Cream and sugar? No problem for this coffee-making robot, pan of an experiment designed by L. Andrew Oldroyd (above), assistant professor of computer science, to see how robots might be used as aids for the disabled.

With funds from the Biomedical Research Support Grant Program of the National Institutes of Health, he is experimenting with a computer-controlled mechanical arm. When attached to a countertop or wheelchair, the arm should be able to perform such house- hold chores as making coffee, stirring soup, or even frying eggs.

“A lot of the fundamental research in robotics has already been done,” Oldroyd said. “What’s needed now is the development of research concepts to the point of practical use.”

Robotic arms, he points out, are not a new idea. Originally called teleoperation systems or man amplifiers, they date back nearly 40 years when they were developed to handle radioactive materials at a distance. Now, they also aid in the manufacturing industry as well as in the exploration of space and the seas.

What makes Oldroyd’s mechanical arm project novel is the idea of adaptive control. It’s relatively easy for a robot to accomplish a task like making coffee if the ingredients and equipment are in exactly the same location every time. But since that is rarely the case, Oldroyd is devising a system that makes it possible to coordinate a robotic arm with expert systems, or artificial intelligence, to perform a variety of tasks with little or no programming.

Experimental robot may serve as helping hand for the disabled

Fingers, hands, arm, feet — imagine facing the day without them. Even simple routines like combing your hair, brushing your teeth, and brewing that first cup of coffee would be impossible. Yet that is the situation encountered by thousands of paralyzed and otherwise handicapped people who have lost the use of their limbs. It may not be long, though, before they gain a certain degree of independence in the form of a robot.

A computerized companion as nimble as a human may be just around the corner. "A lot of the fundamental research in robotics has already been done," Oldroyd said. "What's needed now is the development of research concepts to the point of practical use." Robotic arms, he points out, are not a new idea. Originally called teleoperation systems or man amplifiers, they date back nearly 40 years when they were developed to handle radioactive materials at a distance. Now, they also aid in the manufacturing industry as well as in the exploration of space and the seas.

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Yale president's talk on Orlando opens Baroque Festival Feb. 23

A. Bartlett Giamatti, nineteenth president of Yale University, will inaugurate WU's Baroque Festival when he speaks on "Orlando and the Epic Tradition" in Graham Chapel at 11 a.m., Wednesday, Feb. 23.

At the time that Giamatti became head of Yale in July 1978, he held the John Hay Whitney Professorship in English and Comparative Literature. Giamatti, a Renaissance scholar, is the author of The Earthly Paradise and the Renaissance Epic and coeditor of Ludovico Ariosto's Orlando Furioso. Orlando Furioso, the epic by 16th-century poet Ariosto, was the main source of the story that Handel used for his 250-year-old opera, Orlandob. The centerpiece of the Baroque Festival, it will be performed on three evenings, Feb. 25-27 at 8 p.m., in Edison Theatre.

Giamatti, whose particular interests are the literature of Italy and England, specifically Spenser and Renaissance epic poetry, is also knowledgeable about Provençal poetry and Dante. The author of two other books, and the coeditor of a variety of texts, Giamatti served as general editor of Western Literature, a three-volume anthology published in 1971.

Such intellectual pursuits have been leveraged by his prize-winning article, "Tom Seaver's Farewell," which originally appeared in the September 1977 issue of Harper's Magazine. It was selected as the "Best Magazine Story" by E.P. Dutton Press, Inc., for its book, Best Sports Stories 1978. In that story, the Giamatti wit surfaces. He tells of visiting with Tom Seaver, now a pitcher with the New York Mets, and other celebrities at the apartment of Enrico Segal, author of Love Story, and remaining unobtrusively in the background. Giamatti observed: "Because I was about the only member of the gathering who was a household name only in my own household, I was content to listen, and to watch Seaver.'

Giamatti has received widespread recognition for his accomplishments. In 1979, the honorary title of Commander in the Order of Merit of the Italian Republic was bestowed on him. A year later, he was elected a Fellow of the American Academy of Arts and Sciences and last year became a member of the American Philosophical Society. In 1980, he was elected a director of the Council for Financial Aid to Education. Giamatti, in addition, was a member of the National Council on the Humanities and a member of the Commission on the Humanities, sponsored by the Rockefeller Foundation in 1978-80. In 1981, he was appointed by Secretary of the U.S. Department of Education Terrel H. Bell to the 18-member National Commission on Excellence in Education.

Arts & Education drive opens; has goal to raise $2 million

"Be a Fan!" is the theme of this year's Arts and Education Council fund drive to raise $2 million by March 15. Over 130 St. Louis-area cultural and educational organizations in St. Louis are eligible for funds from the campaign, including eight WU departments.

The main beneficiaries of the drive are Dance St. Louis; KETC-TV, Channel Nine; the Mark Twain Summer Institute; Opera Theatre of St. Louis; the Repertory Theatre of St. Louis (formerly Lorrenzo-Hilton); the Saint Louis Conservatory and Schools for the Arts (CASSA); Young Audiences, which brings in educational organizations in St. Louis are eligible for funds from the campaign, including eight WU departments.

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Fitness buffs brave early hours in exercise program at Francis

In the early hours of the morning, the silence of the Francis Field House is pierced by the steady clatter of treadmills and the steady steady labors of a sleeping group of WU administrators, faculty and staff preparing for an hour of exercise and running. Their reasons for being there vary, but all share the goal of better health.

They are participants in one of two 10-week physical fitness programs sponsored each semester by the Department of Sports and Recreation. The group meets every Monday, Wednesday and Friday from 7:30 a.m. to 8:30 a.m. for 30 minutes of individualized exercises and 30 minutes of running. The program regularly attracts 20 to 30 participants ranging in age from 20 to 60. One third of the participants are women.

"The majority who enroll are just starting out and need guidance and structure before they begin an exercise program, an optional pre- and post-fitness evaluation, and rehab for injuries to student athletes. For the majority who enroll are just starting out and need guidance and structure before they begin an exercise program, an optional pre- and post-fitness evaluation, and rehab for injuries to student athletes. They are participants in one of two 10-week physical fitness programs sponsored each semester by the Department of Sports and Recreation. The group meets every Monday, Wednesday and Friday from 7:30 a.m. to 8:30 a.m. for 30 minutes of individualized exercises and 30 minutes of running. The program regularly attracts 20 to 30 participants ranging in age from 20 to 60. One third of the participants are women.

"The majority who enroll are just starting out and need guidance and structure before they begin an exercise program," explained Richard R. Larsen, WU assistant athletic trainer and director of the fitness program for the last two years. "Some of the younger participants want to stop the deterioration of their bodies before it's too late. Older participants want to lose weight or simply to feel better, work better or reduce stress. There are many benefits to a regular exercise program." Leonard J. Banaszak, professor of biological chemistry, agrees with Larsen.

"You have to have a certain amount of devotion to get up at 6:30 in the morning," said Banaszak, "but it has had positive effects. I have more energy for my work, and I generally feel better." Sheldon S. Helfman, professor of architecture, echoes Banaszak's sentiments.

"At first I was embarrassed because there were a lot of exercises I couldn't do," Helfman said. "But I can see my improvement every day. I feel better and I've lost weight, too."

Although carefully tailored by Larsen to each person's age and present physical condition, all the exercises are designed to increase the heart's ability to pump blood. Each participant exercises for a sustained period of time at a certain heart rate. These exercises not only strengthen the heart muscle, but lower blood pressure, increase circulation, decrease the amount of fats and cholesterol in the bloodstream and increase the individual's tolerance of stress.

Participants start slowly and build up their endurance, says Larsen, because overexercising is not only uncomfortable, but dangerous. Larsen insists that participants over the age of 35 have a physician's approval of their physician. Both Larsen and his assistant, Jamie Seim, are certified in Cardiopulmonary Resuscitation (CPR) and are prepared for any emergency. As assistant athletic trainer, Larsen is responsible for the prevention, treatment and rehabilitation of athletic injuries to student athletes.

In addition to the basic exercise program, an optional pre- and post-fitness evaluation to determine cardiovascular improvements and body composition measurements is available. Larsen also provides information on stress, reducing, diet and how to stop smoking.

The next 10-week session will be offered March 28-June 3 and costs $40. The optional fitness evaluation is an additional $20. Interested individuals interested in the program should contact Larsen at 885-5220.

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to modify the robot's actions as it moves. For instance, if the coffee jar is a few inches to the left of where the robot is programmed to expect it, the user can command the robot to reach further to the left. Afterward, the robot remembers the new location of the jar.

"The whole idea is to devise software to let someone program the machine in a fashion that is extremely simple, yet adaptable to the situation," he explained. "With a sophisticated control system, an inexpensive microproces- sor (computer chip) can be coupled with an inexpensive robot to do household chores.

At present, Oldroyd's robot is ac-

tivated by commands typed onto a com- puter terminal keyboard. Eventually he will use voice control, programming the robot to respond to about 30 simple phrases. He plans to demonstrate the robot's abilities this spring, when he'll seek comments from handicapped people and therapists. Perhaps future programs can even be developed for grooming functions, like combing hair and brush- ing teeth, he said.

Oldroyd, who has taught several undergraduate classes in robotics, pre- dict that robots will be common house- hold servants in as little as five to 10 years. "The changes yet to come from robots will far outweigh the changes we've seen from computers," he said.

Drive — continued from p. 1

professional performing artists to schools and communities throughout eastern Missouri and southwestern Illinois, and the Arts and Education Council of Greater St. Louis, which offers services to member agencies. Collectively, these agencies serve more than two million adults and children.

This year, for the first time, eight WU departments became eligible for Arts and Education Council funds: Asian Art Society, Department of Chinese and Japanese, Department of Music, Performing Arts Area, the schools of Architecture and Fine Arts, University College, and the Gallery of Art.

Chancellor William H. Danforth is chairman of the Education Division of the council. Gloria White, an associate vice chancellor for personnel and affirmative action, is this campus's drive coordinator.

Certain premiums accompany various gift amounts, which are tax deductible. Faculty, administrators and previous givers have received pledge information. Pledge cards are also available at the Personnel Office, Ext. 5990, on the lower level of South Brookings Hall. Pledge cards and checks (no cash, please) should be returned no later than March 15 to the Arts and Education fund in the accompanying self-addressed envelope or to White at campus box 1184.

Lucian Krakowski, former dean of the School of Fine Arts, who holds joint appointments as professor of art and adjunct professor of philosophy, recently completed this 22 by 16-foot mural above the front door of the new HBE Corp. headquarters, 11530 Olive Street Rd., Creve Coeur. Commissioned last December, Krakowski's work of art is believed to be one of the St. Louis area's largest outdoor murals. Fred S. Kammer, HBE's president and founder, commissioned the mural.
Ambitious sculpture recovery jobs bring new life to Washingtons

Washington University, named for our first president and graced its charter on George Washington's birthday 130 years ago, is doing more for the memory of Washington today than simply serving as a namesake. The University's Sculpture Conservation Laboratory has in the past seven years restored three nationally significant Washington statues in three different U.S. cities.

First to be restored, in 1976, was a life-size Washington bronze located in St. Louis' Lafayette Square. That statue is a copy of the famous Cararra marble work undertaken by French artist Jean Antoine Houdon in 1785. The original is considered to be this country's most priceless marble statue. The bronze copy in Lafayette Square is one of the first six authorized by the Virginia Legislature to be cast from the marble original.

In New York City, two years later, the University's Sculpture Conservation Laboratory finished restoration of the famous Washington statue in front of Federal Hall on Wall Street, where Washington gave his inaugural address in 1789. That twice life-size bronze was considered a national treasure, was completed by American artist John Quincy Adams Ward in 1883.

And just two months ago, WU sculpture conservators restored the pre-Civil War Washington monument near the capitol building in Richmond, Va. Rehabilitation of this multi-statue work is considered the most ambitious sculpture recovery project ever undertaken, costing $200,000 and requiring more than three months to complete.

On all three Washington projects, and in dozens of other restorations the WU conservators have undertaken, far more is involved than merely polishing badly tarnished bronze surfaces. On each project, advanced cleaning methods are used to remove damage done to the statues by sulfur in industrial pollutants. First, the WU conservators bombard the bronze with powder-fine glass beads, a process also used to clean delicate jet engine parts. Then, heating the statue with blow torches while spraying the hot metal surface with special chemicals, the conservators cause a chemical reaction called passination. Several such treatments restore a statue's original rich brown color. Finally, protective acrylic resin coatings are added to prevent future damage.

Are more George Washington rehabilitation projects planned by the WU Sculpture Conservation Laboratory? Chief conservator Phoebe Weil says possibly two more — one at the Chicago Art Institute, the other in Brooklyn.

Robert L. Pierce, assistant professor of social work, has been elected to the board of directors of the International Institute of Metropolitan St. Louis. The institute is a non-profit social service agency that helps local immigrants and refugees and conducts educational and cultural programs to improve cross-cultural understanding.

Henry G. Schwartz, August A. Busch Jr. Professor of Neurological Surgery at the School of Medicine, has received the Award of Merit from the St. Louis Metropolitan Medical Society. The award is the society's highest honor, and is presented only when the award and honors committee knows of a deserving recipient. The society recognized Schwartz for "outstanding contributions to medicine." Schwartz is a neurougeon at Barnes, Jewish and St. Louis Children's hospitals.

Jeffrey Skolnick, assistant professor of theoretical chemistry, has been selected as an Alfred P. Sloan Research Fellow. The Sloan Fellowship is accompanied by a grant of $25,000 for research support. Recently, he was awarded a grant of $35,000 from the Petroleum Research Fund for his investigations on the dynamics of polymer glasses. Skolnick received a BA in chemistry from WU and a PhD in theoretical chemistry from Yale University. He joined the WU faculty in 1982.

John C. Thompson, assistant vice chancellor for planned giving, discussed cultivation and solicitation techniques for donors of trusts, bequests, and major gifts at the Advanced Planned Giving Seminar in early February held in Alexandria, Va. This annual program for college and university development officers is sponsored by the Council for Advancement and Support of Education.

Carol Winkelmann (BSChE '84) won a first-place award in the 1982 Technical Art and Writing Competition of the St. Louis chapter of the Society of Technical Communication. Her "Switchboard and Reception Desk Manual for the St. Louis County Library," written as a final project for Technical Writing 310, an engineering school course, received the "Award of Excellence" in the student writing category. Winkelmann's manual will be displayed with winning entries at the international level competition at the 50th International Technical Communication Conference, May 1-4, at the Sheraton-St. Louis Hotel.
Thursday, Feb. 17
5:45 p.m. Pictura Comedial, Neptune and Cameron, N.J., "On the Unity of the Arts and Early Modern History," William Tot, aff. fellow in the history of architecture at WU and current WU trustee. Steinberg Hall.

Friday, Feb. 18
10 a.m. The Black American Law Students Association (BALSA) Discussion, "Race and the Lapel: Views From the Bench," Judge Theodore McMillan, former Chief Judge of Appeals, 8th Circuit; Judge Clyde Cahill, U.S. District Court, Eastern District, Mo., and Judge Fernando Gaitan Jr., 16th Circuit Court, Jackson County, Mo. Courtroom.
5:30 p.m. Baroque Festival Symposium, Session I, "Baroque Theatre and Stage Design," Andrew Porter, WU assoc. prof. of Francophone literature. Lopata Hall.
7 p.m. Men's Basketball, WU vs. Saint Louis. Francis Gym.
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