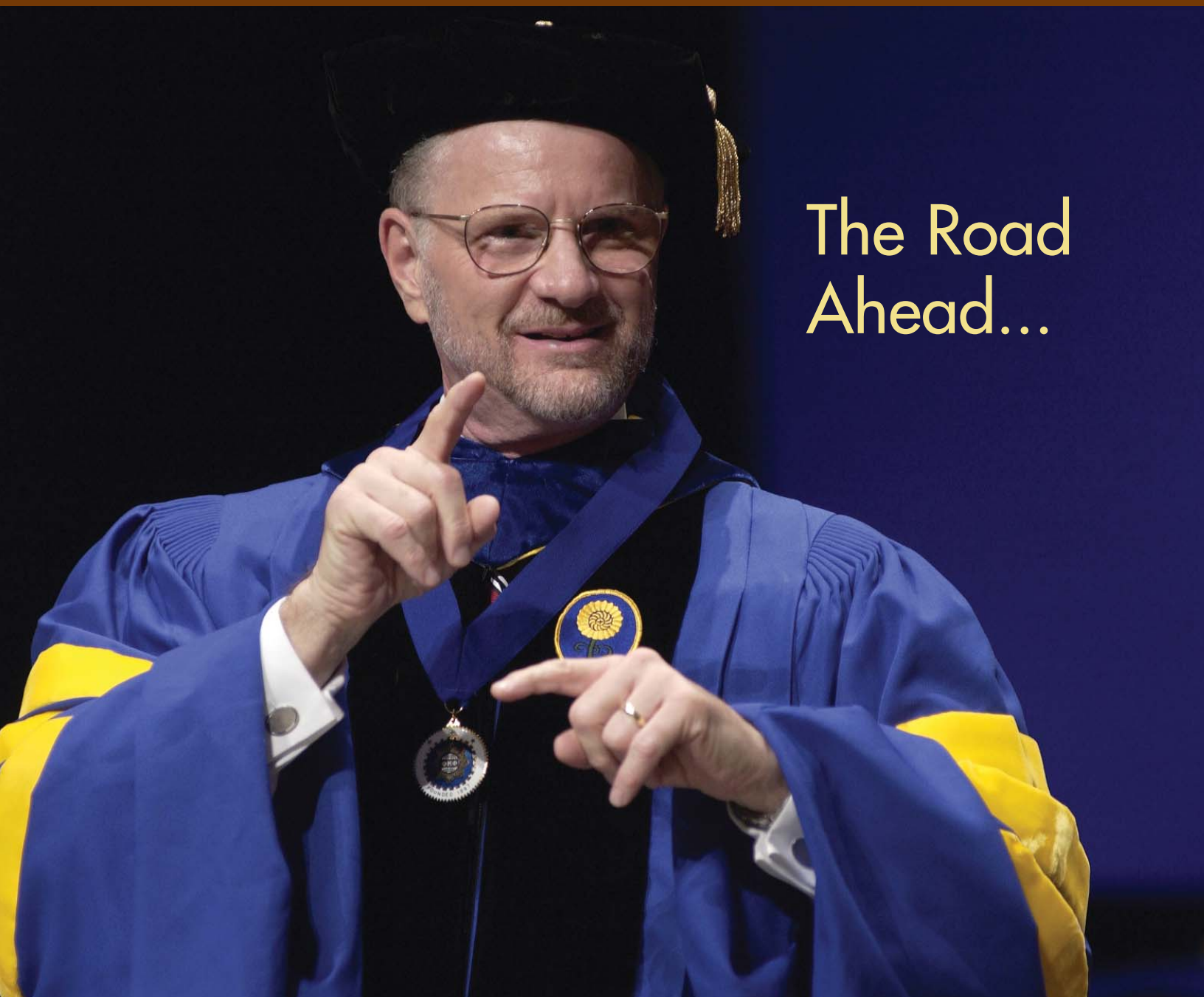
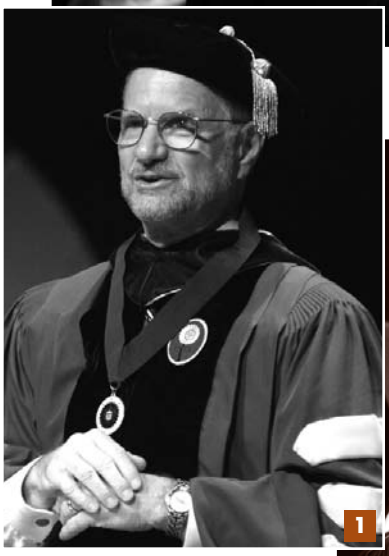
SPRING/SUMMER 2004

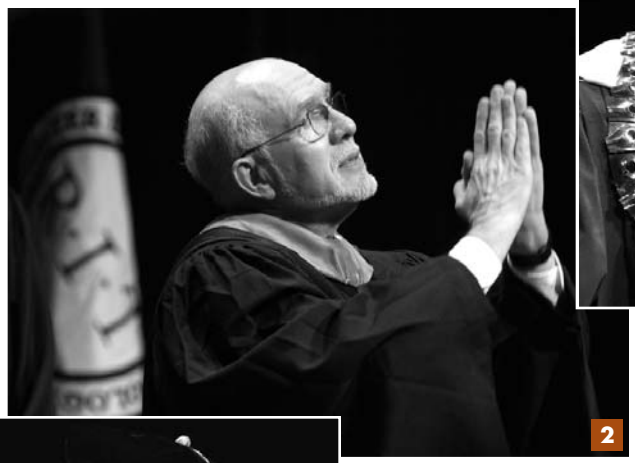
FOCUS NTID

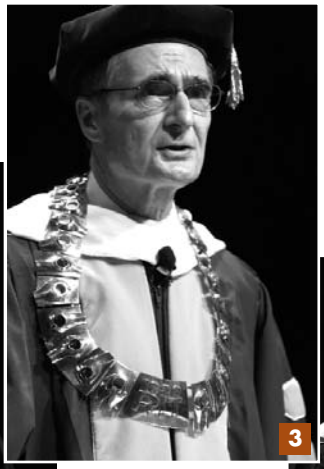
National Technical Institute for the Deaf • Rochester Institute of Technology



The Road Ahead...







Pomp and Circumstance Dr. T. Alan Hurwitz (Photo #1) was officially installed as RIT vice president and dean for NTID at a ceremony on April 26, 2004, in NTID's Panara Theatre. Among those honoring Dr. Hurwitz were NTID Associate Professor Patrick A. Graybill (#2), who gave the invocation; RIT President Albert Simone (#3); Dr. Troy R. Justesen (#4), acting deputy assistant secretary, Office of Special Education and Rehabilitative Services, United States Department of Education; and Dr. James DeCaro (#5), director of PEN-International. On stage with Dr. Hurwitz (#6) are Dr. Simone; Marie Bernard, NTID staff interpreter; RIT Provost Dr. Stan McKenzie; and NTID Associate Professor Edward Mineck. During the ceremony, President Simone presented Dr. Hurwitz with a gift made by a student in RIT's School of American Crafts (#7).

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ABOUT THE COVER

On April 26, 2004, Dr. T. Alan Hurwitz was installed as RIT vice president and dean for NTID. Read more about Dr. Hurwitz and his plans as NTID's new leader in his column on Page 2 and in the article on Page 4.

FEATURES

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NTID

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Charting the Course

I'm privileged to be leading NTID at a particularly exciting time in the college's history. When I was appointed RIT vice president and dean for NTID in December 2003, one of my first initiatives was to create a "2010 Strategic Vision" group to assess where NTID should be headed in the next five to 10 years. This group, led by veteran faculty member Dr. Jeffrey Porter, worked closely with NTID's Marketplace Scanning Committee and Institutional Research group to produce an internal planning document that highlights current realities and discusses possible future trends.

That document was shared with the NTID community in February as the starting point for two months of open dialogue with faculty and staff members, students, alumni, and members of NTID's National Advisory Group. The finished report of the committee was released in mid-April and detailed with great clarity where NTID should be directing its resources and energies to best prepare graduates for the always changing workplace.

The good news for those of us in education is that knowledge as a commodity will continue to grow, and a college degree will be requisite in obtaining a good job. Increasingly, that degree will be at the baccalaureate level, as students in increasing numbers have shown both the desire and the ability to obtain such a degree. The manner in which such degrees are pursued may change, however, as nonlinear ways of attending college—such as distance learning and corporate university settings, through which employees study on a part-time basis—will increase.

Some factors noted in the report were not a surprise to us. We know that, for the next 10 years, the student population will be increasingly diverse in terms of race, ethnicity, gender, and disabilities. We know that more female students will enroll, as will more students with cochlear implants. Diversity in language and communication styles will continue to evolve.

Our numbers of international students will rise, with dramatic growth from Asia and South America. We know that the costs of educating these students will continue to increase, as will the need for qualified teachers and interpreters to serve them.

Dr. Hurwitz chats with a colleague following his installation as RIT vice president and dean for NTID.

We know that our students will feel the impact of the explosion of global technology. As manufacturing sectors continue to diminish, universal job skills will be necessary. New career fields will emerge as telecommunications, information technologies, media, publishing, science, and engineering-related fields converge. Health, computer support, and environmental technology careers also will flourish.

We know that tomorrow's graduates, unlike previous generations, most likely will face multiple job/career changes in their lifetime; that they must be committed to life-long learning to remain appealing job candidates; that they must be self-motivated, skilled, and honest, and must possess good communication, teamwork, creative thinking, and problem-solving skills.

How will these findings affect our work?

They most certainly will drive our curricular efforts, as we tailor existing programs and create new ones to meet the needs of industry. We will continue successful programs such as the English Across the Curriculum effort to ensure that students leave NTID with the necessary critical thinking skills that will allow them to be successful in their jobs.

Maintaining good relationships with the federal government will be increasingly important. Many believe that federal, state, and private funding will move away from higher education in the next 10 years to focus more on K-12 education, homeland security, and other societal concerns. Private education also will face increasing competition from public education. The current trend for state Vocational Rehabilitation funds to be kept in state may pose another challenge, in terms of attracting a diverse pool of students.

At the same time, attracting and retaining those students will be of critical importance to NTID in the next decade. To meet the challenge, our strengths and attributes must be clearly defined for our various audiences. This summer, we will begin analyzing and clarifying our institutional identity, with the goal of clearly communicating the many reasons that NTID enjoys a reputation as the nation's premier technological college.

One of my goals in the next few years is to create Centers of Excellence at NTID, where educators of deaf and hard-of-hearing people can access the latest research in technology and pedagogy. Teamwork, group projects and discussions, and creative learning environments will be hallmarks of these centers.

Managing our fiscal resources, maintaining good relationships with the federal government, and looking to new individuals and corporations for monetary support will give us the financial clout we need to accomplish our goals. Those who have worked with us in the past know that NTID is a sound long-term investment.

I have seen many changes at NTID since I began my career here 34 years ago. One thing that has not changed is the level of commitment demonstrated by faculty and staff members who are part of the NTID community. With this strong group of professionals, the NTID of 2010 indeed will be a very exciting place.

An Interview with Dr. T. Alan Hurwitz,

RIT Vice President and Dean for NTID

By Pamela L. Carmichael

Last fall, following an extensive national search, RIT President Albert Simone appointed NTID Dean Dr. T. Alan Hurwitz to the newly combined position of RIT vice president and dean for NTID. For the past 34 years, Dr. Hurwitz has held a variety of academic and administrative positions at the college.

FOCUS recently interviewed Dr. Hurwitz to learn more about his priorities as NTID's new leader and his vision for the college's future.

FOCUS: *Congratulations on being named RIT vice president and dean for NTID. You certainly bring a wealth of knowledge and experience to the position. When you arrived at NTID in 1970 did you ever imagine that one day you would lead the college?*

Dr. Hurwitz: No, not at all. When I arrived at NTID, I was very excited to become part of the faculty here. I was excited about working with students and helping them prepare for careers in engineering and computer science, but I never dreamed I'd be where I am now.

FOCUS: *What are the top priorities you're focusing on in your first year as vice president and dean?*

Dr. Hurwitz: My first priority is, and always will be, students. So, I'm focusing on making sure we have the appropriate resources in place to continue fulfilling our mission of providing deaf and hard-of-hearing students with an outstanding state-of-the-art education that prepares them to live and work in our rapidly changing world. This requires that we continually evaluate and enhance our programs and services and keep our curriculum and technological resources on the cutting edge. It also requires that we strengthen our relationships with the federal

RIT President Albert Simone, left, congratulates Dr. T. Alan Hurwitz after announcing Hurwitz's appointment as RIT vice president and dean for NTID.

> **"We are continually evaluating and adjusting our programs and services, so we remain well prepared to meet students' needs and ensure they receive the quality education RIT/NTID is known for."**
>
> **Dr. T. Alan Hurwitz**
> **RIT Vice President and Dean for NTID**

government and private donors, whose support makes it possible for NTID to carry out its mission.

FOCUS: *What do you see as the most significant challenges facing NTID in the next five years, and how will you address them?*

Dr. Hurwitz: One of our biggest challenges is the changing demographics of incoming students. More students are coming to NTID from mainstream schools and more are using assistive technologies, such as cochlear implants. We are continually evaluating and adjusting our programs and services, so we remain well prepared to meet these students' needs and ensure they receive the quality education RIT/NTID is known for—an education that prepares them well for careers in a global society and overall success in life.

Another challenge is managing the impact on NTID of the financial challenges faced by our federal government. We're all aware of the budgetary constraints our government is dealing with and the resultant filter-down effect on federally funded programs such as NTID. We must continue to foster our strong working relationship with federal officials and make sure they understand the value of NTID and the worthwhile investment they're making in our students.

A third challenge is the incredibly fast pace of change in business and industry. Rapid technological advancements turn the requisite skill sets for various careers into moving targets. We make sure our curriculum not only keeps pace, but stays ahead of the curve. By doing that, we prepare our graduates for the challenges of work and help them find good jobs that lead to successful careers.

FOCUS: *Do you think today's students are different from those who attended NTID 34 years ago, and if so, in what ways?*

Dr. Hurwitz: Today's students have been shaped by different experiences and different environmental influences than those of 34 years ago. They've had more exposure to technology, and they use it frequently. Many of them also have had more experiences in mainstream settings.

Another difference is in the numbers of deaf and hard-of-hearing students pursuing programs of study in the other colleges of RIT. When I started here 34 years ago, only about 10 percent of our students were enrolled in RIT's other colleges. Today, that number is more than 42 percent.

The overall composition of our student body also has changed. More than 25 percent of our students are African-American, Native American, Asian, or Latino. We're very excited about that, and expect that percentage to continue to grow over time.

FOCUS: *What are the most significant challenges facing deaf and hard-of-hearing students today? How does NTID help them address those challenges?*

Dr. Hurwitz: A significant challenge for some students is making sure they're academically ready for college, so we've implemented a variety of programs to help them improve their academic skills. One example is our English Across the Curriculum program, which helps students develop literacy and critical thinking skills.

Our students also face a variety of challenges related to the rapid pace of change in business and industry. We do an excellent job of preparing them to deal with these changes and challenges. Because we live in a dynamic world where businesses are outsourcing, downsizing, merging or closing every day, we make sure our students are well-trained and able to make strategic career moves. And, with more and more businesses operating globally, we make our students aware of global issues and prepare them to deal with those issues.

FOCUS: *What makes NTID the best choice for deaf and hard-of-hearing students?*

Dr. Hurwitz: The technical, personal, social, and communication skills we help our students develop prepare them for the world of work and success in life. Our academic programs are excellent, and our cooperative education programs provide work experiences for students while they learn.

We also offer students an environment that allows them to make many choices. Here at NTID, they can learn and socialize with deaf, hard-of-hearing and hearing students, faculty, staff and alumni. Our residence life programs offer them many positive experiences. Students can be involved in clubs, sports and any of more than 100 campus organizations. When I attended college, my academic experience was outstanding, but my college-life experience was limited. Here students have both.

FOCUS: *In your view, what factors have been key to NTID's success thus far?*

Dr. Hurwitz: Without a doubt, people have been the key to NTID's success. We have skilled, dedicated, and caring faculty and staff who work with students and support and encourage them to become successful in their careers. We also have hard-working students, supportive parents, generous donors, and outstanding alumni. All of these people have contributed to NTID's success and will continue to be key to NTID's future.

FOCUS: *When you think about the future, what do you see for NTID?*

Dr. Hurwitz: Students have been, are, and always will remain our focus. They are at the heart of all that we do. When the first class of students entered NTID 35 years ago, it was an experiment of sorts. Never before had deaf and hard-of-hearing students been afforded an opportunity to learn in a technical college environment designed especially for them. Now in 2004, NTID is a well-established reality for advancing the careers and lives of people who are deaf or hard of hearing.

My vision is to build on that success and enhance NTID's reputation as the college of choice for deaf and hard-of-hearing students—a place where they can achieve their goals and discover limitless opportunities to learn and grow. A place where they can gain confidence and develop the skills they need to succeed in their careers and as leaders in their communities.

FOCUS: *Any final thoughts you'd like to share with our readers?*

Dr. Hurwitz: I'm very excited about the opportunities ahead for NTID and our students, and I look forward to working with them and our faculty and staff, parents, donors and alumni, as we move into the future. Working together, we will ensure that NTID remains the unsurpassed leader in technical education for generations of deaf and hard-of-hearing students to come.

A new leader In describing his leadership style, Dr. Hurwitz says: "I encourage innovation and creativity, and I like to work collaboratively, seeking input from others. At the same time, I look at the big picture and focus on results, making the final decision and accepting responsibility for outcomes."

T. Alan Hurwitz, Ed.D.

Vice President
Rochester Institute of Technology

Dean
National Technical Institute for the Deaf

Education
- Harvard Institute for Higher Education, 2000 Management and Leadership in Education
- Ed.D. in Curriculum/Teaching University of Rochester, 1980
- M.S. in Electrical Engineering St. Louis University, 1970
- B.S. in Electrical Engineering Washington University at St. Louis, 1965

Born profoundly deaf to deaf parents, Dr. Hurwitz attended Central Institute for the Deaf in St. Louis, and graduated from a mainstream high school in Iowa. Prior to coming to NTID in 1970, he worked as an electronics engineer and programmer/analyst with McDonnell Douglas Corporation. For the past 34 years, he has held a number of positions at NTID in the areas of support services, student affairs, and academic affairs. In 1998, he was named dean of NTID, and in 2003, he was named RIT vice president and dean for NTID.

As a full professor at NTID, Dr. Hurwitz has taught a wide variety of undergraduate and graduate courses in interpreter training, teacher education, computer science and mathematics. He has been a faculty advisor to many student groups and has participated as a member of a number of RIT task forces, in addition to those at NTID. He has made countless presentations at conferences and programs nationally and internationally, and has published widely in academic and professional journals. Dr. Hurwitz has consulted in a wide range of areas at the local, state and national levels and has held key leadership positions within virtually all of the major national organizations related to deaf and hard-of-hearing education and advocacy.

Justine Raven

by Kathy A. Johncox

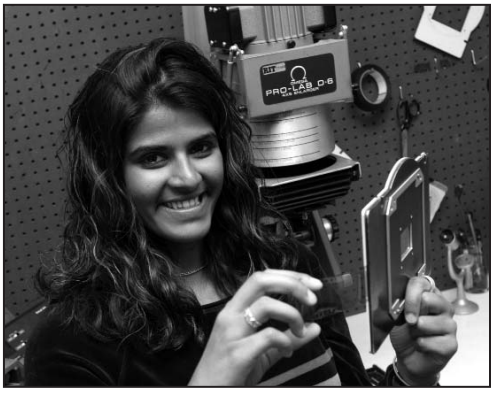
"Earth is the art; the photographer is just a witness," says Justine Raven, a third-year Digital Imaging and Publishing Technology student with a serious interest in photography. "I've always taken pictures and always will be fascinated by photography," she says.

Justine, age 22, grew up in South Portland, Maine, where she attended mainstream classes, and where her mother, who is hearing, was a teacher of the deaf. In high school, Justine played soccer and was involved in track, serving as captain of the team in 2002.

Justine's RIT/NTID experience started when she attended an open house as a high school junior and won a raffle. The prize? Free admission to NTID's Explore Your Future (EYF) program that summer. EYF, a career awareness program for high school juniors, was her first experience interacting with many deaf students and a deaf community.

Downtown Rochester provides ample opportunities for Justine's photographer's eye.

Last summer, Justine completed a co-op at the Aspen Camp for the Deaf in Colorado, where she taught campers to print black and white photos and created a photo album for the camp.



In addition to being on the Dean's List, Justine is a student assistant for NTID Freshman Seminar courses, works for the Student Life Team and is a photography assistant for RIT/NTID sports.

"In my spare time, I like to play basketball, take pictures, hang with friends, and spend time with my family on vacation," she says.

She's not sure yet about the future, but she knows her career will be in photography. Her goal? She'd like to have her photos in *National Geographic* magazine someday.

Jenna Newberry

by Frank A. Kruppenbacher

If you want a positive game plan for success in sports, school, and in life, you would do well to chat with Jenna Newberry, one of RIT's top rookie athletes.

"Basketball is the ultimate team sport," says Jenna, a first-year point guard on the RIT women's basketball team. "It's a sport that demands hours of practice, conditioning, and mental preparation to be successful.

"In a lot of ways, basketball symbolizes how I approach my school work and my life," adds the Novato, Calif., native.

Jenna was a high school hoops standout for the San Marin Mustangs. In the 2002-2003 season, she scored 233 points and was a solid free-throw leader in her league. For her play on the court and her studies in the classroom, Jenna received the Hal Connolly Scholar-Athlete Award, the San Marin Athletic Foundation Student Athlete Award, and the San Marin High School Student Body Award.

"It's a challenge balancing both basketball and my studies," Jenna says. "I know that I want to be successful as a student and as a player, so I just prioritize my time to make sure I accomplish both goals."

In her first year at RIT, Jenna earned her place on the Dean's List twice. As a starting guard for the majority of the RIT women's basketball games, she scored a season total 100 points and pulled down 64 rebounds.

A highlight for Jenna's rookie season was RIT's first-ever women's hoops win over cross-town rival Nazareth College. In that game, Jenna lead the Tigers 6 for 8 from the free throw line, pouring in 10 points on the way to a 56-45 victory in the JPMorgan Chase Tournament.

"Basketball has taught me discipline and mental toughness," says Jenna. "On the court, no one cares if I am deaf. The team judges me by my ability to help them, and they will get on me if I'm not helping."

After two academic quarters of prebaccalaureate studies, Jenna entered RIT's Business Management program in March.

"I'm motivated to use the same lessons I've learned from sports to do the best job I possibly can in school," she says.

John Slaughter

by Frank A. Kruppenbacher

Through the mind's eye, a skilled photographer captures a scene, processes it in thought, and sets in motion a creative process. Next, through the camera lens, the photographer becomes a fine artist, creating an image of the scene—a picture to touch the hearts of others and motivate their thinking.

These are important skills that John Slaughter, fourth-year Advertising Photography major, possesses and applies to his photographic artworks.

"The photographer is an artist, and I am an artist," John says. "I create images that give pleasure to those who look at them. My goal is to have an impact on people's hearts."

At age 24, the Shawnee, Kan., native, like his photography, exhibits an exuberant maturity through a depth of textures and experiences. Two summers ago, John and his classmates spent three-and-a-half weeks camping, traveling, and photographing America's Desert Southwest. RIT/NTID Assistant Professor Dawn Tower DuBois accompanied the students on the trip.

Hats Left Behind by John Slaughter taken in Trinidad, Cuba, 2004

"John was the only deaf student among the 16 in the group," says Tower DuBois. "He jumped right into the mix of students and faculty. His work from that trip is outstanding—a truly unique interpretation of the Desert Southwest."

Earlier this year, John was one of 15 RIT photo majors traveling and photographing in Cuba. While there for 10 days, he focused his camera on everyday life and on the architecture he found throughout the island's major cities.

"My studies at RIT have taught me how to put meaning into an image and capture it with the camera," says John who graduated this year from RIT's School of Photographic Arts and Sciences.

"I always think, it's not how good I am, but how bad I want it. I have patiently pushed myself, and my skills improved. I did this because I'm not a quitter."

Adriana Guardiola

by Kathy A. Johncox

"Most people in the business world today have to work with computers and create letters," says Adriana Guardiola, a Business major from Portage, Ind. "I enjoy doing both."

Guardiola, 22, who lost her hearing at age 3 to spinal meningitis, has parents and four siblings who all are hearing, and she always has attended mainstream classes using interpreters. When she attended an RIT/NTID open house, she was thrilled to see teachers signing for themselves, and she knew NTID would be one of her college choices.

"There are opportunities for me at RIT/NTID," she says. "And, if you start a major and change your mind, there are plenty of other options."

Adriana chose RIT/NTID not only because of all the opportunities, but also because of the very friendly environment and the atmosphere around the college, which she takes time to enjoy despite her busy schedule.

Along with making the Dean's List and working at NTID's Career Resource Testing Center lab as a computer technician, she's a member of the Caribbean Deaf Club and had a part in *The Vagina Monologues,* an annual performance that's part of a national campaign to end violence against women. Drawing, exercising and chatting online are some of Adriana's other favorite pastimes.

Now that she has graduated, a career in business is where Adriana is headed, but she says she wouldn't turn down a job working with her two other loves: animals and children.

"I'd like to find a good job that pays well, buy a house and get married," says Adriana. "Anything is possible if you put your mind to it."

Xingxing Wang

by Pamela L. Carmichael

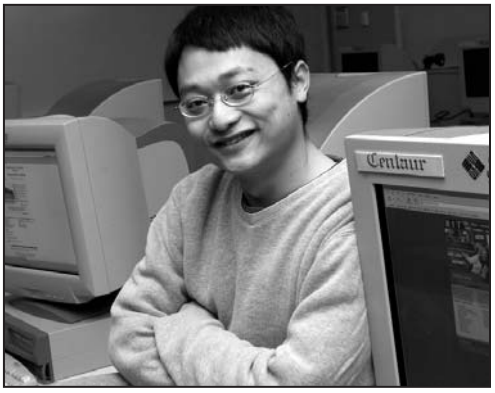
Xingxing means "many stars" in Chinese, and true to his name, Xingxing Wang shines brightly—an exceptional young man with a remarkable story.

Although he is profoundly deaf, Xingxing attended mainstream schools in China with no support services. With his mother's help, he successfully mastered all the phonemes required to speak fluent Chinese. His success was so remarkable, he became the subject of a documentary produced by a Chinese television network.

Xingxing's fascination with computers started when he used his first PC at age 4. His interest grew as he did, and by the time he was ready for college, Xingxing knew he wanted to major in Computer Science. He began his studies at a university in China before transferring to RIT/NTID in 2002 as a second-year Computer Science student.

"My former doctor, who had moved to the United States from China, recommended RIT," Xingxing explains. "I decided to come here because RIT offers challenging courses that I know will enhance my talent and potential and prepare me for a good future."

When he arrived at RIT, he could communicate using written, but not spoken, English, and he knew no sign language. In fact, he had never even seen sign language or met another deaf person before coming to America. In the past year and a half, he has taken American Sign Language courses and worked on his spoken English skills with Jacquelyn Kelly, a faculty member in NTID's Speech Language Department.



"Xingxing has made amazing progress in his acquisition of spoken English and sign language," says Kelly. "He's also done very well academically."

When he isn't studying or working to improve his language skills, Xingxing likes to spend time with friends.

"RIT offers many opportunities to socialize with diverse groups of people," says the 23-year-old, who has been active in NTID's Asian Deaf Club as well as the Deaf International Student Club.

After he graduates, Xingxing plans to return to China and demonstrate that deaf individuals can be successful computer scientists.

"I want to show people in China what deaf people can do," he says. "And, I want to help other deaf people believe in themselves and improve their lives."

Eyob Zerayesus

by Pamela L. Carmichael

Two things guide Eyob Zerayesus in all that he does: a strong faith and a supportive family.

"God is number one in my life," says the 20-year-old, who grew up in Columbus, Ohio, with three brothers and two sisters.

Three of the Zerayesus siblings, including Eyob, are deaf. Originally from Eritrea on the African continent, Eyob's family moved to the United States before he was born.

"I love my family," says Eyob. "We're all incredibly supportive of one another."

Watching his older siblings attend college inspired Eyob to pursue higher education when he graduated from high school. He chose RIT because of the quality academic programs and the opportunity to socialize with deaf and hearing peers.

"RIT offers excellent services for deaf students," he says. "And, there are many clubs and organizations to be involved in."

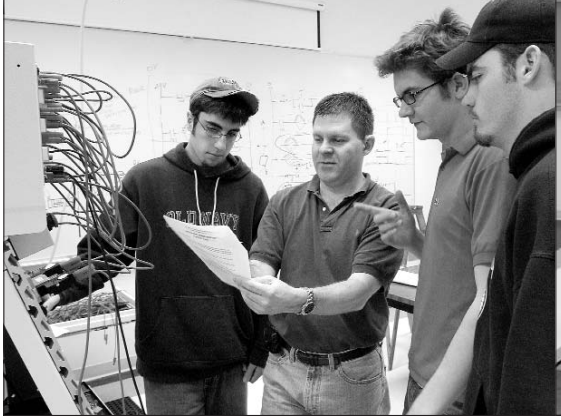
And, involved he is. Eyob plays intramural soccer, basketball, and volleyball, and he manages an RIT women's intramural volleyball team. He's also a member of Hispanic Deaf Club, Ebony Club, and the Caribbean Deaf Club. In addition to his extra-curricular commitments, Eyob works part time for NTID's Student Life Team as a Community Student Advocate.

"I'm outgoing, and I like to help people," Eyob says of his work.

A love of math and numbers led him to select an Accounting Technology major. Now in his second year of the program, Eyob, who is on the Dean's List, plans to transfer into RIT's Business Administration program when he completes his Accounting Technology studies.

After college, he plans a career in accounting and someday would like to start his own accounting business. Eyob's faith makes him very confident in his abilities and his prospects for the future.

"I believe a person can do anything through God's power," he says.



Views from Robo-Lab NTID Instructor Paul Stropko (standing center in photo at right) briefs students (left to right) Joshua Falacho, Adam Munder, and Derek Watson on tasks they will perform on the lab's pneumatic systems trainer. Instructor Ben Magee (standing left in photo at far right) and student David Yim examine elements of the flexible assembly cell in the lab.

Welcome to Robo-Lab

by Frank A. Kruppenbacher

On a bright, but cold February day, NTID Instructor Scott Bellinger is teaching a course on troubleshooting automated systems.

At the same moment, some 49 million miles from Bellinger's classroom, NASA's twin unmanned robotic rovers roam the surface of Mars conducting geological experiments.

While worlds apart, NASA's robotic wonders on Mars and Bellinger and his students here on Earth are akin.

The common link is NTID's newest technical degree program—Automation Technologies. The program is leading the way for deaf and hard-of-hearing students to move into new career frontiers as skilled robotics, semiconductor equipment, or process technicians working in a variety of automation environments.

"It's no surprise that the trend in industry is toward less human effort involved in completing a given task," says Bellinger.

According to Associate Professor Ron Till, chairperson of NTID's Industrial and Science Technologies programs, increased competition is driving changes in the marketplace.

"As production of technical products increases, companies must update their manufacturing facilities to meet the demands of the market," Till says. "As more and more sophisticated systems are brought online, technicians with advanced skills to support these systems will be in much greater demand."

Forecasters at the Bureau of Labor Statistics project that technician positions in engineering, science, semiconductor, and related service sectors will increase between 10 and 35 percent by 2010. Over the same timeframe, jobs in these fields that require associate degrees like those offered in NTID's Automation Technologies program, will have the fastest growth—32 percent.

"NTID's new degree programs in Automation Technologies will allow students to capitalize on the trend," says Bellinger. "They will be prepared for new, high-technology careers at companies making automated systems, and at companies that utilize automated systems in their manufacturing processes."

First-year Automation Technologies student Armin Mujkanovic was among the first students to select the new degree program offered at NTID.

"When I was young, I was interested in electronics and the telephone," says Mujkanovic. "I wondered how and where all those lines were connected. Today, I like big electronics and robot machines. When I graduate, I will find a good job with a big company in this field."

Applied Robotics

One of the options available to students enrolled in the Automation Technologies program is Applied Robotics.

First-year courses provide a foundation in mathematics, physics, electromechanical devices, systems, and robotic fundamentals. Students learn about electronics, circuits, and electromechanical devices as well as pneumatic and hydraulic systems.

Second-year robotics students delve into automated systems, programming and advanced robotics. To complete their associate degree, students take advanced courses in automated system integration and troubleshooting.

NTID's Associate of Occupational Studies (A.O.S.) graduates typically enter the workforce as robotics technicians, who install, troubleshoot, repair, and upgrade automated systems and their components.

"Studies in applied robotics can appeal to students who enjoy working as technicians on the controls and systems side of high-tech manufacturing companies," says NTID Instructor Ben Magee.

Associate of Applied Science (A.A.S.) graduates in Automation Technologies, with a concentration in Applied Robotics, may enter the workforce after graduation or apply to other colleges of RIT to earn a bachelor's degree in fields such as Manufacturing Engineering Technology or Computer Integration Manufacturing Technology.

Semiconductor Technology

A second option available to students in NTID's Automation Technologies program is Semiconductor Technology. Students who select this option take many of the same courses offered in the first year of the Applied Robotics option.

In the second year, and closer to graduation, Semiconductor Technology students focus their plan of study to include courses in vacuum and RF (radio frequency) technology, chemistry, and semiconductor tooling.

Because of the cross-disciplinary training they receive in electrical, computer, mechanical and semiconductor technologies, A.O.S. graduates can enter the workforce as semiconductor maintenance, process, or production technicians.

These jobs, according to the Bureau of Labor Statistics, are some of the fastest growing occupations requiring an associate degree.

Students also may continue their studies in RIT's Kate Gleason College of Engineering Bachelor of Science degree program in Microelectronic Engineering—the only program in the United States to provide highly educated and skilled engineers with cutting-edge knowledge of the semiconductor industry.

In addition to computers and telecommunication devices, semiconductors are integrated into appliances, machinery, and vehicles.

"There's a growing demand for

NTID's semiconductor lab Students in clean-room garments work with a semiconductor-processing machine.

semiconductors," says NTID Instructor Paul Stropko. "The field is full of exciting careers for anyone who likes electronics, physics, mathematics, and chemistry. Our goal is to make sure our graduates are well-positioned to compete in these careers."

Students Converging on New Careers

Along with Automation Technologies, NTID's Industrial and Science Technologies degree programs have evolved to include Computer Aided Drafting Technology, Computer Integrated Machining Technology, Laboratory Science Technology, and Applied Optical Technology.

"Convergence, or the blending of science, information technologies, engineering and telecommunications, opens new career fields for skilled individuals," Till says. "This increases jobs for technicians, engineers, and scientists. At the same time, the need for technological skills influences almost every occupation."

IBM, a leader in automation technologies, partners with NTID to provide a smart and skilled workforce for high-tech industries. In addition to a $3,000 grant, IBM has donated various pieces of equipment for students to use in NTID's Automation Technologies semiconductor laboratory and classroom facilities.

"IBM is excited to support the Automation Technologies program at NTID," says William Strachan, program director for technical recruiting at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y. "We believe that well-educated individuals in career areas related to automation technologies will be increasingly in demand and highly sought after for their high-tech skills and knowledge."

Strachan's positive forecast for the future is encouraging to first-year Automation Technologies student Josh Falacho, and several of his classmates, who toured IBM's computer chip fabrication plant in East Fishkill, N.Y., in March 2004.

"I want to thank IBM for letting us come in and see for ourselves," says Falacho. "I learned a lot about what a semiconductor is and how they are made. The whole process is very impressive, and I want to continue learning more about it."

First-year Automation Technologies student Adam Munder agrees.

"I'm fascinated by automated processes," he says. "Applied robotics is just the kind of career field I want to work in."

Automation Technologies students Derek Watson (left) and Adam Munder (center) learn about direct current (DC) motors and their role in automated manufacturing devices from NTID Instructor Ben Magee. Low-tech DC motors provide much of the horsepower for high-tech automated manufacturing devices and systems.

Robo Facts

- Once depicted only in comic books and science fiction movies, robots and robotic technologies are in use today for tasks deemed too dirty, dangerous, difficult, repetitive, or dull for humans. Without robotics, some mining, deep sea and space exploration, and toxic waste cleanup, among other hazardous tasks, would not be possible. Recent breakthroughs include robots that mimic the human gait and robots that are used in minimally invasive surgical procedures.
- Semiconductors are wafer-thin slices of silicon with layers of microscopic electronic circuitry. They enable a myriad of microelectronic, optoelectronic, and wireless devices, including powerful personal computers, small and convenient cellular telephones and pagers, and accurate global positioning devices. Automated manufacturing devices that operate using semiconductors help to manufacture precision technical products that also contain semiconductors.

It's Alive!

Creating a monster
Zilvanis Paludnevicius receives the finishing touches on his monster make-up.

Technology Rules in NTID Performing Arts

By Kathy A. Johncox

Most of us have seen some version of *Frankenstein*. You know the story. The lightning strikes. Thunder rumbles. The creature moves, and Dr. Frankenstein screams, "It's alive!" Some of the challenges of performing this classic seem obvious: finding a tall, hulking actor for the lead role, creating special effects and setting the laboratory scene. Staging the production using the skills and talents of nearly 100 deaf, hard-of-hearing and hearing students adds other challenges.

"Our staging is different than that of an all-hearing production," says Jim Orr, outreach coordinator for NTID's Performing Arts Department, and the author and director of *The Rage of Frankenstein,* an original work based on characters from Mary Shelley's *Frankenstein*, performed this past winter at NTID. "Because the actors in our plays use sign language, they have to be able to see each other at all times, and because most audience members are deaf, they need to be able to see the actors signing as well. And, the stage management, set design and costumes all have to be sign language friendly."

Accomplishing all that means taking advantage of technology. We've all seen movies where stage managers bark out orders to actors and stage crew. Backstage at NTID, a creative use of existing technology and some special equipment and techniques allow stage managers and crew to get the job done while communicating in sign language, and using visual cues for actors and for crew members who make lighting and sound adjustments.

Joe Hamilton, scene shop foreman and an NTID alumnus, says, "Because of the improvements in technology and because of our creative use of it, we've been able to increase the number of deaf and hard-of-hearing students who can work backstage to make the production happen. We actually have created our own technology, starting with buying standard TV monitors and positioning them for different operations around the stage."

The crew sets up a series of TV monitors and small "spy cameras" in four locations: backstage, in the lighting booth, in the "green room" where performers await their cues, and in the dressing rooms. Using the cameras and one of the monitors, everyone can see what is happening on stage. On another monitor they also can see the stage manager who is positioned in front of one of the backstage cameras. The stage manager signs into the camera, which displays him or her on monitors at all the locations. This allows the manager to instruct each member of the stage crew at his or her assigned position, including the lighting and sound technicians, in real time from backstage. The stage crew can use cameras to respond back to the stage manager with questions or comments about what's happening.

"Now that technology has advanced in a way we couldn't have predicted, we definitely are tapping into it," says Orr. "We have lighting controlled by computer software that we can pre-program to turn circuits on and off. We have deaf and hard-of-hearing students running sound and lighting because they can get a visual readout of sound and lighting levels, or use their high-tech hearing aids to help do the job."

Darren Hansen, a first-year student from Petaluma, Calif., who uses hearing aids, controls the environment in Doctor Frankenstein's laboratory. From the sound booth, Darren regulates the rolling thunder and the sounds of the creature's rage. His hearing aid is directly connected into the bank of compact discs loaded with the sound effects for

Lights With the push of a button, the computerized lightboard automatically initiates pre-selected lighting sequences to create the cavernous look to the laboratory.

Cameras Joe Hamilton, scene shop foreman, below left, and Jeremy Quiroga, a student in RIT's College of Imaging Arts and Sciences, discuss staging as Quiroga communicates with stage crew members out in the theater. Quiroga's image on the monitor is visible to the crew member on the left monitor, and she's visible to Quiroga on the right monitor. The camera is the telescope-like implement between the monitors.

Sound Darren's high-tech hearing aids connect to an FM system (the small square box near the top of the lightboard), a wireless, battery-powered assistive listening device with a microphone that broadcasts an FM signal to a receiver. In this case, the desired sound is delivered directly to Darren's hearing aid and results in a stronger, clearer signal despite background noise. The soundboards are calibrated, so he also visually can make the appropriate adjustments for thunder and other environmental sounds, if needed.

Action Dr. Frankenstein's laboratory is staged at several levels with catwalks and stairs to give deaf and hard-of-hearing actors the ability to see each other as they communicate using sign language.

the production.

"I can get sound directly into my hearing aid with no background noise or interference. A hearing aid alone can sometimes distort sound, but when I use the equipment, the sound I hear is clear and undistorted, which allows me to make better sound adjustments.

"This is the first time I've ever been the sound operator for a live production with an audience," Darren continues. "Alan Will, the lighting instructor in my theater class, offered me the opportunity to work on this production, and I really have enjoyed being a part of it. It has allowed me to explore different career fields I have never really thought about before. And, it's a real pleasure to hear the audience applaud after the show."

The NTID Performing Arts staff recently purchased and customized a computerized lighting system upgrade to show NTID productions in the best light (pun intended). Lighting technicians now can model on the computer exactly how they want the lighting to appear and get a printout of proper light fixture locations to achieve the desired effect.

"As students graduate and participate in other productions, they find they are using as good or better equipment here as they would in any other theater," says Hamilton. "We're very proud of what we have going here."

"Our specialty at NTID really is the technical end of theater," adds Orr. "As students like Darren participate in our productions, they often get bitten by the theater bug and look for and find careers in this field."

NTID Performing Arts staff members have made several other adaptations, lower tech, but equally as creative. One of these is the concept of creating different levels on the stage to give deaf actors clear sightlines so they can see each other. In *The Rage of Frankenstein*, for instance, the parlor scene had two levels and the laboratory scene had three. Students in performing arts classes learn to construct multi-level sets, anticipating how the actors and actresses will need to interact.

During rehearsals for some shows, the script is projected on a screen in the theater. Each line is numbered, and the script is presented in both English and an ASL gloss or visual interpretation of the words. Stage directions are visual, with drawings in the script for clarification.

Finally, because NTID productions are accessible to both deaf and hearing audiences, hearing actors are utilized to provide spoken dialogue. In *The Rage of Frankenstein* production, the voice actors sat in darkened balconies on either side of the set, equipped with monitors hooded to reduce the amount of light they emit. The voice actors spoke the words that the deaf actors and actresses signed, always watching the signing performers, so they could time their spoken lines appropriately.

"We have to make appropriate translations, language to language and culture to culture," says Orr, "And, we rely on native ASL-users to make those translations and serve as sign masters or coaches for the student actors.

"The same creative uses of technology in *The Rage of Frankenstein* are used to some degree for all NTID productions, with some adaptations depending on the staging of the piece," he adds.

"There are some communication challenges to mounting a production that combines deaf, hard-of-hearing and hearing backstage crew and actors, but with the technology we've acquired and adapted for our use, they are not insurmountable," Orr continues. "And, everyone rises to the occasion. The students all know their roles and tasks. The technology comes together, the lights go down, the sound comes up and the show comes alive."

Cinda Lautenschlegar

by Frank A. Kruppenbacher

Take a deep breath. Exhale. Repeat.

This essential human function sustains our lives. Breathing occurs so automatically that we hardly think about it. The air we breathe also is something that can be, and often is, taken for granted.

But, protecting the air people breathe and ensuring it is clean and healthy are concerns that Cinda Lautenschlegar (at left in photo) does not take lightly.

"I work for clean air," says the 1987 RIT/NTID Mechanical Engineering graduate. "As an air pollution control engineer for the Connecticut Department of Environmental Protection, Lautenschlegar writes permits, uncovers violations, and helps individuals, industries, and organizations achieve compliance with air pollution regulations.

"When we issue a permit to a company, for example, it's a highly technical and legally binding document," Lautenschlegar says. "Helping my team succeed with their cases gives me a great amount of satisfaction on the job."

In her work, Lautenschlegar interacts extensively with the public. She conducts site visits, attends hearings, and leads outreach classes to teach new regulatory program requirements.

"Sometimes an interpreter facilitates communication," says Lautenschlegar, "and sometimes that's not an option. Regardless, everyone is accountable for communication—including me.

"When I encounter surprise, or skepticism, or an unwillingness from others to work with me because I'm deaf," Lautenschlegar explains, "I tell them they can work with me or they can work with no one. My bosses back me up on this, too."

Lautenschlegar credits her family for her confidence and passion for quality in her career and her life, her fascination with science, and her decision to attend RIT/NTID.

"When my family and I visited RIT, it was a no-brainer," says Lautenschlegar. "I wanted a technical education, and RIT had an excellent reputation. I received an excellent education there.

"I wanted a career with new frontiers to learn about, and that's where I'm at right now," adds Lautenschlegar. "I'm learning about the companies I write permits for, and, as the laws change, I learn all of the new air pollution regulations. It's a dynamic field. I really enjoy it."

Reynaldo Llarena

by Frank A. Kruppenbacher

Project Engineering Specialist Reynaldo Llarena's work is out of this world—literally.

At Boeing Electron Dynamics Devices, Inc., in Torrance, Calif., the 1982 Electromechanical Technology graduate develops automated test software for communication satellites orbiting the Earth.

As he works on processes and components of a complex switch matrix for thermal vacuum testing in space, Llarena's nearly 20 years in high-technology environments in the aerospace industry are in sharp contrast to challenges from his youth.

"I was born hearing in Havana, Cuba, in 1957," says Llarena. "My parents were uneducated and our family was very poor. I became deaf at age five after falling off a horse."

At age 12, Llarena and his family escaped from communist Cuba and came to the United States. By age 16, he was a member of a street gang in Miami, Fla., expelled from school, and unable to understand English.

"Around that time, I met a man who was studying to become a lawyer," Llarena remembers. "He told me that if I didn't go to college, I wouldn't be as successful as I could be."

The law student befriended Llarena, helping him study English and math. He earned a GED from a local community college and entered NTID in 1977.

"My interest in science and engineering started when my best friend asked me to help him fix his car," Llarena recalls. "We took the car apart to understand how it worked. From cars, I moved on to toasters, refrigerators, air conditioners, heating systems, and electronic devices of all kinds.

"My studies at NTID helped me fully appreciate and understand all aspects of the field I wanted to make into my career. I learned how to analyze what the problem was, design the best solution, and apply it."

Llarena says the key to his success is pushing his own limits to continually learn more and work harder.

"I had a lot of things going against me early in my life—poverty and a lack of education and guidance," says Llarena. "But, I beat the odds. If you have a strong desire to accomplish great things, you will."

NTID—An Outstanding Investment

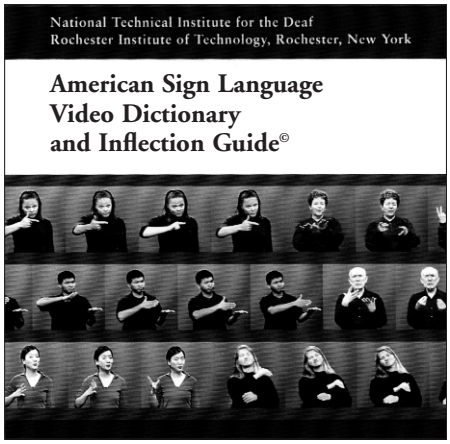
by Kathy A. Johncox

Pforzheimer Foundation Supports New Product

The Carl and Lily Pforzheimer Foundation makes great things happen. Since its establishment in New York in 1942 by members of the Pforzheimer family, the foundation has been a strong supporter of educational and cultural programs, public administration, and health care. Because of its interests in adult education, basic literacy skills, reading, language, linguistics and higher education, the foundation responded when NTID needed assistance with a unique language-focused project.

NTID's American Sign Language (ASL) Video Dictionary and Inflection Guide on CD-Rom is the first and only product of its kind. The foundation's $65,000 investment to help develop this innovative tool for ASL learning and practice has made it possible for thousands of students, teachers, state agencies, colleges, universities, schools for the deaf, libraries and school districts to have access to this unique resource. The guide helps learners gain a true understanding of ASL by linking thousands of signs to sentences that illustrate how the meaning of signs change in context. Created by a team led by Geoff Poor, coordinator, NTID Office of Communication Assessment Services, this guide has realized great success nationwide.

"It's gratifying to see that the enthusiasm for the CD is shared by so many different groups of people—ASL and interpreting students, their teachers, and ASL linguists," says Poor. "When I demonstrate the CD at a conference or convention, there is always a moment when I can see that people realize they have to have one. It confirms my belief that there is a definite need for this type of information in this unique format."



In recognizing the need and supporting this project, the Pforzheimer Foundation is making it possible for many educators in the field of sign language to have the guide as a resource.

Reflections of the Artist

Reflections of the Artist: Paintings by Ned Behnke 1976-1989, a recent exhibit in the Joseph F. and Helen C. Dyer Arts Center, featured a collection of paintings by one of RIT/NTID's own. Born deaf in 1948, Behnke began to paint at a very young age. He received a bachelor's degree from Central Washington University and his Master of Fine Arts degree from RIT.

Art critics considered Behnke an innovator with colors, using them to create an illusion of depth within confined spaces. His painting, *Mirror in Back*, included in the Dyer Arts Center exhibit, won the prestigious Finger Lakes Exhibition Juror's Award in 1975. He was considered one of the most exciting and up-and-coming artists in the New York area, and after returning to his hometown, Seattle, he continued to paint and widely exhibit his work. He died in 1989 at age 40.

Pictured above with Dr. T. Alan Hurwitz (left), RIT vice president and dean for NTID, are Behnke's mother, Sally Behnke, his niece, Marisa, and his brother, John, who visited NTID in April to celebrate Behnke's life with his friends, teachers, and mentors, and to participate in the opening reception for the exhibit.

"We are grateful for the Behnke family's generosity in making this exhibit available," said Hurwitz. "We truly appreciate the opportunity to exhibit Ned's work for our students and the Rochester community to see and enjoy."

A New Scholarship for Women

Women who need financial assistance when enrolling in NTID's Master of Science program in Secondary Education of Students who are Deaf or Hard of Hearing (MSSE), soon will be able to get help from a friend. Doris Wilson Blanchard has established an endowed scholarship to aid deaf and hard-of-hearing women in the MSSE program who are preparing to teach science and math to deaf children.

Blanchard, a deaf woman, was a laboratory chemist for nearly 14 years and then taught science at Lexington School for the Deaf for 16 years before she retired. Of her interest in science, she says, "I guess it's in my genes. My father was a chemical engineer and was very interested in research and development, and my grandfather was a professor of astronomy and math."

"There's a growing demand for qualified math and science teachers," says Gerry Batemen, NTID professor and director of the MSSE program. "Mrs. Blanchard's scholarship will recognize deserving young deaf and hard-of-hearing women who, like her, will be role models for the young women they will teach. Our deep appreciation goes to Mrs. Blanchard for passing on her love of science and math to the next generation of teachers."

Recipients of the Doris Blanchard Scholarship must be enrolled in the MSSE program, be in good academic standing with at least a 3.0 grade point average, and demonstrate financial need.

Blanchard has a long history of supporting other NTID scholarship funds and this year, decided to create a scholarship of her own.

Anyone can endow a scholarship in his or her own name, or in honor of a loved one, with pledges that can be paid over a period of five years. If you have questions about how to set up a scholarship fund, contact Eliza Coyle at 585-475-6222 (voice/TTY) or at eacnce@rit.edu.

Notetaking Goes High Tech

By Karen E.M. Black

Thanks to a partnership between NTID and Microsoft, hundreds of students soon will receive the notes they need instantly.

Life soon will get a lot easier for deaf and hard-of-hearing students at RIT who rely primarily on their eyes to receive information. Unable to look down to write notes from a lecture because they would miss the professor's next few sentences, many deaf students rely on the some 400 notetakers RIT employs to help make classroom information more accessible.

Notetakers usually are other RIT students who have been specially trained to take notes for deaf and hard-of-hearing students in the same class. They deliver the notes to a coordinator, who scans them and later posts them on the Web.

But, now, thanks to a partnership between NTID and Microsoft, hundreds of students soon will receive the notes they need instantly.

"True to NTID fashion, we are at the cutting edge with new technology, and we're excited to be working with Microsoft at the ground level of a totally new product," said Dr. T. Alan Hurwitz, RIT vice president and dean for NTID.

The new product is Microsoft® Office OneNote™, a new digital notetaking program. With the ability to function on a desktop, laptop computer or Tablet PC, the program has innovative features such as a flexible workspace for customized notetaking and highlighting, and the ability to search through an entire academic quarter's worth of class notes with a click of a mouse.

Students can download the notes from the Web and access them through their own computer or via a server/Web site, which will provide central storage for class notes for the academic year.

NTID, which last year provided its students more than 54,000 hours of notetaking, has been testing the beta version of the new software, providing important feedback to Microsoft.

"I'm excited to be a part of this study," says Kevin Adams, a fourth-year Marketing student and a notetaker who has been testing OneNote in a Business Law class. "I especially like the capabilities of adding color, and integrating the instructor's PowerPoint® presentations directly into the notes. This technology allows for a much more effective and speedy approach for everyone."

Testing will be completed this summer, and OneNote should be available on a limited basis beginning this fall.

Taking Notes RIT Marketing student and notetaker Kevin Adams, center, tests new notetaking technology in class. The new system soon will give deaf and hard-of-hearing students immediate access to class notes.

Sharing Tips on Business Success A partnership between the Internal Revenue Service (IRS) Division of Taxpayer Education and Communication, and the New York State (NYS) Department of Taxation and Finance Taxpayer Outreach Service, and the NTID Business Careers Department resulted in a series of five free workshops designed especially for deaf and hard-of-hearing entrepreneurs who own or who are hoping to start their own businesses. The workshops, which focused on planning for, starting, and operating a small business, concluded in January with a panel discussion featuring successful deaf business owners. Pictured here are (back row, left to right) Louis J. Schwarz, CEO of Schwarz Financial Concepts; Richard Morris, '83, CEO of Real World Success; David Michalowski, '89, CEO of DM Multimedia; Mark Pfuntner, '89, '97, NTID Business Careers instructor; Robert Rice, '94, '97, president and managing partner of BayFirst Solutions, LLC; and, (front row) Karen Villa, senior tax specialist for the IRS; Dr. William Rudnicki, NTID Business Careers chairperson; and Suzanne Reusch, outreach/problem resolution officer for the Taxpayer Service and Revenue Division of the NYS Department of Taxation and Finance.

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R·I·T

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CHANGE SERVICE REQUESTED

Collection of Carvings NTID recently received a collection of hand-carved and hand-painted birds from the estate of Mildred F. Hall, a longtime friend of RIT and NTID. The birds were created by Mrs. Hall's husband, Silvanus G. Hall, who studied graduate-level art at RIT in the 1970s. He became a member of the National Wood Carvers Association, and for four years, his birds won awards at the International Wood Carvers Congress. The collection is on permanent exhibit across from the Dyer Arts Center in NTID's Lyndon Baines Johnson Building.