Expert systems pave way for computers that 'learn on job'  

In the 1990s, instead of giving retiring employees a gold watch at their farewell dinner, corporations may start dedicating in their name a computer that learns on the job. One of the techniques addressed one process. And it is considered an advance in the beginning of a new age of artificial intelligence systems that soon will be able to "think on their feet and learn on the job."  

"Unlike an experienced engineer, expert systems never tire, sick, leave the company or retire," said Joseph. "As they grow older, they have a great potential to get better. Now that we have implemented the expert system at Ethyl Corp., we are experimenting with control systems that can learn on the job. One of the techniques we are exploring is the use of artificial neural networks.  

"These systems mimic the activities of the human brain so that the system, seeing a suddenly evolved problem, is able to make a decision based on imprecise data.  

Conventional digital computers can act on the data they receive in an either/or manner. "Neural nets" can work in the gray areas. While the Ethyl Corp. is not based on artificial neural networks, Joseph says it is serving as an example for ideas about future programs that will use them, revealing where neural networks are likely to work and why they will not. Expert systems and artificial neural networks are branches of computer science, discussed and implemented on a limited basis over the past 30 years. They fall under the general umbrella of artificial intelligence (AI). Artificial intelligence imparts to computers abilities to "recognize" and "reason" under certain circumstances — for example, recognizing speech patterns and reading tests. One of the most familiar examples of AI at work today is the "smart" weapon, such as the computer-driven Patriot and Tomahawk missiles that are programmed to recognize and destroy pre-selected targets.  

Expert systems are software programs that can make decisions based on reason and deduction using knowledge encoded generally in the form of rules. Artificial neural networks, on the other hand, are not cognitive, or "thinking" machines, as such. They are based on calculations and patterned after the biological process of the human brain, the intricate and, as yet, largely enigmatic way the brain fires off billions of neurons through an elaborate network of synapses. A typical neural network is composed of a series of neurons that soon will be able to "think together so many disparate talents to years. Thus, management's concern for retiring employee had gained over the years, reflect-ing much of the experience the long-time employee had gained over the years. That, management's concern about "how will we replace him or her" may be solved, in part, by a computer program.  

Such a system, developed by Babu Joseph, Ph.D., professor of chemical engineering, in conjunction with scientists at Ethyl Corp. of St. Louis, draws upon the expertise of four multidisciplinary experts in a process that produces a petroleum additive for clean automobile fuel. It is one of the first complex expert systems to draw together so many disparate talents to address one process. And it is considered an advance in the beginning of a new age of artificial intelligence systems that soon will be able to "think on their feet and learn on the job."
Direct cost report reviewed

Representatives from the Department of Health and Human Services (HHS) completed their detailed review of Washington University's indirect cost report on June 21, according to John A. Berg, associate university controller for finance.

Although a number of discussions were held with the reviewers during the eight-week period that they were on campus, Berg said a final meeting and discussion concerning their detailed review findings may not occur for quite some time. "Their review covered not only the details of the University's general administrative costs, but also the other categories of cost and cost allocations, such as equipment depreciation and space allocations, that are included in the indirect cost rate that are involved with its preparation," said Berg.

The next step in the review process, Berg understands, will be a meeting later this summer with members from HHS' Division of Cost Allocation — the negotiators who oversee the actual setting of the indirect cost rates. "We do not know when a final indirect cost rate for fiscal year 1992 will be set by HHS," said Berg.

Berg added that the University has begun implementing a number of changes that should help ensure compliance with federal regulations that govern indirect costs. "We are clarifying the University's internal policies and procedures, making changes in the University's methods of accounting costs, and planning for additional self-initiated or required reviews — internal and external — of our indirect and direct costs of federal research," said Berg.

"Because the number of individuals throughout the University who code invoices and who complete various allocation reports is quite large, we are working on a number of fronts to communicate the University's policies and procedures and to improve the training of those who assist in the preparation of the various reports and data." 

Assistant general counsel appointed

Attorney Gerard K. Rodriguez, J.D., has been appointed assistant general counsel at Washington University. He reports to Peter H. duger, J.D., general counsel.

Among Rodriguez's new responsibilities are health care and environmental law matters. Since joining the University, he worked in the general counsel's office for the University of Missouri System where he worked as a legal associate for the Popham, Conway, Swreyen, Fremont & Bundschuh law firm in Kansas City, Mo., and as a law clerk for the hostels, King, St. Michael's and Hahn law firm located in the same city.

Potential good listeners: Many varieties of plans will be sold during a giant plant sale from 10 a.m. to 4 p.m. Aug. 26 on the north terrace of Wohl Center. Proceeds from the sale, which is sponsored by the Women's Society, will help fund scholarships for Washington University students.

Former students give architecture professor Paris trip to celebrate 20 years of teaching

The awards had been given and the end-of-the-year business was completed at the School of Architecture's annual meeting last spring, but there was one more item on the agenda. Against the backdrop of a slide show documenting his 20 years of teaching, an astonished Carl Safe was summoned to the podium, where he was presented with round-trip airline tickets to Paris for himself and his wife, along with two weeks' hotel accommodations and $1,000 spending money. The surprise presentation was arranged, with the complicity of Safe's wife, Karen, by a group of Safe's former students and faculty colleagues to celebrate his 20th year at the University. "My wife said it was the first time she'd ever known me to be speechless," said Safe, assistant professor of architecture, "but I was totally taken by surprise." Safe, who teaches design to students from sophomores through the graduate level, believes that the group "just decided it was time I went to Europe," and the 20th-year anniversary provided the opportunity for them to see that he did.

He's never been there, though he has spent a lot of time in South America, where he and his wife, a researcher in the Department of Obstetrics and Gynecology, served in the Peace Corps in Bolivia from 1966-68. "I know he's learned some of the values during that time that led me to teaching instead of a corporate kind of work," Safe said. "He's truly open to new experiences, and he has a real interest in the arts."

Keeslar, a 1982 graduate of the School of Architecture, now lives and works in Paris and will serve as tour guide for the Safes during their visit, which begins Aug. 5. "I'm not even sure where we are staying," says Safe. "Every detail has been arranged."

"This is the first accolade of this sort, given at the initiative of the students themselves, that I know of," says Constance Michaudels, dean of the School of Architecture. "It speaks eloquently of the high regard that Carl Safe's students have for him."

Nemerov

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Figures of Thought (1978) and The Oak in the Acorn (1979). He also wrote three novels, The Malabar Affair (1963), The Language of Love (1954) and The Homecoming Game (1957), which later was made into a Hollywood film titled "The Tall Story" starring Jane Fonda and Tony Perkins.

Nemerov was a Chancellor of the Academy of American Poets, fellow of the American Academy of Arts and Sciences, and member of the American Academy and Institute of Arts and Letters.

In 1987, Nemerov received the National Medal of the Arts by President Ronald Reagan during a White House ceremony. He was awarded the medal in recognition of his lifetime work. Public Broadcasting Service aired a documentary produced by RITC-TV about his life and writing titled "Howard Nemerov: Collected Sentences." The documentary was broadcast nationally in 1982.

As poet laureate, Nemerov advised the Library of Congress on its literary programs and collection of literature, as well as recommended new poets to be recorded in the Library's Archive of Recorded Poetry and Literature.

Nemerov was born Feb. 29, 1920, in New York City. During World War II, he served in the Navy, where he flew more than 57 combat missions. He also served as a visiting professor at the University of Nebraska, where he worked in the general counsel's office for the University of Missouri System. Nemerov has served as a visiting professor at the University of Kansas, the University of California, San Francisco, and as a visiting professor at the University of the South in Sewanee, Tenn.

Nemerov's professional affiliations include membership in the Kansas City Metropolitan Peace Council, Missouri State Bar and the National Association of College and University Attorneys. He is a 1985 recipient of the St. Louis Award of the University of Kansas, where he received a bachelor's degree in political science and a law degree in 1965. A former University of Kansas Endowment Scholar, Rodriguez was a 1985 legislative intern for U.S. Rep. James B. Dole (R-Ky.) in Washington, D.C.

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Barbara Markus Briggs, director of risk management at the School of Medicine, gave a presentation titled “Healthcare Insurance in the U.S.” to the Insurance Club of Denmark in 1991. Catalogs are regularly reviewed by the editor of the magazine Danish Insurance Review.

Beverly A. Daniels, a University College of the Ivy League of the Campus Stores, has written a book titled Zeen Dot Which sold more than 100,000 copies over three days and was on the store’s best-seller list.

Matthew Diefenbach, head rowing coach, has been selected as assistant lightweight men’s coach to the U.S. National Rowing Team. The team is training this summer in Massachusetts.

James O. Hepner, director of the English Department, was on the store’s best-seller list.

Alessandra Luiselli, Ph.D., assistant professor serving as a visiting faculty member at the Harvard Medical School, has written a book titled “Wynnere and Wastoure as Fundraiser for the Black Prince in Chaucer in 1553” to the 25th annual meeting of the Medieval Studies at Kalamazoo, Mich. He gave a reading of his poetry in Tulsa, Okla., for the 25th International Festival of the Tulsa Arts and Humanities Council. Two of his university students, “The Eagle Fan Says” and “Communing Before Superstition,” were invited to join the Pulmonary Disease Advisory Committee (PDAC) of the National Heart, Lung, and Blood Institute, which he co-authored. Published by Harper Collins Publishers.

John A. McDonald, M.D., Ph.D., professor of internal medicine and director of the Respiratory and Critical Care Division of the School of Medicine, has given a presentation titled “Growth Factor and Matrix Gene Expression in Pulmonary Fibrosis” at the 25th annual meeting of the American Thoracic Society in New Orleans. He has given more than 30 talks on his work and has been named to the board of directors of the Foundation of Anesthesia for the Childhood Medical Service. The presentation was made at Keesler Air Force Base following his participation in the 10th annual conference on Changing Healthcare Environment.

Hepner, who has been a national consultant to the Air Force Surgeons General, is the first civilian to receive the Gold Medal in the history of the Air Force Medical Service.

Wendy Hyman, director of the English Department as a Second Language program, is serving as a visiting faculty member at Harvard University during the 1999 summer. She is joining the summer faculty to teach the materials from her new textbook, Singing U.S.A. Springfield to Culture, published by Newbury House. The book will be on the market this fall.

Robert Landick, Ph.D., assistant professor of biology, gave a presented seminar in the biology and genetics departments at the University and the microbiology department at the University of Alabama at Birmingham during the past year. He attended a seminar at the University of North Carolina in Chapel Hill. He also was a member at a panel discussion on “Selection of an Academic Career” as part of the Introduction to Research program at the American Roentgen Ray Society annual meeting in Boston.

John C. Morris, M.D., assistant professor of pathology and laboratory medicine, gave a presentation titled “Terminator: One of the world’s new cancer drugs and changes in bacterial RNA polymerase.” This summer Landick returned to his high school in Lansing, Mich., to deliver the school’s commencement address.

Charles L. Leven, Ph.D., professor of economics, gave a seminar titled “Devolution of Governmental Fiscal Responsibilities” at the 25th annual meeting of the American Economic Conference in Portland, Ore. He was the luncheon speaker at the conference’s first meeting. The conference spent two weeks as professor-in-residence at the University of Lodz in Poland.

Alessandra Luiselli, Ph.D., assistant professor of Spanish, presented a paper on “The power and influence of poetry titled ‘Iiconicohel: Canton de augusta de la Langue Espagnole’” at the 25th annual meeting of the International congress held in Medellin, Colombia. The conference, titled Language and Literature in the Americas, was sponsored by the University of South Florida and the Universidad de los Andes.

The Woman’s Club of Washington University has established a scholarship program to aid working female students who are enhancing their work skills by attending the University. The first scholarship recipient is Donna C. Wahlig, a finance major at the John M. Olin School of Business who plans to graduate with a bachelor’s degree in December 1991. Wahlig is a 1990 graduate of the St. Louis Community College, Tennessee, which she attended as a working student while working full time. She is a member of the legal secretarial profession. She is also a member of several professional organizations, which he co-authored. Wahlig was an Honors Program Scholar and a member of the Phi Theta Kappa National Honor Society.

The scholarship recipient must be a local student attending the University and must demonstrate financial need, according to Magnolia Stobor, president of the Woman’s Club. She said recipients may be pursuing an undergraduate or graduate degree. Applicants for the scholarship are selected by the scholarship committee of the Woman’s Club.

Washington University faculty and staff make news on a regular basis. Following is a digest of media coverage they have received during recent weeks for their studies, research and general expertise.

Christopher Early, Ph.D., associate professor of English and African and Afro-American studies, appeared on the morning news on American television stations recently, including the Washington Post, The New Republic and the St. Louis Post-Dispatch. On April 15, he was a guest on the St. Louis Post-Dispatch program “Talkin’ at the Gates; A Life of James Baldwin,” which was profiled in the St. Louis Post-Dispatch and in a Sunday magazine section, wrote an introduction and edited the book My Brother’s Keeper: The Correspondence of Countee Cullen, Voices of The Harlem Renaissance and the Philadelphia Press. The poet’s works are complex and cannot be traced to one gene or separated from environmental factors.
Missouri Humanities Council awards grant to Black Heartland Project

The Missouri Humanities Council (MHC) has awarded a $10,150 grant to the African and Afro-American Cultural Center's "Black Heartland Project" to support a seminar this summer that enhances junior and senior high school teachers' understanding of the African-American culture.

The seminar, which began July 15 and continues through Aug. 5 at the University of Missouri, focuses on the African-American experience in the Midwest and how African-Americans have shaped Midwest culture. It is part of a continuing project titled "Black Heartland." The Growth and Development of African-American Culture in the Midwest is being sponsored by the University's African and Afro-American Program in partnership with the MHC, the state affiliate of the National Endowment for the Humanities.

Gerald E. Early, Ph.D., professor of English and of African-American studies, directs the project. The seminar participants — teachers from across the state — were selected by a committee chaired by Early.

"This grant is enabling Washington University to provide the wider educational community of Missouri with instruction in the vital area of Afro-American studies and regional history," said Early. "With this project we are fulfilling a very important aspect of our mission as an institution. Personally, it is also gratifying to have an international agreement I have had for a long time."

The final implementation was to incorporate the knowledge into a readily accessible program. Joseph and his colleagues chose a system called LEVELS, which allowed them to enter rules into the program in a language that is simple and direct. For instance, to troubleshoot a problem with the process, one of the rules might be: "If the temperature is too high then the cooler is fouled or the sensor might be faulty." Better than anything they can do on their own.

Additionally, the seminar is featuring guest lectures and two film presentations.