



RESEARCH REACHES OUT

Through cutting-edge developments in technology, social sciences, the arts, and countless other disciplines, Syracuse University faculty and students are making an impact on our world.

For many people the term “research” conjures up images of secretive scientists locked away in sterile, secluded labs, alternately mixing noxious chemicals and scribbling cryptic formulas on wobbly, well-worn blackboards. But modern academic research at SU has moved far beyond this stereotype: Improving computer technology, demystifying the universe, enhancing political policy, bettering the human condition—all this and more makes up the vast array of research activities that continuously flow from the unlimited imaginations of Syracuse University’s top minds.

“A student-centered research university is a very exciting place intellectually for students,” says Chancellor Kenneth A. Shaw. “It is an excitement created around an institution dedicated to learning that emphasizes the placing of students as well as faculty at the cutting edge of knowledge creation.”

This “knowledge creation” takes student and faculty researchers in many new and exciting directions. Here is a sampling of the innovative academic research projects under way on the Syracuse University campus.

BY CAROL NORTH SCHMUCKLER AND REBEKKA BONNER



COMPUTER MEMORY FROM A SALT MARSH

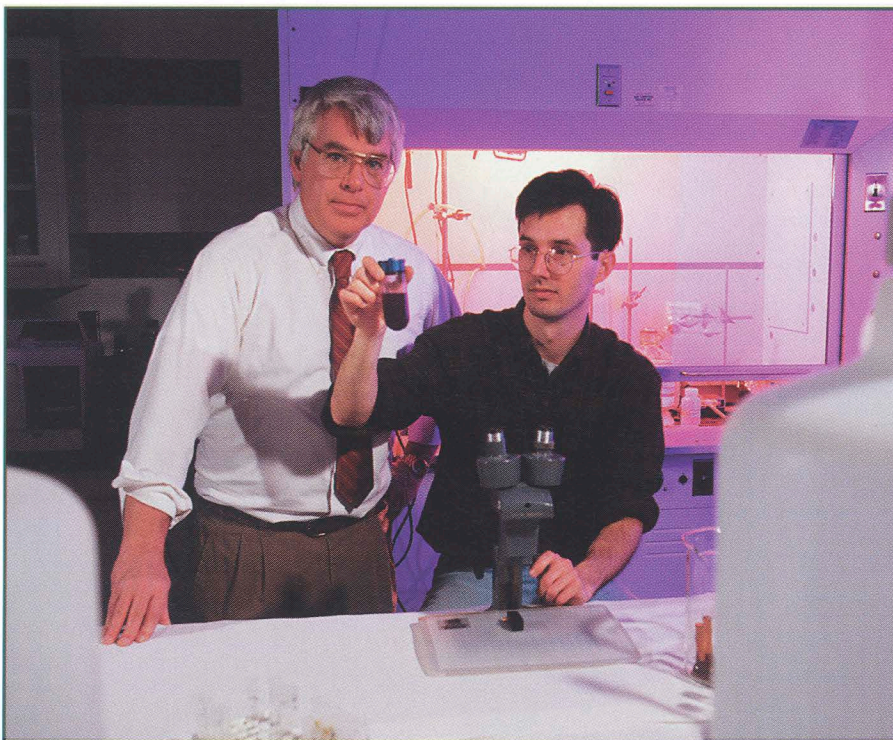
The world's most sophisticated computer doesn't require a single nut, bolt, or silicon chip: The human brain is made up entirely of linked organic molecules that form an intricate three-dimensional network capable of calculating, thinking, self-repairing, and feeling. And while computers may calculate much faster and more precisely than humans can, computer scientists will probably never develop a computer capable of out-performing the human mind.

One SU researcher, however, believes biological molecules can be used to make computer memories that are smaller and faster than any semiconductor components developed to date. Robert Birge is director of the W.M. Keck Center for Molecular Electronics and research director of the New York State Center for Advanced Technology in Computer Applications and Software Engineering (CASE). For the past 15 years, Birge and his research team have studied bacteriorhodopsin, a light-harvesting protein found in a bacterium that grows in salt marshes. They found that exposing the protein to certain colors of light changes its structure in a reproducible way.

The team's research soon suggested an unexpected application: The protein could store information. Just as computer chips use electronic switches to store information, bacteriorhodopsin exposed to green and red light switches the protein from one state to another and back again. Using protein-filled "cubes" instead of silicon chips, however, yielded a surprising discovery. While commercial computer memories store information in just two dimensions, bacteriorhodopsin is capable of storing information in all three dimensions. "This means we can build a computer memory architecture that can store about 300 times more information than current technology," Birge says. "Also the possibility of computers operating many times faster than traditional 2-D memory exists because of parallel processing."

Birge believes the discovery will eventually result in significant scientific advances in areas such as pharmaceuticals, where enhanced computer memory can greatly reduce the cost of time-consuming computer-aided drug design. Personal computer users will benefit by gaining enormous amounts of data storage with removable and inexpensive "cubes" that would store several gigabytes apiece. Birge's research could also result in significant advances toward the development of true artificial intelligence.

Graduate and undergraduate students have been a vital part of Birge's work. Among them is Casey Collins, a biology major whose research work is part of her senior thesis in the all-University Honors Program. As part of the team's volumetric data storage research, she synthesizes analogs of the light-absorbing molecule that occupies the protein-bind-

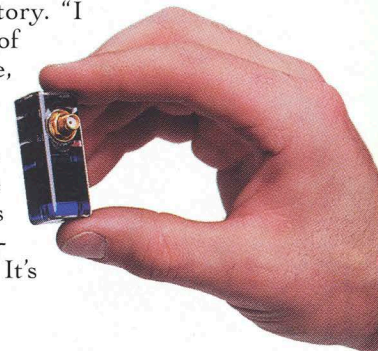


TOM WATSON

Robert Birge (left), director of SU's W.M. Keck Center for Molecular Electronics, is researching a light-harvesting protein that may one day be used for computer information storage. With him is Jack R. Tallent, a graduate student on Birge's research team.

ing site. "Doing research has enhanced what I do in class," says Collins, who was one of the first undergraduates to join Birge's project. "Going to lectures, taking notes, and leaving is a lot different than going to a lab and trying to make things work."

Birge is convinced of the value of bringing undergraduates into his laboratory. "I am very pleased with the work of our undergraduates," says Birge, who currently has four in his group. "My success has a lot to do with the great research environment at SU. Not only are there excellent faculty members to collaborate with, but the students are smart and enthusiastic. It's a pleasure to work with them."



SOCIAL INSECURITY

Richard Burkhauser, a professor of economics in the Maxwell School of Citizenship and Public Affairs, brought a message to a U.S. advisory council that recommends innovations in Social Security policy.

"If you look at who's poor among older people, the good news is that most married older persons are in good shape. Our Social Security system has done a terrific job of protecting people in the transition from work to retirement. It's done a much worse job of protecting them from a second major transition, from marriage to surviving the death of a spouse. Since most survivors are women, the system has primarily failed older widows, who make up a disproportionate share of the poor."

Burkhauser not only pointed out the problem, he suggested a solution. "One of the reasons women do so poorly is Social Security's outmoded joint and two-thirds benefit formula, in which the survivor gets at most two-thirds of the benefits of the married couple," Burkhauser says. "That's not enough; it should be three-quarters. A one-person family needs about three-quarters of the income of a two-person family to maintain the same standard of living."

Burkhauser explains that the government based our system on a traditional model in which men work and women stay home. "That no longer describes most families," he says. "In two-earner households, the survivor's benefit can be as little as one-half of the couple's benefits. This problem will only get worse with more women in the work force."

"Increasing the survivor's benefit to three-quarters of the married benefit will have a major impact on the survivor of two-earner families and also increase benefits for the survivor of traditional one-earner households," he says.

Burkhauser is well aware that there's no free lunch; the money has to come from somewhere. He proposes it come from a slight reduction in Social Security benefits to retired couples.

"You can reduce those benefits in the range of 2 percent and not greatly affect married couples' economic well-being, but have a profound effect on the poverty rates of the surviving widow or widower of these couples."

Burkhauser did his research using the Social Security Administration's Retirement History Survey. He traced the economic well-being of married couples from retirement through the death of a spouse. Recently he's simulated Social Security rule changes to show how his proposals would affect survivors' incomes.

Burkhauser's research stems from his participation in the Center for Policy Research, a group made up of social scientists at Maxwell. The center encourages applied research on relevant policy topics. One of its major thrusts is the economics and demographics of aging, and Burkhauser's work is central to this area.

"My research and teaching are intertwined," Burkhauser says. "In my undergraduate course, Economics of Aging, I had my class use a data set to calculate the economic well-being of older and younger households and then simulate the effect of reducing Social Security benefits by 10 percent, using the savings to reduce the Social Security taxes of younger people. They discovered it would substantially increase the poverty rates of older people without greatly improving the economic well-being of younger people. And they also learned that every time you have a winner, you also have a loser."

Burkhauser sees no conflict between teaching and research. "They complement one another," he says. "What distinguishes a student-centered research university is that people who do research and bring it into the undergraduate curriculum give undergraduates a taste of how knowledge is created that they could not get otherwise."



TOM WATSON

Richard Burkhauser, a member of the Center for Policy Research in the Maxwell School of Citizenship and Public Affairs, researches the economics and demographics of aging.

STEVE SARTORI



Doctoral student Jason Cohen (standing) discusses his finger device with a group of undergraduate students. Seated next to Cohen is Gary Radke, associate professor of fine arts and director of the Honors Program.

REHABILITATING FINGER DEVICE

One invaluable opportunity that allows students and faculty to collaborate on research is the senior thesis, a substantive research project required for students enrolled in the all-University Honors Program, says Gary Radke, associate professor of fine arts in the College of Arts and Sciences and program director.

"Every faculty member inevitably learns from the student, even if the research is in his or her own field," says Radke. "Undergraduate research also allows students to tap into the tremendous resources of a major research university."

Few students have taken greater advantage of those resources than Jason Cohen. Cohen, who graduated in 1995 with a bachelor's degree in bioengineering, is currently a doctoral student conducting research in neuroscience at SU's Institute for Sensory Research.

As a senior honors student, Cohen designed and built a mechanical device that will aid in the healing of dislocated and reset fingers. Specifically, Cohen invented an apparatus that can be worn like an ordinary splint, but includes a "flexion-extension" mechanism to facilitate the finger's recovery. A physician can program the parameters for the device's range of motion, amount of repetitions and sets, as well as holding and resting times, in order to control the correct amount of continual passive motion (CPM) or controlled movement of the targeted joints at any given time. Researchers believe CPM plays a role in stimulating the healing and regeneration of cartilage, ligaments, and tendons, as well as in preventing joint stiffness. Cohen's prototype design for use on the fingers is the first of its kind.

To build his prototype, Cohen researched the biological, mechanical, and computer-based aspects of the project. "I learned a whole new computer design program," says Cohen. "Working closely with the machinist who helped to turn my designs into physical components was a rewarding experience. The best part of doing the senior research project was having a very abstract idea and making that concept a reality."

CHANGING OPINIONS

Can television programs really change the way people think about health issues? Can a TV series influence the way people act?

Associate Professor Fiona Chew of the S.I. Newhouse School of Public Communications is trying to discover exactly what impact a television series on health will have in four countries: Russia, Hungary, Poland, and the Czech Republic. She is directing a project funded by the Central European Center for Health and the Environment (CECHE) that involves a multinational team of experts.

"In the past five years, countries in Eastern Europe have undergone rapid transitions from state-controlled economics to market-based economics," Chew explains. "An unfortunate byproduct was the erosion of the preventive health-care system and an increase in health-care costs as former state-employed health workers joined privatized medicine, and state-sponsored health service agencies were eliminated. UNICEF reports that a health and mortality crisis exists at such unprecedented levels in parts of Eastern Europe that it could turn the tide against political reform."

To help alleviate the health crisis, CECHE proposed a five-part series of television programs to inform the public about self-help steps they could take to improve their health. "Our first step was conducting research through personal and telephone interviews, mail surveys, focus groups, and contact with health experts, media professionals, and the general public to assess the topics we should include," Chew says.

Among the most consistently identified health problems were cardiovascular disease, cancer, and injuries, she says. In Hungary, the inequality in health care and accessibility of health services were also of concern, while in Russia, poor health services were considered a major problem. The most frequently mentioned risk factors in all

TOM WATSON



Fiona Chew of the S.I. Newhouse School of Public Communications is directing a program that explores how television can be used in Eastern Europe to educate the public on vital health issues.

countries were poor diet, lack of physical activity, and alcohol abuse. In addition, Russians and Czechs were concerned about the polluted environment, and Russians were also plagued by stress. In all four countries, people wanted practical advice.

Using information gleaned from Chew's research, CECHÉ started production of the series *A Family Year*, which will probably be broadcast in the fall. "We used families and their everyday lives to draw viewers into the series and care about the issues we discuss," Chew says. "In Russia, our family focused on cardiovascular disease. In Poland, we followed a family who was trying to quit smoking. Our Czech family had general health concerns—about nutrition and diet, because they were starting a family. In Hungary, we explored a family's concerns about cancer."

Chew's team will assess changes in health-related knowledge, attitudes, and behavior among viewers through surveys administered before the broadcast, right after the programs air, and six months later. In addition, team members will conduct research to ascertain the viewpoints of health policy makers in each country.

One of Chew's graduate students, Yoo-khung Kim, worked closely with her to research the media systems in all four countries. "He used the Internet, government documents, Bird Library, NEXIS-LEXIS, and his contacts in the advertising industry," Chew says. "He scoured the globe."

Chew says her team has high hopes for the project's impact. "We hope to enhance public understanding, promote public debate, and motivate individuals to take steps to improve their own health and environment."

EAR-RESISTIBLE BABIES

For a 1-month-old infant whom we'll call Matthew, the practical applications of SU audiologist Beth Prieve's theoretical research have been more than just intellectually satisfying.

Soon after Matthew was born, his mother feared he had inherited a genetic disorder that could cause hearing loss. When she brought her son to a pediatrician, however, she was told her son could not be tested for the disorder until he was at least a year old. But by that time, should Matthew have hearing loss, he would have fallen behind in speech, language, and communication skills. Luckily, Matthew's mother heard about Prieve's study, which allowed the infant's hearing to be tested immediately.

Under a grant from the National Institutes of Health, Prieve, an assistant professor of communication sciences and disorders in the School of Education, is studying a new way to evaluate babies' hearing. "Babies and young children are very difficult to test, since they can't raise their hand when they hear a tone," Prieve says. "We have a real need to develop a hearing test that will allow us to catch hearing loss in infants as early as possible."

Prieve's study focuses on measuring otoacoustic emissions—sounds that come from the ear. "If you put a sound in a healthy ear, you will also have a very soft, low-level sound that comes out," Prieve says. "I am trying to identify a pattern to these sounds as they change in children from 4 weeks to 2 years of age in the hopes of using these emissions as a clinical test."

To measure the emissions, Prieve places a small plug in the opening of the ear canal so the child can listen to soft clicking sounds during sleep. A microphone and computer register the sounds coming from the ear.

Prieve's research, which follows the babies as they develop, is one of the few studies of its kind being conducted in the United States. She hopes the results will help diagnose hearing impairment in children early or, as in Matthew's case, lay parents' fears to rest. "This test is so quick and easy for infants. It

doesn't hurt the baby at all," Prieve says. "For pediatric audiology, this research has opened a huge door."

Prieve has assembled a small team composed of undergraduate, master's, and doctoral students to help collect and analyze the data she obtains from her study. "The students and I really take a team approach to our project," she says. "We all learn together and

also learn a lot from each other."

Tracy Fitzgerald, a doctoral candidate in audiology, joined the team four years ago as a master's student. "My work with Beth Prieve lets me see the application and context of knowledge I have gained—something you can't get from just sitting in a classroom," she says. "That's why I decided to stay here for my Ph.D. as well."

rytelling and the mythologies that are passed on in a family by women."

Plays says the 16-mm 30-minute experimental documentary is a poetic construction interweaving diary excerpts from her grandmother's childhood with stories of her lovers and marriages. Still in the planning stage, Part II will consist of 10 three-minute scenes, all character studies of her grandmother's lovers.

Plays is currently working on Part III, a videotape. "Video has a kind of immediacy film doesn't have," Plays says, "and the trilogy deals with the history of the media during my grandmother's lifetime. It ends up commenting on the distinctions between everything from Gramophone recordings to film, photographs, and videotape."

Independent filmmakers develop their reputations not at the local cineplex, but by having their work shown at highly competitive film festivals. Plays is already well-respected in those circles. The completed Part I has been viewed at 13 international festivals, including the prestigious Montreal Nouveau Festival and the Seattle International Film Festival. In those venues it kept company with films by Jean Luc Goddard, Wim Wenders, Gus Van Sant, and John Cassavetes. It was also declared Best Documentary in the New Orleans Film and Video Festival and was aired on Dutch television.

Plays involves her students in her filmmaking. While none were active in the production of Part I, they provided vital feedback during post-production and are eager to help on the film crew for her coming project.

"In the post-production of Part I, I brought the film in at various stages of editing so my students could critique it," Plays says. "I put my work up on the flatbed, just like they do, and presented it. That made them

aware of the work I'm doing and broke the ice between us, because I was participating in the same ways they would be with their



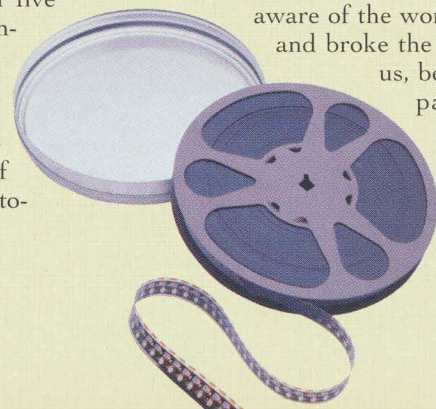
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SHOW AND TELL

Research equals creation for faculty members in the arts. Instead of involving hours of reading, taking surveys, or analyzing statistics, research means furthering one's artistic abilities. Painters paint, musicians compose, writers write.

Dana Plays makes films. An assistant professor in the College of Visual and Performing Arts' film program, Plays has been unusually prolific in her five years at Syracuse, completing three films. That's no small task, given the considerable artistic and technological skills filmmaking demands, to say nothing of the fact that she works alone.

Her latest film, *Love Stories My Grandmother Tells, Part I*, is the opening installment of a mixed-media trilogy. "I started the project as a collaboration with my grandmother," Plays says. "In helping her with the writing of her memoirs, I generated material used in the film. It has a lot to do with sto-



films. I provided a model of the presentations I require them to make. We discussed everything: editing, making titles, the sound mix, negative cutting, and sending it out to the lab. When I finished the film and had a premiere at the Manlius Art Cinema, many students attended. They felt they had been part of it."

The University environment is ideal for producing films, Plays says. "I have total creative control plus the support of a technical facility, which is vital because film production requires incredible overhead. What's more, the intellectual stimulation of the academic environment is very important. I'm totally engaged with my students, and the research that goes into the theory and film history courses I teach ends up feeding into my work."

TOM WATSON



Dana Plays of the College of Visual and Performing Arts' film program involves her students in post-production feedback and crew work for many of the films she makes.

HIV INTERVENTION

Talking about sexuality is different than negotiating the rental price of an apartment. It takes a different kind of communication. We want to teach women specific skills that can help them in an intimate relationship."

That's only part of what Michael Carey, a professor of psychology in the College of Arts and Sciences, is trying to do. He directs a team that encourages HIV prevention through several projects, most recently one with economically disadvantaged urban women in Syracuse.

"These women, who live in the poorest census tracts in the city, are epidemiologically at high risk for a number of social and health problems such as HIV," Carey says.

The team designed the program to accomplish three things: increase women's HIV-related knowledge; enhance their motivation to take care of themselves by highlighting culturally sensitive values; and provide them with skills training, particularly assertiveness and communication skills, which helps them negotiate with

their partners to engage in lower-risk behaviors that will decrease their likelihood of contracting HIV.

The team, headed by psychology post-doctoral fellow Laura Braaten, includes graduate students and faculty members from psychology and the School of Social Work. The National Institute of Mental Health funds the project.

"We share with women what we know about HIV transmission and its prevention; it helps them understand why they are at risk," Carey says. "We also appeal to women's traditional concern for their children and families, which often supersedes their concern for themselves."

He explains that once they helped women with the "what" and the "why," team members talked about the "how." "Even if you know about HIV transmission, it's very difficult to change intimate behaviors with a partner you trust," Carey says. "How do you negotiate using a condom without offending a partner or making a partner feel you don't trust him anymore?"

To accomplish that, the team helped women sharpen their skills through role playing, rehearsal, and feedback from skilled communicators.

The project started two years ago with formative research on women living in disadvantaged areas. On the basis of focus group results, the research team developed a survey that documented women's understanding of HIV and health behaviors such as smoking and substance abuse.

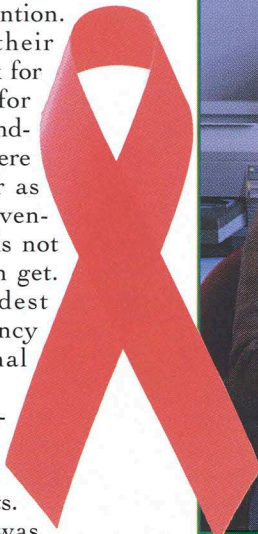
"Given the historical precedent, we took pains to be culturally sensitive," Carey says. "We talked to women and other community leaders to make sure we were on target. We didn't want to appear to be preaching and wanted this to be a very positive experience."

The team then ran a clinical trial with 100 women, half of them receiving intervention immediately and the rest receiving it three months later. The team did assessments before the intervention, immediately afterward, and again three months later. It is now analyzing the findings.

"We already know the women learned a lot," Carey says. "We had a



high retention rate, and women found our program user-friendly and culturally sensitive. They definitely increased their knowledge about HIV, its transmission, and prevention. They also increased their understanding of the risk for women in general and for them personally. They tended to come in thinking there wasn't as much danger as there is. After the intervention they learned HIV is not something only gay men get. There was also a modest reduction in the frequency of unprotected vaginal intercourse."

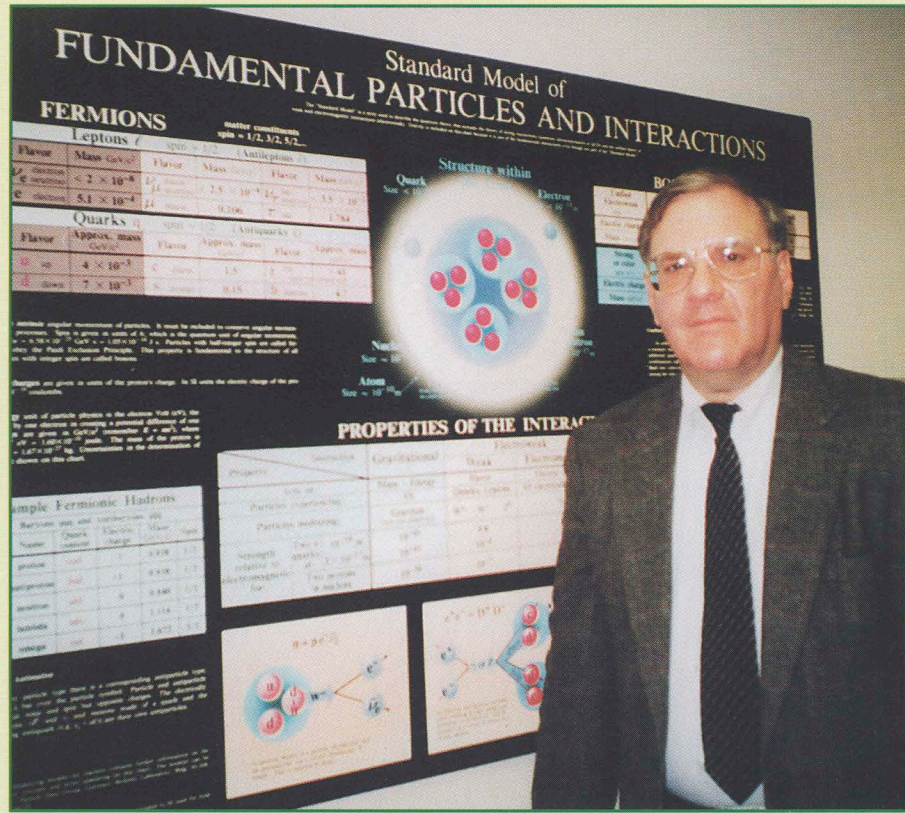


The team is now modifying its procedures to reflect the feedback received from participants. "We feel the outcome was very positive, and we will do the intervention again this year," Carey says.



PETER FINGER

Michael Carey (right) of the psychology department in the College of Arts and Sciences directs several HIV education projects. With Carey is Andrew D. Forsyth, a clinical psychology graduate student and research assistant.



Physics department chair Marvin Goldberg heads a team of students and faculty members working on a project to discover what the universe is made of.

IT'S ELEMENTARY (PHYSICS, THAT IS)

Last summer, a team of researchers, including undergraduate, graduate, and postdoctoral students, and physics department faculty members, began work on a project to discover what the universe is made of. "We're filling in a piece of the puzzle that answers the longstanding question of how the universe works and how it came to be what it is today," says Marvin Goldberg, physics department chair in the College of Arts and Sciences.

Min Gao, a doctoral physics student, came to Syracuse University to be involved in this research. "I looked at many doctoral programs, but the chance to participate in this project is one of the reasons I decided to study at SU. This is cutting-edge technology, and I feel very lucky to have the chance to contribute to the project."

With the help of a \$1.9 million grant from the National Science Foundation, the team will build a sophisticated detector for subatomic particles. "This detector will allow us to measure precisely how fast subatomic particles are mov-

ing," Goldberg says. "It will help us distinguish particles from antiparticles and thereby let us determine why the universe can, among other things, support life."

The team is studying quarks and antiquarks, subatomic particles fundamental to the structure of the universe. These particles are thought to exist in unequal amounts in nature. "Our understanding of this natural asymmetry has cosmological implications," Goldberg says. "We're trying to simulate conditions that were present at the beginning of the universe, when this asymmetry occurred, to see in what ways the quarks remained and the anti-

quarks disappeared, and how the universe evolved."

The research team, led by physics Professor Sheldon Stone, is part of a collaborative effort among Syracuse University and several other research centers. According to Goldberg, the presence of students on the team is one example of how SU students benefit from being at a major research university. "Our undergraduate and graduate students have access to state-of-the-art equipment, outstanding faculty members, and grants to help support their involvement in the project," he says. "This just wouldn't happen at a non-research university."

VIRTUAL MEDICINE

While 15-year-old Derek Nemchick was undergoing brain surgery in Binghamton, New York, the back of his skull was opened to expose a tumor in his brain stem. Normally, the surgeon would remove a sample of tumor tissue and send it to a specialist in Syracuse. He would then close up the patient and wait several days for the results. That, of course, would require a second operation.

In Nemchick's case, however, the procedure was quite different. Once the tumor was revealed, the surgeon tapped into a high-speed telephone link with the SUNY Health Science Center. Via a videoconference session, a picture of the tumor was projected onto the computer screen of an expert neuropathologist in Syracuse, who quickly determined that the growth was benign, not cancerous. The surgeon completed Nemchick's operation in a few hours.

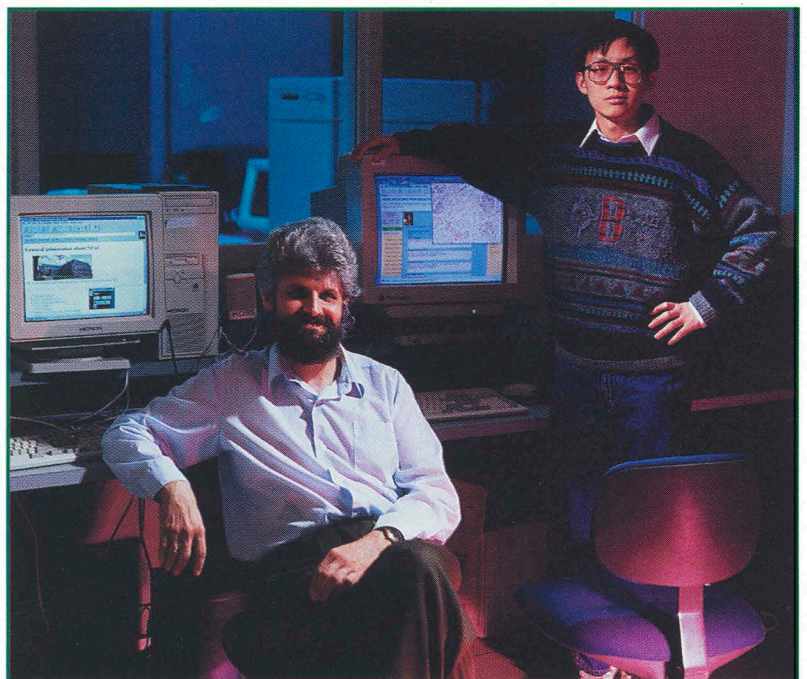
This sophisticated technology was investigated and applied by SU's Northeast Parallel Architectures Center (NPAC) researchers, who combined computers and high-speed phone lines to enhance medicine. Now the sound of heartbeats, patient records, X-rays, ultrasound images, and other medical information can be transferred from outlying hospitals to medical specialists hundreds of miles away.

Telemedicine technology improves health care and lowers medical costs by making experts available to doctors in remote hospitals. Other possibilities for NPAC's telemedicine research are endless. "By making it easier for doctors to consult with each other on individual patient cases, telemedicine will help make it possible to have faster and more accurate diagnoses," says Roman Markowski, technical lead of NPAC's telemedicine research project. "Telemedicine's advanced technology can transmit very accurate microscope images that will help doctors detect a problem earlier and increase the chances of their patients' survival."

Projects are being developed nationwide to allow medical students to train with surgeons in distant locations on simulated hologram patients. Eventually, autopsies could be performed by scan-

ning, rather than cutting, the body. And, in the future, remote robotic hands could be used in long-distance emergency surgery to save soldiers in combat. "These ideas may seem like something from *Star Trek*, but the technology is already available," says Robert Corona, a neuropathologist and the physician director of the Health Science Center's Telemedicine Program. "It responds to the need to make high-level medical care widely available."

Srividhya Narayanan, an electrical and computer engineering master's student and graduate research assistant working on the project, says participating in telemedicine research at SU has not only enriched her academic experience, but allowed her to make an original contribution to her professional field. "This project brings together students and professors from many different academic backgrounds," says Narayanan. "The result is that we all bring our own perspective to the project. This gives us all the chance to learn together, and from each other, while working on research."



Roman Markowski (seated) is technical lead for the Northeast Parallel Architectures Center's telemedicine research project. Graduate assistant Jiangang Guo works with Markowski.

TOM WATSON

FOCUS ON FAMILIES

When parents have a child with a serious emotional disturbance, they find themselves beset by two problems. The first and foremost is coping with the behavior of the child. The second concerns dealing with a society that often blames them and does very little to help.

Associate Professor Mary Ruffolo of the School of Social Work tries to assist such families. With a five-year \$345,000 grant from the National Institute of Mental Health, she developed an intervention program and is midway into her research, evaluating the program's results with the help of two Central New York public mental health agencies, one in Onondaga County and the other in Oneida County.

"During the grant's first year, I used focus groups with parents to find out what was missing for them, what they needed. Several themes emerged," she says.

Ruffolo discovered that many parents feel others hold them responsible for their child's illness, assuming the parents did something to cause the child's problems.

Parents also felt frustrated by their loss of control over getting the system to respond to their child. "Once a child is labeled, parents often find it hard to get anyone to listen to them, particularly if the parents are labeled as part of the problem," Ruffolo explains.

A third and continuing difficulty is obtaining even the most basic child care. While other families can hire sitters, these parents find others refuse to take care of a child with an emotional problem. Parents end up with no relief during never-ending days and nights of troubles.

Finally, Ruffolo discovered that most parents knew their child had problems early on and had tried to get help. "They didn't sit around waiting for the system to identify them," she says. "These parents ran from pediatricians to other professionals as early as infancy, but received very different messages about how to care for their children."

With this and other information in hand, during the second year of the grant Ruffolo developed the Support Education Empowerment Group now offered by the two cooperating mental health agencies. It focuses on building upon parents' strengths and reinforcing appropriate problem-solving strategies.

"For example, agency personnel look at all the problems parents have," Ruffolo says. "In our model, they



TOM WATSON

Through a grant from the National Institute of Mental Health, Mary Ruffolo of the School of Social Work developed an intervention program for families with children who are emotionally disturbed.

probe the good things happening in parents' lives. It helps families focus on what they're doing that's positive."

While all families receive intensive case management from the agencies, some families are randomly assigned to support groups. Over the next three years, Ruffolo will measure both families involved in groups and those not participating. She will examine how parents use the support network, parent problem-solving skills, parent satisfaction with services, parents' child management skills, and child behavioral profiles. Ruffolo explains, "We focus on empowerment and help parents look at what strengths they bring rather than only on what the problems are."

Students play a vital part in Ruffolo's research by acting as child-behavior observers while providing child care during meetings. "This helps our students, who are interested in working with children and families in the mental health system, learn how to work with children who have serious emotional problems," she says. "Besides discovering some of the limit-setting issues, they give feedback to parents, reporting the things they see the children do well, in addition to some of their difficulties. They're an important source of information." ■