DO-IT NEWS

Disabilities, Opportunities, Internetworking, and Technology • September 2006

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Director's Digressions

by Sheryl Burgstahler

In a meeting with the Phase I *DO-IT Scholars* on the last day of Summer Study 2006, our annual two-week live-in college prep program at the University of Washington, I asked each of them to tell me at least one thing he or she gained from Summer Study. Below are their thoughtful answers in the order they were given. Together, they offer a picture of what first year *DO-IT Scholars* take away from this experience:

- *I learned how to get prepared for college.*
- *I made friends.*
- *I learned how to speak to professors about my disability.*
- *I learned how to advocate for myself.*
- *Here, a disability is not a major deal.*
- *I learned how to self-advocate.*
- *I fine-tuned my self-advocacy skills.*
- *I learned a lot about other types of disabilities and how the world works.*
- *If I ever design something, I need to make sure it is accessible to everyone.*
- *I made friends.*
- *I practiced self-advocacy.*
- *I found out that some places are easy to get to and some are not as wheelchair-accessible. I need to check places out ahead of time.*
- *Phase I, Phase II, Ambassadors, Mentors... we're all one big family.*
- *We should advocate for ourselves AND for each other.*
- *I learned not to let others do everything. I know I have to do it!*
- *I saw people with disabilities do miracles.*
- *I made lots of friends.*
- *Even though we have challenges, we can do it!*
- *I know I want to go to college.*

To reduce printing costs and yet still share exciting news from DO-IT, we provide a short print version of DO-IT NEWS and an expanded version online at http://www.washington.edu/doit/Newsletters/Sept06/. Contact DO-IT if you would like a printed copy of the expanded newsletter.

Highlights of this issue:

- *I learned about different disabilities.*
- *I learned how to organize my email.*
- *College classes take more than just walking a few steps. I need to make time to go between classes.*
- *I learned about technology used by people with different disabilities.*
- *I learned how to find scholarships.*
- *Be sure to SAVE important email messages.*
- *I learned about the daily lives of people with different disabilities.*
- *My self-advocacy skills are better.*
- *At school I never asked for accommodations. Maybe I will now.*
- *I have a feel for what university life is like.*
- *I learned not to be shy and how to speak my mind.*
- *I learned to participate more—I did everything—like DO-IT.*

This issue of *DO-IT NEWS* features some of our efforts in promoting STEM (science, technology, engineering, and mathematics) academic studies and careers. These efforts include activities in the *AccessComputing* and *AccessSTEM* alliances.

Phase I Scholars Nicole and Alex take a break with DO-IT Staff Tami Tidwell

Why DO-IT
by Phase I *Scholars*, Nicole and Maria

One might ask why a person with a disability should join DO-IT. The three main reasons for joining *DO-IT Pals* or *DO-IT Scholars* programs are:

1. DO-IT helps its members get the best educational and career opportunities;
2. DO-IT members share helpful information and ideas through networking; and
3. DO-IT helps its members realize their full potential and learn that they can "do it!"

The DO-IT program makes sure its members have the best educational and career opportunities in many ways. First, DO-IT helps its members to receive the right level of education for them. DO-IT also helps its student members manage their high school IEPs (Individual Education Plans) and Section 504 plans to make sure they receive the necessary accommodations to fully access their educational opportunities. DO-IT provides students preparing for college with information about requesting accommodations, technology needed in

Summer Study '06: What Do the Phase I Scholars Do?

DO-IT Phase I *Scholars* participate in a two-week, live-in Summer Study session on the University of Washington campus in Seattle, Washington. They learn about college life; surf the Internet; interact with peers, staff, and mentors; and have fun. The *DO-IT Scholars* program started in 1993 as an experimental project for teens with disabilities nationwide. Now it is funded for teens in Washington state by using state funds.

Below, '06 Phase I *Scholars* share some of their experiences. Note that, reluctantly, articles were edited by DO-IT staff to make them short enough to include in this publication, and that most are found in the online version of this issue at *http://www.washington.edu/doit/Newsletters/Sept06/*. Articles by previous Phase I Scholars can be found in earlier newsletters at *http://www.washington.edu/doit/Newsletters/*.

college, and other helpful tips from other people with disabilities who went to or are in college.

DO-IT also makes sure its members have the best career opportunities. DO-IT helps its members obtain information about the educational requirements for the careers or fields they are interested in. DO-IT also shows its members what job opportunities are available, and helps create and offer internship opportunities. DO-IT connects people with disabilities who are currently employed with students, and graduates with disabilities who are trying to get a job. Additionally, DO-IT helps its members learn about the job search process, writing resumes and cover letters, and asking for accommodations in a work place.

Another important aspect of the DO-IT program is that is helps its members connect to the Internet so they can access resources and share information. The Internet is a place for people with all types of disabilities, as well as those without, to communicate together quickly and easily. It's also a great way to get information on many topics; you can use the Internet for your homework, for example, or even to look up a person you are interested in finding out about. There are many varying ways to use the Internet, and there is something useful and helpful for everyone at every skill level. One *Scholar* stated that it helped her make new friends, network, and explore the interesting world of the Internet.

DO-IT also helps its members realize their full potential. There is more to life then just sitting around, watching TV, and eating. Life is amazing and the universe is full; there is always something to do! Each individual has his or her own special talent. It often takes time, dedication, and passion to distinguish that special spark in each person. Why would anybody want to take the time to find out what their special talent or spark is? I'll tell you why. Imagine going rafting down a white-water river, with obstacles like trees and rocks everywhere, and the only way down is by rafting down stream. What do you do–go down and fight or stay there until someone picks you up and you are safe on land? If you choose to go down stream and fight it out, you may or may not get hurt, but you will come out, and you'll be so proud of yourself that you'll want to do it again or go further. That feeling of achievement is so great, and what you just faced helps prepare you for the next obstacles. This is what life is like; it is incredible, and, if you want to have those feelings of achievement and self-confidence, then go out there, face your fears, and DO-IT!

Our most sincere hope is that this article will encourage you, if you are eligible, to join the *DO-IT Scholar* and/or *DO-IT Pals* program (see *http://www.washington.edu/doit/*) and to spread the word to others. We "did it," so others can "DO-IT" too!

Phase I Scholars Oscar and Taylor explore the Internet

CSI-SEATTLE: DO-IT, DID IT, DONE

by Phase I *Scholars*, Daniel and Tony

During our first week at Summer Study Phase I *Scholars* were introduced to the exciting world of forensic science. The things we learned were fascinating, and out of the ordinary. Brooke Yool, a science instructor came to talk to us about the real job of a Crime Scene Investigator (CSI). We were given the opportunity to learn about being a CSI which was

very different than we had expected. The overall class was "to die for."

We started the class with a scenario in which there had been a murder involving four suspects and only one source of evidence: the blood underneath the victim's finger nails. Brooke taught us how to analyze the fake blood samples using various chemicals. These chemicals would change the texture of the blood which would tell us what blood type the suspect had. These were then compared to the blood found underneath the victim's finger nails.

We learned a lot about forensics while listening to our instructor. We knew that it would be different from the TV shows, but we did not expect it to be quite like this. The hit series *CSI* depicts forensics in a very different way. The show fails to depict how complicated forensics actually is. So the next time you're watching *CSI* try to think a little more about what would really happen in the investigation; we know we will.

Phase II Scholar Daman talks with Microsoft panelist Steven H. at UW dorm

Dorm Life 101

by Phase I *Scholars*, Zachary and Samuel

During Summer Study we got the opportunity to experience living at the McCarty dorms on the University of Washington campus. The dorm itself was pretty comfortable, and the management staff and upkeep at McCarty was fantastic. Living in the dorm gave us opportunities to experience being away from family, familiar surroundings and friends, to be more independent and to make many new friends. Dorm activities were accessible to all *Scholars* regardless of their disability.

In a dorm, a variety of different kinds of people live together. It can be a great opportunity for people who have different communication styles or interests to get to know each other, advocate for what they need, communicate, and work out a mutually supportive and respectful relationship. It is a chance to learn about yourself and others. One of the most important keys to sharing such a small space is to learn to talk with your roommate about what works and what doesn't, and solve problems in ways that you can both live with.

DO-IT Scholars Experience the EMP

by Phase I *Scholars*, Alexandra and Jennifer

On July 16th, the DO-IT Phase I and II *Scholars* went on a field trip to the Experience Music Project, or EMP. The EMP is a museum devoted to all kinds of music. There are art galleries pertaining to music and there is a huge music lab where you are able to try different musical instruments out, and you can even record a CD! From our awesome lunch next to the Peace Fountain behind the EMP, to learning about Jimi Hendrix, to having our three minutes of fame "playing" in a rock band, we all had a good time.

Jennifer's favorite thing at the EMP was the "tower of instruments." She also liked the area set up to try out different musical instruments, and was excited about learning more about music in general. Alexandra's favorite part of the EMP was the Jimi Hendrix exhibit and seeing his handwritten lyrics.

Apart from being entertaining, another important aspect of the Experience Music Project is it's accessibility for people in wheelchairs and

with other disabilities. For people in wheelchairs, they had elevators that went to all of the levels. There were also buttons they could push that would open doors for them automatically. Another very good thing was that it had enough room for wheelchairs to move around. Unfortunately, the EMP is not as accessible to people with hearing impairments.

It's a HIT

by Phase I *Scholars*, Ryan and Taylor

The Human Interface Technology, or HIT Lab, was created at the University of Washington in 1989. It was developed as a facility to create and experiment with virtual reality and other similar technologies.

One of the virtual reality programs they have developed is *Snow World*. It's like a video game except that it is in virtual reality. In the game you are flying through a frozen, icy canyon where snowmen are throwing snowballs at you, and you can shoot snowballs back at them. There are also penguins and mammoths in the virtual landscape. The game is intended for people who are recovering from severe burns to help ease the excruciating pain they live with while healing. It has been proven to work; CAT scans of patients showed that virtual reality reduces the amount of pain signals in the brain. We think this helps the pain because, when you are using it, you feel as if you are in another world and you do not concentrate as much on what is going on in reality.

One of the other activities at the HIT Lab is a virtual hand stitching where medical personnel can practice stitching hands. This interactive activity is good for many people with disabilities because it is situated at a low enough level that everyone can reach it. This gives more people who may want to be doctors or nurses a great accessible place to practice. Another thing that is cool about this activity is the fact that it truly is like a real hand. You can really feel the scissor going into the skin of the virtual hand, and, like the real thing, you actually have to put pressure on the scissor to make it work. For example, if you poke a whole in the hand with the needle you can actually feel the needle in the skin!

Overall, the HIT Lab was a really good experience. It is very accessible to people with disabilities; every room with a virtual reality system/program is easy to get to, and, no matter what your disabilities are, the staff find a way to get you involved with the whole program. We give the HIT Lab a 10 out of 10 for creativity and the hard work that goes into putting it all together.

Phase I Scholar K.J. H. and Intern Josh N. enjoy GameOn Exhibit at the Pacific Science Center

Pacific Science Center Offers Adventures to *DO-IT Scholars*

by Phase I *Scholars*, K.J. and Gabe

On a Saturday, in the midst of our two-week Summer Study program, the *DO-IT Scholars* went and had a little fun at the Pacific Science Center. The first thing we did when we arrived was the *GameOn* exhibit; the exhibit was an interactive display of older arcade video games to new game systems such as the Xbox 360. The first floor consisted of stations where we actually got to play all of the different types of game systems. The second floor had a bunch of information about how games are made and the history behind the first game

systems. We were able to try out the new and the old game systems. We were very lucky to be able to experience the *GameOn* exhibit while it was still around; another bonus was that it was for free on the day we went!

After experiencing *GameOn* we went to the IMAX Theater to watch the movie *Deep Blue Sea* in 3D. The movie was filled with all types of sea creatures like jellyfish, sharks, sea stars and many more. It was very interesting how the animals helped each other even though some of them are predators and some of them are prey. For example, the sucker fish cleans the shark and in return the shark does not eat the sucker fish. Both animals benefit because the sucker fish gets food from the shark and the sharks are cleaned by the sucker fish. We had a great time watching all the different animals interact.

After the movie we ate lunch and spent time either riding a bike on a very high, elevated ring or going back to the *GameOn* exhibit to hit a few more video games. Then we all went to the laser dome to the see the *Laser Beatles* show. The show consisted of lights on the ceiling that were in sync with Beatles music. Some of the show portrayed characters such as an owl getting a friend. Also there were lights that showed a sailor on a yellow submarine. Some of the lights showed images of the Beatles themselves. Overall, we had a fun-filled day of games, sea creatures, and the Beatles at the Pacific Science Center.

What's the DIFF?

by Phase I *Scholar*, Joey Hill

The DIFF is the DO-IT International Film Festival, a name chosen based on Seattle's famous international film festival (SIFF) and used to describe "movie night" at Summer Study. We watched the film *Murderball*, a documentary about athletes who are quadriplegic and play rugby in wheelchairs. This film actually premiered at SIFF last year and was nominated for an Academy Award for best documentary.

The other two films on the program were *The Ringer*, a story about Special Olympics starring Johnny Knoxville, and real Special Olympics athletes, and *Robots*, an animated film. Unfortunately, the evening started out a little later than expected due to some technical problems with the projector, and we only had time to view two films, *Murderball* and *The Ringer*, before it was time for us to get ready for bed. That always seems happen when you rent films; you never get to watch them all, something generally seems to come up. It's a good reminder that things don't always work out the way you may have planned or hoped, but you can still enjoy yourself!

Summer Study '06: What Do the Phase II *Scholars* Do?

Phase II *Scholars* return to the University of Washington campus for their second Summer Study. They meet the Phase I *Scholars* as they participate in their first Summer Study, learn about college life and career preparation, and participate in a one-week workshop with postsecondary instructors. The following articles summarize one of the experiences of the 2006 Phase II *Scholars*. Others can be found in the online version of this issue at *http://www.washington.edu/doit/Newsletters/Sept06/*.

HIT the Note

by Phase II *Scholars*, Marlen, Noah, Bella, Sakina, and Vishal

Our Phase II workshop was *HIT The Note*, which took place at Egan's Ballard Jam House–a jazz and blues club located in the Ballard neighborhood in Seattle. Our workshop involved making an animated video using Stop Motion and 3D-Me-Now technology. We worked with Duff Hendrickson, Peter Oppenheimer, and Susan Weghorst. Susan is the lead staff for the Human Interface and Technology (HIT) Lab on the University of Washington campus and had just opened the

jam house, her new business, one week before we began our workshop! She allowed us to use her lounge as a studio to create our video masterpiece in just five short sessions. Duff helped us learn the 3D animation technique while Peter helped us with the 3D-Me-Now program.

With our team of five Phase II *Scholars* and two Interns, we divided and conquered. Sakina and Marlin worked on the Stop Motion, a generic general term for an animation technique which makes static objects appear to move. Noah, Vishal, and Bella worked on making the Avatars–an icon or representation of a user in a shared virtual reality, the script, and the soundboard, a Flash web page with buttons that play short, often humorous sound clips. Lukas worked on the music soundtrack and Laura worked on picture editing. We all contributed to making the pictures of the characters and the voices, even Lukas' service dog, Mystere, got involved. This project has opened our minds to the reality of teamwork and collaboration. With the help of team members and mentors, you can accomplish anything!

Phase II Scholar Kayla B. explores Science in the Schoolyard

Science in the School Yard
by Phase II *Scholars* Shavonne, Cassie, Kayla B., Jesse S., and Daren

"That which is never attempted never transpires." This is a statement that we, the Phase II *Scholars* who participated in the workshop *Science in the Schoolyard* with instructor Leah Melber, came to live by at the end of our week together. On our first day Leah, as she asked us to call her, introduced us to the basic principles of science using a chicken's egg that we cracked into a cup, observed, and described in our own words, before learning the proper scientific terminology. This first experience in science was for some the fuel to feed the fire and forge the path and desire to learn more the rest of the week. Other things we did that first day included an observation and assessment of fox fur, which was interesting to some and a bit disturbing to others, as well as an apple observation and identification.

The rest of our week was spent primarily outside where we did field studies on the plant and animal life on the University of Washington campus and at the nearby Burke Museum of Natural History, writing field guides about the plants near the Husky Union Building (HUB). Shavonne found that the experience in the field with insects was not her forte while

DO-IT Scholars, Interns, Ambassadors, and friends connect at Summer Study 2006

Cassie found the insects and learning their identifiable differences very interesting. Leah also taught us something called transecting which is observing small areas of space only. All of us enjoyed learning about science outside. For many of us, we had only experienced science via textbook and in a classroom or lab setting. One important thing we all learned is that, at times, nature is better left to its own devices.

Phase II Scholar Zach works with Game of Life instructor

The Game of Life

by Phase II *Scholars* Jennifer, Zach H., Andrew, and Nate

Our group spent a week together with our Intern, Jessie, our Instructor, Tammy VanDeGrift, and several graduate students in *The Game of Life* workshop. During the workshop we learned how to program cells into different codes on the computer. These codes allowed us to manipulate the cells in the ways we wanted to translate them into computer pictures. We learned to change codes to manipulate the cells so that we could design the picture we wanted. There are different codes one can enter to change the color or the movement of the cells. We also learned how to change the codes so that the computer would ignore what you told it. Once we entered our codes we also learned how to tell the computer to repeat a certain menu so that the codes cycled over and over. This was what often gave us the results we were trying for.

One of the really enjoyable things about *The Game of Life* workshop was that, even if you made a mistake in changing codes, etc., what was created still looked like a neat project that you had planned all along. Working together as a group was also very exciting, and we all came up with interesting projects.

Andrew was so inspired by the workshop that he wrote this poem:

> *The Game of Life* has been quite an experience filled with opportunities, struggles, and goals,
> There was never a moment that was uninspiring, boring, or dull,
> For the past week the Phase II *Scholars* of the DO-IT Team,
> Have been living in a fantastical dream,
> A dream filled with coordinate squares in the land of Java,
> With cells vibrantly colored from robin's egg blue to a ferocious, red, hot lava,
> These cells, whether being born, surviving, or meeting fate,
> Have impressed Jennifer, Zach, Andrew, and Nate,
> These *Scholars* have gained a new understanding of technology in action,
> These experiences have left these *Scholars* with great satisfaction.

Curb Cuts in Cyberspace

by Phase II *Scholars* Daman, Kayla T., Hunter (Schwa), and Jessie V.

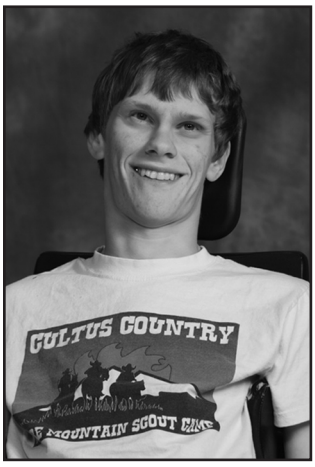
While at DO-IT Summer Study this year we were involved in a week-long workshop about web accessibility, Curb Cuts in Cyberspace. Our team included Interns Julie and Maryann. Our instructors were Dan Comden, who runs the UW Access Technology Lab, and Rick Ells, a member of UW Computing & Communications. We spent the week evaluating the University of Washington's Undergraduate

Research Program web pages and preparing a report on the accessibility and universal design of the site that we gave to the department. Though there were several problems with the accessibility of the website, there were also many good features. We also briefly evaluated the UW homepage, which had a few inaccessible Flash areas.

Two of the important tools we used in determining the accessibility of websites were the Web Accessibility Toolbar, a computer toolbar used to aid manual examination of web pages for a variety of accessibility aspects, and the Web AIM website, a very informative site about web accessibility. The workshop taught us how inaccessible the Internet can be and that there are great tools and resources to both determine and correct this!

Summer Study '06: What Do the Interns Do?

Scholars who have completed Phase II can apply to be Interns. The following article summarizes what the Interns do.



Summer Study: The Intern Experience
by Intern Alex

If you've ever been a Phase I or Phase II *Scholar* you've probably wondered what it's like to return for a third summer as a Summer Study Intern; I know I did. In a nutshell, Summer Study Interns are the people who help out the DO-IT staff members assist the *Scholars* during the annual two-week Summer Study program as a way of getting hands-on work experience and supporting DO-IT programs. Unlike most traditional first jobs, you are working together with a team of other students with disabilities where the disability of one may be the strength of another. However, Summer Study Interns still experience common aspects of the traditional work environment with specific on- and off-duty hours, expectations, and responsibilities.

Interns stay at the dorms for the entire two-week program. During duty hours, you are generally in the classroom, directly helping with the sessions. While off duty, you either have a chance to listen in on sessions that sound interesting or relax until you're scheduled to work again. As in a job, you are expected to show up at your scheduled time. Not every event requires your assistance, but it's ultimately your responsibility to be where you are scheduled to be, on time, and ready to assist.

When *Scholars* go on field trips or have evening activities and events, Interns help host. For instance, in the annual tie-dying activity, the Interns need to make sure all the *Scholars* have a chance to make a shirt. The Interns make sure that all the *Scholars* are involved and have the chance to try the activities. In some cases, the Interns go with the *Scholars* to provide extra assistance to staff, as in the night out at University Village or the evening at the UW planetarium which both entail helping move the group safely from one place to another.

During evening dorm activities, Interns assist in making sure activities go smoothly and help engage *Scholars*. Since *Scholars* have the choice to hang out outside, in the lounge, or in the lobby during this time, an Intern's role is to go to the area he or she is assigned and interact with the *Scholars* who are there.

Like camp counselors, the Summer Study Interns help the DO-IT staff assist the *Scholars* in what to do and where to go and once again enjoy the awesome Summer Study experience.

Accommodations at College

from a Phase II *Scholar*

As part of our summer and online activities, one of our *Scholars* shared the list of accommodations approved by the college where she is enrolled. It generated a great deal of discussion and comparison. We are sharing it here as an example, understanding that disability accommodations are unique to the individual and institution. This *Scholar* has mobility impairments, is a wheelchair user, and has some special learning issues.

First, the school listed accommodations approved by the office of disability services for all courses:

- Early registration
- Assistance with notetaking
- Lecture taping
- Copies of overhead transparencies
- Flexible exams - quiet room, extended time (time and a half), scribe
- Early notification of writing assignments
- Potential for scientific laboratory safety assistance
- Priority snow removal (assurance of an accessible route and route map where all the noted accessible routes will be clear by 8:00 am)
- Special classroom furniture (mainly a wheelchair-accessible desk)
- Elevator outage response (if an elevator goes out and the Disability Services Office knows soon enough, they will move the classroom to a wheelchair-accessible location)

In addition, instructors are encouraged to provide:

- Outlines, study guides, and practice tests to focus study
- Repetition of key concepts
- Structured lecture format
- Important information provided in both oral and written form

South Korean Administrators DO-IT Too

by DO-IT Staff, Val Sundby

Director Sheryl Burgstahler (center) and husband Dave (behind) entertain visitors from Korea at their home

For the second year in a row DO-IT hosted visitors from South Korea. This summer, twenty-one education administrators from the Korean Institute for Special Education (KISE) traveled to Seattle. These administrators spent two weeks learning about the special education system in the United States and about the programs and resources offered by DO-IT.

Institute topics included the structure of special education in K-12 setting; education policies, services and procedures for students with disabilities; the functions of local and state education boards in special education; self-determination and how it can be promoted with students who have disabilities; the principles of universal design and academic accommodations; and how assistive technology can increase computer access for students with disabilities.

The administrators participated in a variety of activities including lectures by education leaders, group discussions, field trips, and assistive technology demonstrations. Upon returning to their home institutions, these administrators plan to implement strategies presented during the institute and disseminate what they learned to other Korean educators. We look forward to seeing our friends from KISE again next year!

AccessSTEM, the Northwest Alliance for Access to Science, Technology, Engineering, and Mathematics

by DO-IT Staff, Val Sundby

DO-IT leads the Northwest Alliance for Access to Science, Technology, Engineering, and Mathematics (*AccessSTEM*). Supported by the National Science Foundation Cooperative Agreement #HRD-0227995, AccessSTEM's purpose is to increase the participation of people with disabilities in STEM careers. Primary project efforts are focused in the Northwest region—in the states of Washington, Alaska, Idaho and Oregon—and outreach and dissemination efforts extend nationwide. Project partners included leading STEM research organizations, K-12 schools and teachers, and employers throughout the Northwest. The Northwest Alliance joins three other National Science Foundation Regional Alliances for Persons with Disabilities in STEM—RASEM2, EAST, and MIDWEST—to develop resources and share promising practices through the AccessSTEM Knowledge Base at *http://www.washington.edu/doit/STEM/kb.html*.

Opportunities exist for students, teachers, professors, employers, counselors, and community agency staff who are interested in joining this effort. K-12 STEM educators in the classroom or in non-profit enrichment programs may be eligible to apply for minigrants. High school and college students pursuing STEM fields can apply to be part of the *AccessSTEM* team and participate in special events, mentoring, and internships. More information about the *AccessSTEM* can be found at *http://www.washington.edu/doit/Stem/*.

STEM Work Experiences Build Careers!

by DO-IT Staff, Scott Bellman

Research suggests that students with disabilities who engage in internships and multiple work-based learning experiences such as job shadows fare better in their career path compared to those who do not make time for such experiences. This is especially true for students with disabilities who wish to pursue challenging careers such as those in STEM (science, technology, engineering and mathematics) careers. Recent issues of *DO-IT NEWS* have highlighted several DO-IT participants' STEM internships, such as Carson at the National Aeronautics and Space Administration (NASA), Marissa at Amazon.com, and Dennis' database work for the National Oceanic and Atmospheric Administration (NOAA).

It has been another blockbuster year for STEM internships, thanks to funding from the National Science Foundation for the projects *AccessSTEM* (grant #0227995) and *AccessComputing* (cooperative agreement #0540615). Students completed more than 40 STEM internships that included work in the following areas: preparation of museum exhibits, database design and maintenance, web development, Internet research and analysis, volcano data collection, computer usability and accessibility work, learning about science education, marine science, and biochemistry. Places of employment included the University of Washington, the University of Alaska, Sitka Alaska College, Bellevue Community College, Cornell University, Microsoft, Washington Mutual, the Alaska Department of Fish and Game, Big Bend College, Skagit Valley Community College, Pacific Northwest Labs, the Fairbanks Pain Clinic, NOAA, and NASA.

Many DO-IT students who have completed work-based learning experiences in the past have filled out surveys to report what they gained from their experience. They consistently report gains in their motivation to work toward a career, knowledge of careers and the workplace, job-related skills, ability to work with supervisors and co-workers, and knowledge of successful accommodation strategies. Furthermore, work-based learning experiences helped them:

- clarify academic and career interests;
- pay for education and gain academic credit;
- gain exposure to specialized facilities not available on campus;
- develop job-search skills, resumes, and cover letters;
- develop contacts for employment after graduation; and
- practice disclosing disability and requesting accommodations.

For more information about the value of work-based learning, read the DO-IT publication *It's Your Career: Work-Based Learning Opportunities for College Students with Disabilities* at *http://www.washington.edu/doit/Brochures/Careers/worklearn.html*.

DO-IT Works with Science Teacher Associations to Promote Universal Design

by DO-IT Staff, Lyla Crawford

DO-IT is working with the Oregon Science Teachers Association (OSTA) and the Washington Science Teachers Association (WSTA) to deliver two Capacity Building Institutes (CBIs) to science teachers in the Pacific Northwest this October.

The full-day sessions will be presented in conjunction with the WSTA Annual Conference on October 12th in Spokane, Washington and the OSTA Annual Conference on October 14th in Roseburg, Oregon.

The presentations, titled *The Winning Equation: Access + Attitude = Success in Science*, will focus on universal design concepts as a foundation for increasing student achievement and general curriculum access in science and math for students with disabilities and others with diverse learning needs. This framework emphasizes the use of curriculum where the learning goals, materials, methods, and assessments serve learners with a broad range of characteristics and benefit all students, not just students with disabilities. The use of academic accommodations and development of student self-advocacy skills to promote student success will also be presented. Participants will engage in small group learning activities that explore universally designed curriculum characteristics and a step-by-step accommodation model for fully including all students in science.

For information on registering for these sessions, connect to the DO-IT Newsflash at *http://www.washington.edu/doit/*. Visit the OSTA Conference Information page at *http://www.oregonscience.org/conference.htm*, visit the WSTA Conference Information page at *http://wsta.net/html/*, or contact DO-IT at *doit@u.washington.edu* or 1-888-972-DOIT.

AccessComputing Off to a Dynamic Start!

by DO-IT Director, Sheryl Burgstahler

The goal of *The Alliance for Access to Computing Careers* (*AccessComputing*) is to increase the participation of people with disabilities in computing fields. *AccessComputing* collaborators apply proven practices to increase the number of students with disabilities successfully pursuing education and careers in computing fields, increase the capacity of postsecondary computing departments to fully include students with disabilities in computing courses and programs, and create a nationwide resource to help computing educators and employers, professional organizations, and other stakeholders develop more inclusive programs and share effective practices.

Educators, employers, and other stakeholders can become involved in project activities by joining an *AccessComputing* Community of Practice (CoP) to share perspectives and expertise and identify practices that promote the participation of people with disabilities in computing fields. Our current CoPs include the following:

- The ***Computing Faculty, Administrator, and Employer CoP*** engages computing faculty and administrators as well as representatives from industry and professional organizations to increase their knowledge about disabilities and to promote inclusive practices in computing departments.

- The ***Broadening Participation CoP*** is populated with Alliance collaborators who administer alliances and projects that serve to broaden participation in computing fields.

- The ***Disability Services CoP*** is comprised of disability service professionals from community/technical colleges, 4-year colleges, and universities nationwide, together with their networks of postsecondary and K-12 schools and parent groups.

- The ***Deaf and Hard of Hearing CoP*** engages professionals in the field to promote computing fields to students who are deaf or hard of hearing.

High school, college, and graduate students with disabilities who would like to engage in stimulating conversations with each other and with mentors and learn about internship and other opportunities in computing fields can join the *AccessComputing* Team.

More information about the *AccessComputing* Team and the *AccessComputing* CoPs can be found at *http://www.washington.edu/accesscomputing/*. Direct questions to *accesscomp@u.washington.edu*.

AccessComputing is led by the Department of Computer Science and Engineering and DO-IT at the University of Washington. It is funded by the National Science Foundation as part of the Broadening Participation in Computing (BPC) program of the Directorate for Computer and Information Sciences and Engineering (CISE) (grant #BPC 0540615).

AccessComputing Events a Huge Success!

by DO-IT Staff, Val Sundby

This summer high school and college students with disabilities and an interest in computer science attended events aimed at increasing their successful participation in high-tech college programs and careers. These events took place at institutions around the country as part of the National Science Foundation-funded *Alliance for Access to Computing Careers* (*AccessComputing*) at the University of Washington, as described in the previous article.

At the University of Southern Maine high school sophomores, juniors, and seniors with disabilities attended a two-day Summer Computing Institute. The goal of this institute was to motivate the students to consider higher education courses and careers in computing fields. These students lived on campus, learned new computing skills, looked at college and career options, met with representatives from college admissions offices, and attended sessions taught by university faculty.

At the University of Minnesota, Duluth, high school and college students attended meetings and presentation with Mark Zupan, a civil engineer who also participates as part of the U.S. Quadriplegic Rugby Team, and was featured in the Academy Award nominated documentary *Murderball*. This presentation was co-hosted by the University of Minnesota, Duluth's College of Science and Engineering in order to encourage local students with disabilities to consider careers in science and engineering.

At Galludet University, high school students from around the country, including a *DO-IT Scholar*, attended a Summer College Transition Academy in Computing. The Department of Mathematics & Computer Science hosted lectures, activities, mathematics courses, and field trips to increase students'

interest in computing and to prepare deaf and hard of hearing students for college studies in computing fields.

Other *AccessComputing* events included workshops on accessible Web and course design at Florida State University and the University of Wisconsin, Madison.

DO-IT Scholar Profile: By the Numbers

by Phase I *Scholar* Zachary P.

Hi. My name is Zachary and I am a junior at Roosevelt High School in Seattle. I have Cerebral Palsy, and sometimes my body does not respond the way I want it to and my motor skills do not always work as well as I would like. My favorite subjects in school are history and mathematics; I'm actually skipping to a higher math class next year to work on polynomials and other very difficult math concepts. When I graduate, I want to go to college to study math and have a career as a mathematician or in another math-related field. I also like to read and play video games.

DO-IT Ambassador Profile: Using Assistive Technology to Increase Independence

by *DO-IT Ambassador*, Sarah

Hi, I'm Sarah and this is the story of how I gained assistive technology and self-advocacy skills that assisted me in going to college. I have a genetic disability called Fibrodysplasia Ossificans Progressiva (FOP). This is a progressive disease that turns my muscle into bone, so as I get older I loose mobility. Although FOP has restricted my mobility, I have a number of hobbies and interests: crafts, reading, watching TV/movies, shopping, playing on the computer, singing, and furthering my education. I enjoy being creative and make a number of crafts including pencil holders, which I sell. I love to go with my friends to the mall, and love singing in a choir, which I have done for many years. Singing is a good way for me to exercise, especially my diaphragm, since my lung capacity is restricted due to FOP.

Computers have always been a great way for me to explore things, and playing on the computer is one of my favorite hobbies, as well as a big part of my college educational experience. I use a regular computer with some adapted input devices. I use wooden dowels to type, a mini trackball mouse, a mini keyboard, and, when I need it, I use word prediction software. I enjoy being on the computer, particularly playing on the Internet. I think this is because I am so independent on the computer. Once I am set up with my keyboard, sticks, and mouse, and the computer is on, I am independent and can go nearly anywhere in the world I choose.

I joined DO-IT in my sophomore year of high school, and went to my first Summer Study that same summer. DO-IT provided me with a computer and new assistive technology to use it. I participated in my second DO-IT Summer Study the next summer as a Phase II *Scholar*, and the following year, before I started college, came back as a Summer Study Intern. DO-IT taught me a lot: how to ask disabled student services for accommodations, how to meet with professors to work out accommodations, how job interviews work, and how to write a resume, to name a few. I learned more personal things too, like how to ask for help when I need it, even if it means asking a

stranger. On top of all that I got some great experience working with, and managing my personal care attendants, which was really important once college started.

Currently, I am in my second year of college. The summer before I started school, my family and I, using many of the things I learned through my Summer Study experiences, worked with various agencies and my college to figure out how attendant care would work while I was at school. The self-advocacy skills I had learned really came in handy in this process. The university made accommodations to a dorm room so I could live on campus, and had everything ready by the start of my freshman year. We worked out a plan that allowed me to have someone with me all the time, either an attendant or a parent. My dorm room was remodeled with accommodations that included a padded toilet seat, and a roll-in shower. My automatic door has a push button inside, and is card- activated outside; inside, the push button is at just the right height for me to bump with my wheelchair and open the door. I love living on campus, it allows me to have a social life outside of class.

Being in college has been a great experience for me so far and the assistive technology I use has really made doing my schoolwork and being independent a million times easier for me. I am studying Spanish with plans to have a career as a Spanish interpreter in a hospital. I even take classes over the summer like anatomy and physiology, which keeps me very busy. I also have plans to take a course on translating and interpreting that is offered at the local community college. Thanks to my own determination and hard work; great support from family, friends, and DO-IT; and assistive technology that allows me to be independent, my future looks bright!

DO-IT Staff Profile

by Val Sundby

Hi, I'm Val Sundby. I have worked for DO-IT in many different capacities since 2000 and am currently a Program Counselor/ Coordinator. I graduated from the University of Washington with a Bachelor of Science degree in Cell and Molecular Biology in 2002 and am now pursuing a graduate degree in Educational Policy and Leadership.

Because of my background in science, much of my time at DO-IT is focused on helping science teachers make science classes and labs more accessible to students with disabilities. I also work with students who are interested in pursuing education and careers in science, develop regional and national partnerships with other organizations interested in science accessibility, and coordinate aspects of DO-IT Summer Study.

Outside of work, I enjoy horseback riding, traveling, spending time with friends and family, and anything outdoors!

2006 Trailblazer Awards

by DO-IT Staff, Michael Richardson

DO-IT Trailblazer awards highlight DO-IT community members who have forged new pathways which will benefit others. For this award we have selected individuals who, through their work and accomplishments, have changed the way the world views people with disabilities and their potential to succeed in challenging careers and activities. The 2006 recipients of the Trailblazer awards are:

Imke Durre, Ph.D., Scientist, DO-IT Mentor

Imke was selected as a Trailblazer for accomplishments in increasing public awareness of the positive contributions of people with disabilities and providing a strong role model to students with visual disabilities. Specifically,

- Imke is a terrific role model as a person with a disability in a challenging science field and a strong advocate for increased participation of people with disabilities in science.
- She is active in DO-IT's electronic mentoring community, providing keen insight into accessibility, educational, and employment issues.
- Imke delivered a series of disability awareness presentations for first grade children through the DO-IT Show and Tell program, showing youngsters how people who are blind use technology to communicate, gain knowledge and pursue college studies and careers.
- She won the Washington Post-Secondary Education and Disability 2000 Outstanding Student Award.
- Imke served on the advisory board for producing the 4th edition of the AAAS Directory of Scientists and Engineers with Disabilities and served as the National Climatic Data Center EEO/Diversity Committee for 2 years (2003-2005).

Julie Peddy, National Oceanic and Atmospheric Administration (NOAA) NW Fisheries Science Center, Program Manager, DO-IT Partner

Julie is recognized as a Trailblazer for accomplishments in integrating youth with disabilities in service learning programs and promoting the employment of people with disabilities in science fields. Specifically,

- Julie coordinates job shadows and internships for DO-IT students and tripled the number of interns with disabilities hired by the NOAA nationwide from 2005-2006.
- She arranges disability awareness trainings for nationwide NOAA staff, and supports interns, supervisors, and mentors throughout all NOAA locations.
- Julie is involved in national efforts to increase the number of students with disabilities in challenging careers by participating in programs such as EntryPoint!, the Access Job Fair, the Youth to Work Coalition, and the annual Job Accommodation Network Conference.
- She has arranged workshops for the DO-IT Summer Study and has coordinated NOAA volunteers to help facilitate web design courses and participate in employer mock interviews with the *DO-IT Scholars*.

Tech Tips: Seeing Pictures

by DO-IT Staff, Dan Comden

How do blind people "see" pictures? The same way many of them read text – through their fingertips. However, traditional creation of tactile graphics is a time consuming and laborious process. Delivering images from textbooks to blind students has meant hours of editing and creating Braille labels to replace print text. Simple images may be created in ten or fifteen minutes; complex images may take many hours. The *Tactile Graphics Project* at the University of Washington, which is funded by the National Science Foundation (grant #IIS0415273) has created software called the Tactile Graphics Assistant (TGA) to greatly speed this process, achieving processing rates under five minutes per image.

The software developed is taught to recognize text within sample images. Rather than use Optical Character Recognition (OCR) technology, the program looks at font size, color, and shape to determine what is text and what is part of the drawing. OCR programs do a poor job at recognizing text that is part of or near an image. Machine learning is at the core of the TGA program and allows for batch processing, executing a series of non-interactive jobs all at one time, once the basics of recognition are learned.

The TGA software then removes the picture of the text, retaining the location information from where it was grabbed. It places the imaged text in a separate graphics file. This file can then be processed with standard OCR software with much greater accuracy. The user can then convert this recognized text to Braille, preparing it for reinsertion. Custom scripts, small software programs that function on the Internet, used in imaging software such as Adobe Illustrator™ can then use the location information retained when the print text was removed to reinsert the Braille in the appropriate position. Finally, the tactile specialist can then do any minor editing necessary before producing the graphic on an output device like an embosser, a hardware device for "printing" a hard copy of a text document in Braille.

This exciting project is the result of a combined effort between a number of UW departments including the Access Technology Lab, DO-IT, the Information School, and the Department Computer Science and Engineering. Dr. Richard Ladner, A UW computer science professor, is the Principal Investigator. We are hoping that this process will be used in future production in tactile graphics shops around the country, resulting in greater access to graphic scientific and math information for students who are blind.

More information about the Tactile Graphics Project can be found at *http://tactilegraphics.cs.washington.edu/*.

The Thread: Stereotypes

by DO-IT Director, Sheryl Burgstahler

A *DO-IT Scholar* recently posed the following question within our Internet discussion forum. I will share with you some of the responses so that you can get the flavor of the many rich conversations the DO-IT community has online.

Just out of curiosity, what are some typical stereotypes that you hear about people with disabilities?

DO-IT Ambassador: *The #1 stereotype I've come head-to-head with is people thinking I'm mentally challenged just because I am physically disabled. Sometimes they talk down to me. I hate this, but if I'm not going to see them again, or not see them daily, I quietly let it pass. This stereotype is so demeaning. When I was in middle school and high school I got very upset about this. Disabled people often have to prove themselves worthy of respect, and that's not fair. We have to work harder at everything else—why should we have to work harder at getting the respect we need and deserve? Often, this stereotype leads to alienation and isolation; then it can cause depression...*

DO-IT Scholar: *I have also had to face the stereotype of being mentally challenged because of my physical disability. But for me, I have also had to endure people calling me a "faker" because I can walk for short distances. I had to endure that through most of high school.*

DO-IT Ambassador: *Yes, I get the developmentally disabled label ALL the time, and I'm used to it. All I can do is keep going back to that coffee shop, grocery store, or wherever and people quickly realize that I'm not the stereotype. If people say more than two words to me, they get it, but if I'm never going to see them again, why bother, unless it's so blatant that I have to address it.*

I also find it helpful to dress nicely in professional attire. This makes people think before they speak. If I'm running around in my jeans with holes I get stereotyped more frequently as being unemployed and living off the system. My two favorite uninformed things that people say to me are, "They let you out?" and "Where's your care giver?"

The stereotype I find most annoying is the reaction I get when I ride the bus. When I get on the bus, because I am in a wheelchair, people tend to roll their eyes and scram to the back of bus think-

ing I will delay the bus and run into them. To their surprise, I get on and get situated in 90 seconds or less without running into anything or anybody. There are times I have seen wheelchair users take 20 minutes to get on the bus, hitting everything, and not paying bus fare so, to a certain extent, I understand people's reactions.

There are many more examples, but the thing I've found most helpful in dealing with stereotypes is not to let it bother you and continue being persistent. The more people see you out living life the less stereotyped you get.

DO-IT Scholar: *Although I have Cerebral Palsy, my community has been quite welcoming to me.*

DO-IT Ambassador: *Just out of curiosity, have you lived in your community for a while? From my personal experience, I guess I get stereotyped when I'm somewhere new. For example, it took 3 months in San Diego for people to be less obvious with their stereotyping and more or less a month in small town Michigan. I'm not sure if it's true, but my experience has been that in small towns it's easier to overcome stereotypes, probably because you see the same faces everyday.*

DO-IT Ambassador: *As a person with Cerebral Palsy I get stereotyped frequently. People will have the notion that I am a mentally challenged or a drug addict! I get stereotyped more often if I wear a t-shirt and jeans than if I wear a dress shirt and slacks. Sometimes it can be really subtle and sometimes it is down right obvious. Once, in California, I was walking along to catch a bus wearing a t-shirt, shorts and sandals. I noticed a father and a son coming towards me on the sidewalk. The son was walking along the curb and the father was walking closer to the shops. The father saw me, and he quickly switched positions with his son. I just passed him and went on with my errands without addressing the issue.*

***DO-IT Scholar* (who originally posed question):** *Has anyone ever experienced people saying anything like "Because you're blind, you spill things and cut yourself more" or "Blind people feel everything"?*

DO-IT Ambassador: *I think I face a lot of stereotypes as a visually impaired person. First of all, people seem to think that I can't hear just because I am visually impaired. They will start touching me while I am walking around. I guess they think I will not be able to hear them when they give me instructions. Others assume that I can't cross roads correctly just because I can't see. They will tell me when the light has changed and that it is my turn to go. Sometimes, they don't even know if I am planning to cross the road. There are a considerable number of people who automatically assume that I am going to accept their assistance. The real truth of the matter is that I don't generally put my trust in the hands of strangers. If I need any kind of assistance at all, I would rather it come from someone such as the state commission for the blind, a college instructor or counselor, an employee at a business, such as a restaurant or hotel, the transit office, or a bus or cab driver.*

DO-IT Scholar: *I've faced stereotyping by kids and even teachers. They think just because I'm physically challenged I cannot do a lot on my own. They also think that because I sometimes struggle with my schoolwork I'm mentally challenged, despite the fact I have nearly a 3.0 GPA.*

DO-IT Ambassador: *The stereotype I find most interesting is when you have no physical disabilities and seem perfectly "normal" and try to tell people that you have learning disabilities. Most people laugh at you and tell you to quit whining or make some sarcastic remark. I also find it interesting that if people ever see depression or a bipolar mood swing they will tell you to get over it, that you are faking it for attention, or that you are crazy and should get help. People's lack of understanding and education about disabilities never ceases to amaze me.*

DO-IT Ambassador: *I've had many of the same experiences; well said.*

DO-IT Ambassador: *For me, people tend to assume that my wife is my caregiver, my sister, or just a friend. They treat me differently when they find out she's my wife! Last summer, we went to the zoo and my wife dropped me off with our 9-year old nephew to get tickets while she parked. Remember, I'm in a wheelchair and have unclear speech. The cashier had the nerve to tell us we needed an adult with us...I'm 32! He even called security to find out what to do. He finally let us in, but my wife chewed him out when she got there and found out what happened. Even if you might not ever see the person again, say something if appropriate. You may prevent someone else from being treated the same way.*

DO-IT Mentor: *When I was 15 (and still walking) I would hang out with my sister (who uses a wheelchair) and her baby. Even though my sister was older than me, had a wedding band (which is not necessarily, but could be a clue), and was the person actually carrying the baby, people would always ask ME about MY baby. I always thought "Goodness gracious! I'm only 15 and I can't even keep a goldfish alive! Why do people think that I could do any better with a baby?" I suppose there are a lot of young mothers, but I don't know why people assumed that just because I walked and my sister didn't that I was the mom—not her!*

DO-IT Scholar **(who originally asked question):** *Thanks for that one. I forgot about people thinking you can't take care of babies. Blind people get that one sometimes too. Doesn't make any sense.*

DO-IT Ambassador: *It is just funny (in a sad way) how far off people can be even if the truth is staring them in the face!*

The Browser: Calendar of Events

For a schedule of conferences of interest to our readers, go to http://www.washington.edu/doit/Newsletters/calendar.html

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