Gene Golub of Stanford University. Indeed, there is very little discrepancy between the list of recipients of the Forsythe Awards and the list of the ten best numerical mathematicians in the world.

In 1980, Professor Gear received the Halliburton Educational Foundation Award of Excellence for his service to education in the College of Engineering. This award speaks extremely well of Professor Gear's multi-dimensional achievements

as a teacher, a scholar, and a leader in education.

For the last five years, Professor Gear served most diligently and capably as the Head of the Department of Computer Science winning admiration and respects from everyone who has had an opportunity to be associated with him. During this time, the Department added nineteen young assistant professors to its faculty. As Head of the Department, Professor Gear provided them with unfailing support and guidance. Professor Gear's research productivity was hardly hampered by his administrative responsibilities. While Head, he continued his research contracts, and continued to work with numerous Ph.D. students. In addition, he was awarded an additional NSF grant for his research, published numerous papers, and presented ten international talks. This is a sign of a true scholar with genuine love of scientific research who is able and willing to find the time and energy to continue with his research work. This is also a sign of a true scholar with outstanding ability who is capable of accomplishing so much while fulfilling so many of his responsibilities.

C. W. GEAR ANNUAL AWARDS

The Department of Computer Science announces the creation of two C. W. Gear Annual Awards

In recognition of his long time contributions and service to the University of Illinois and to the Department of Computer Science, contributions from alumni, friends, and former students have been used to create an endowed fund to provide two annual awards, one for the outstanding Computer Science graduate student and one for the outstanding Computer Science junior faculty member. The recipients will be selected annually by a committee of senior faculty appointed by the Head of the Department. The first award will be given in the 1990-91 academic year.

The outstanding Computer Science graduate student will receive an award, initially set at \$1,000, in unrestricted research funds. The student

must have demonstrated excellence in research and service and be at least one semester away from graduation. The outstanding Computer Science junior faculty member will receive an award, initially set at \$2,000, in unrestricted research funds. The junior faculty member must have demonstrated excellence in teaching and research.

Additions to the "C. W. Gear Outstanding Graduate Student Award" or the "C. W. Gear Outstanding Junior Faculty Award" are welcomed. You may send a contribution (tax deductible) to the University of Illinois Foundation with the designation that it is for the C. W. Gear Annual Awards fund. Dean's Club and President's Council members may wish to designate their annual contribution for either of these funds.

CONSTRUCTION PROGRESS

Photos by Rick Henderson



View from the southwest.
February 20, 1990.



Men work on the south face of the old building, which now overlooks the atrium.



View out the east end of the atrium, with University High in the background.

FINANCIAL CONTRIBUTORS

Dr. Utpal Banerjee	Mr. Robert Neil Frerichs	Mr. Martin L. Oppenheimer
Mr. Brian K. Bartler	Mr. James D. Glauert	Mr. Gary Paul Oswalt
Mrs. Patricia K. Bartler	Mr. Donald R. Halley	Mr. R. Douglas Rohn
Mr. Valentin L. Bazavan	Dr. Karen L. Hassett	Mr. Jeffrey Lynn Rohrer
Mr. James E. Benedict	Mrs. Luann Erbes Hayes	Mrs. Joyce Rohrer
Mr. Mark H. Bergren	Mr. Thomas Bernard Hayes	Ms. Andrea Marie Ryan
Mr. Philip Keith Brownfield	Mr. Thomas Edward Hintz	Mr. David M. Scheibelhut
Mr. Thomas Patrick Burke	Mrs. Eileen Atwater Jasica	Mr. George J. Schmidt
Mr. Robert J. Bury	Mr. Jeffrey R. Jasica	Mr. Alfred J. Seita
Mr. Kevin Joseph Bush	Mr. Christopher J. Jenner	Ms. Cynthia M. Tao
Mr. Vid Byanna	Mrs. Carol Anne Kubitz	Ms. Joy A. Ullmer
Mr. David Dahlbacka	Professor William J. Kubitz	Mr. Mayank V. Vadodaria
Ms. Judith R. Decker	Mr. David E. Lamar	Mr. Robert A. Vanvalzah
Ms. Joy Lynn Dorethy	Mr. Alan M. Loke	Mr. Terry W. Warner
Mr. Ross M. Erlebacher	Mrs. Bonnie J. Pavlik Le May	Mr. David L. Weaver
Mr. Scott Thomas Evans	Mr. Keith Morgan	Mr. Sisira K. Weeratunga
Mr. Scott Harley Fisher	Mr. Thomas P. Morrissey	
Mrs. Marilyn A. Frerichs	Ms. Heather Oppenheimer	

MATCHING COMPANY CONTRIBUTIONS

American Telephone & Telegraph Foundation	International Business Machines Corporation
Arthur Andersen & Company Foundation	Monsanto Fund
Digital Equipment Corporation	Motorola Foundation
General Electric Foundation	TRW Foundation
Hewlett-Packard Company	Transamerica Corporation
Intel Corporation	

ATTENTION! Alumni who work for IBM

As you IBMers know, when you make a monetary gift to the department (through the U of I Foundation with the donation earmarked for Computer Science), your company matches your gift. Traditionally, the match has been an equal amount in cash. Now, however, we have been given the option of accepting an equal amount in cash, or a 5X amount (list price) in IBM equipment. We are much inclined toward the latter, particularly with the recent announcement of the Risc System 6000 line.

We are currently in the process of attempting to upgrade our instructional laboratory containing IBM RTs to the new 6000 systems. Use of any donations that you would care to make in the manner stated above would be a big help to us in outfitting one of the instructional labs in our new building with the new 6000s.

Are You a member of the Alumni Association?

More than 105,000 alumni are — including approximately 64,000 who are life members. Computer Science Graduates who join the University of Illinois Alumni Association automatically become members of the Computer Science Alumni Association Constituent Group. This is the only way to become a member of the Computer Science Alumni Association Constituent Group. As a member of the Alumni Association you'll receive the Illinois Alumni News, as well as publications from your college and from the Computer Science Alumni Association Constituent Group. You'll qualify for our tour program and our insurance program. And you'll continue your loyal involvement with something great — your University of Illinois. To join, either as an annual member or as a life member, return this form with your check to:

Alumni Association
227 Illini Union
1401 West Green Street
Urbana, Illinois 61801

(Make your check payable to the University of Illinois Alumni Association.)

- One year single membership — \$20 One year husband-wife — \$25
- SINGLE LIFE MEMBERSHIP — \$250.**
(INSTALLMENT PLAN: \$300 — \$10 DOWN, FOUR YEARLY PAYMENTS OF \$72.50.)
- HUSBAND-WIFE LIFE MEMBERSHIP — \$300.**
(INSTALLMENT PLAN: \$350 — \$10 DOWN, FOUR YEARLY PAYMENTS OF \$85.00.)

Name _____ S.S.# _____

Spouse's name (if an alumnus) _____

Does spouse have a U. of I. degree? _____

Address _____

College & dept. _____ College year _____

If you're already a member, thanks for your support. If you graduated within the last two years, write for special life membership rates.

WHAT'S NEW WITH YOU?

Name _____ Degree/Year _____

Address _____ Company _____

_____ Title _____

_____ Business Address _____

Is this a new address? Yes ___ No ___

What's New ... with you ... or with other alums you know ...

NON-PROFIT
U.S. POSTAGE
PAID
PERMIT NO. 12
CHAMPAIGN, IL 61821

ALUMNI ASSOCIATION OFFICERS

President

Fontaine Richardson, Ph.D. '68
Eastech Management Company, Inc.
260 Franklin Street, Suite 530
Boston, MA 02110-3112
(617) 439-6130

Vice President (West)

Richard M. Schell, Ph.D. '79
Borland International
1800 Green Hills Road
Scotts Valley, CA 95066
(408) 439-1824

Vice President (East)

Jeff Glickman B.S. '82
Advanced Analytics Corporation
701 Devonshire Dr.
Champaign, IL 61821
(217) 359-5888

**Vice President (Midwest)/
Newsletter Editor**

Glenn Kowack, B.S. '60
Motorola Inc.
(305) 797-5937
USENET: pur-ee!uiucuxclccvaxa!kowack
ARPANET: kowack@urbsdc

Treasurer

Denise Raffel, B.S. '85
Hewlett-Packard
3404 East Harmony Road
M/S 110
Fort Collins, CO 80525
(303) 229-6174

Secretary/Faculty Representative

Professor Dennis Mickunas
(217) 333-6351
USENET: pur-ee!uiucdcs!mickunas
ARPANET: mickunas@a.cs.uiuc.edu

University of Illinois at Urbana-Champaign
Computer Science Alumni Group
Department of Computer Science
1304 West Springfield Avenue
Urbana, Illinois 61801

NON-PROFIT ORG. U.S. POSTAGE PAID PERMIT NO. 75 CHAMPAIGN, IL 61820
