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DURHAM, NC  
PERMIT NO. 261

Issue 4 September 2004



*The Newsletter of the*

**SHODOR EDUCATION FOUNDATION, INC.**

*1994- Celebrating 10 years of Service in Education Reform-2004*

STUDENT ENRICHMENT

CURRICULUM MATERIALS

FACULTY DEVELOPMENT

## Shodor Partners with Countywide Youth Program

By Ellie Grano, Mentor Center Intern Junior at  
NC State University,

Every summer dozens of rising 8th graders spend a week as interns at various businesses in Durham County, placed according to each student's specific interests. Youth Looking at the Future Today (YLFT), created in 1992 and sponsored by Durham Public Schools and the Durham Chamber of Commerce, aims to expose students to potential careers. On Monday, June 14th, few students care to Shodor to experience life as a Mentor Center intern.

Shodor has participated as a business host for the YLFT program since 1996.

Every year we try to introduce the students to a variety of projects from programming to graphic design to writing and beyond. With this variety, students are more likely to find something of interest to them. The result is a win-win situation. We at Shodor get to meet bright, young students who may be interested in becoming long-term interns, while the students can make connections for possible job opportunities in the future. As an example, I was introduced to Shodor as a middle school student in the YLFT program in 1997 and began working as

an intern in 2003.

This summer the YLFT students began their week at Shodor learning HTML. They used this knowledge to create their own web pages. The students wrote about themselves and their week at Shodor on these pages. In addition, they learned how to add color, pictures and links, and make tables and lists for their web-sites. This was a weeklong activity that reflected the students' personalities as well as some of the work we do at Shodor. The other long-term project for the week was an introduction to the

program Flash. With this tool, each student made short, creative animations. This was the first year we attempted this project, but it generated so much excitement from the students that it will not be the last! The students were also shown how to link these animations to the web pages, connecting these two projects. To view the web pages they created, as well as their Flash animations, please visit

<http://www.shodor.org/ylft>.

The YLFT students were also introduced to the idea of computational sci-

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## Great Developments

Shodor would like to welcome new staff members Patricia Jacobs and David Hillman. Patricia, a graduate of NC State University, come to us from Nortel and will be working on software quality assurance. David, a recent graduate of UNC-Chapel Hill, will be working on NCSI. We would also like to recognize visiting staff member Pat Carstensen, Ph.D., who played an integral role in our programs this summer.

Shodor would like to say "Good Luck!" to David Joiner, Diana Tanase, and Cornelia Seiffert as they "graduate" from being full-time staff to their new status as distant collaborators. Dr. Joiner has accepted a position as the Asst. Professor of Computational Mathematics at Kean University in New Jersey. Diana will be pursuing her doctorate degree at the University of Westminster in London. Cornelia, will be in England as well, working for Earthwatch Europe while her husband pursues his post-doctoral work at Oxford University.

Elon University's Computing Sciences Department was recently awarded scholarship funds from the National Science Foundation as part of the Elon New Century Scholars program, designed to attract more women from the Elon student body into computing sciences. Shodor was an integral part of the proposal and will provide undergraduate internship opportunities for the New Century Scholars.

Steven F. Austin State University has been awarded a NSF grant to convert science related ASL videos to 3D formats to improve deaf education in computational science. SFASU will be working with Shodor staff, using materials already developed under Project SUCCEED-HI.

## Shodor Staff

President & Director Robert M. Panoff, PhD	Computing Science Mentor Patricia Jacobs, MA
Mathematics Educator Bethany Snyder Hudnutt	Mathematics Educator Matt Lathrop
Engineering Educator Garrett Love, PhD	NCSI Program Assistant David Hillman
Administration Joyce South	System Administrator Michael Stabosz
Computational Science Educator Kent Robertson	Visiting Scientist Valerie DeBellis, PhD
Computational Scientist Matt DesVoigne	<b>International Staff</b> Cornelia Seiffert, MA Diana Tanase, MA

Interactions is a regular publication of the Shodor Education Foundation, Inc. To be added (or removed) from our mailing list call (919) 286-1911 or email [moreinfo@shodor.org](mailto:moreinfo@shodor.org)

# Shodor Interns Emeriti: Where are they now?

By Allyson West, Teacher at Orange Charter School, Graduate of Northern High School and Appalachian State University

While most people have to look for Shodor, I accidentally stumbled on to it one day at breakfast with my neighbors. Originally a Durham native, a graduate of Northern High School, I was surprised to learn about the existence of an education foundation on Broad St. — having never before noticed the squat brick building with a white sign out front. While discussing Shodor, it turned out that my present calculus professor, Holly Hirst, was a member of Shodor's Board of Directors.

This interaction set me on the path of exploring the possibility of obtaining an internship at Shodor since it seemed to me that we were a well-matched pair. While attending school at Appalachian State University in the fall, I started doing some work for Shodor via the web. The following summer, while I was at home in Durham, I worked as an intern at Shodor. That summer turned out to be the beginning of a long, happy relationship. Since 2000 I



Allyson helps a student design an airfoil.

have come back to intern with Shodor each summer. During my time at Shodor I have performed a variety of tasks ranging from web development to educational content development.

Whether it is learning how to program in PHP or a new technique for teaching, every summer spent at Shodor teaches me something new.

My favorite part of working at Shodor, other than the

atmosphere and the people, are the summer workshops I teach for middle school students. I often take the material I teach in these workshops and modify it to fit into my classroom curriculum.

I am currently teaching 6th, 7th, and 8th grade science at Orange Charter School in Orange County. Having developed many lesson plans specifically designed for the SUCCEED workshops, it is really fun to try these lessons in my classroom. Shodor has helped me gain confidence not only in my computer skills but also in my teaching and math skills as well. Currently I am planning on teaching for one more year at Orange Charter then returning to school to obtain my Masters in Physical Therapy.

## SUCCEED Fall 2004/Spring 2005 Calendar

Event	Dates	Times	Grade Levels	Workshop Fee*
Saturday Explorations in Science & Math	Oct. 9, 16, 23, 30, Nov. 6, 13	9am-Noon	6-8	\$175
Saturday; Explorations in Science & Math	Spring TBA	9am-Noon	6-8	\$175

\* Full and partial financial assistance is available: no qualified student will be turned away for financial reasons

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## Countywide Youth Program

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ence. Using the modeling program Stella, each student made a different simulation, including a model of the circulatory system and one of a restaurant business. In addition, they each sat in on one day of our weeklong workshops, taking pictures and writing overviews of the days activities, which were placed online on the workshop webpage. At the end of the last day, the students made a PowerPoint presentation and presented their work to an audience of Shodor staff and interns.

Through these activities the students were able to interact with many current interns, thereby gaining a better understanding of what it might be like to work at Shodor. We hope that through this program the students learned not only about Shodor, but also about themselves and will now have more knowledge to make informed decisions about their own futures.



Two YLFT students building their web page



## Team Interactivate

By Mentor Center Interns Omar Awan and Leigh Phillips (entering UNC-Chapel Hill) and Tomas Barreto (entering Duke University) all recent graduates of Enloe High School

As summer time rolls around, countless high school and college age kids scramble to find jobs that will earn them a little spending money as well as some valuable work experience. For

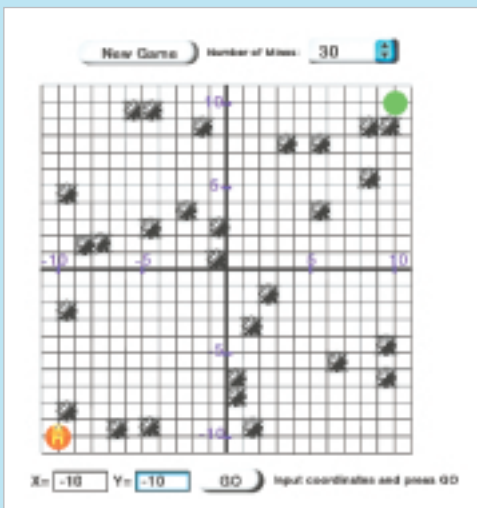
the past few summers we, along with other programmers and content developers, have struck the jackpot. Not only do we earn a significant amount of money for college, but we also get to work with highly qualified scientists and professionals on grant-funded projects.

As interns in the Mentor Center @ Shodor, young programmers such as ourselves have the opportunity to intellectually engage in projects including dynamic web programming, graphical interface development, and scripting java applets, all under the insightful guidance of Shodor staff scientists. This summer the main focus of our team was to make

sure the updated Interactivate site ([www.shodor.org/interactivate](http://www.shodor.org/interactivate)) was ready to go live by the end of the summer. The task consisted of going through many of the applets to debug, implement, and test many new features, as well as completely recoding some applets while learning to use new functions. With many problems arising from on-going changes to Java and web browsers, we had to work diligently to meet deadlines and come up with solutions.

Some examples of the products that we have worked hard to produce and debug this summer include Venn Diagram Shape Sorter ([www.shodor.org/interactivate/activities/venndia](http://www.shodor.org/interactivate/activities/venndia)), Simple Maze Game ([www.shodor.org/interactivate/activities/pmaze](http://www.shodor.org/interactivate/activities/pmaze)), and Data Flyer ([www.shodor.org/interactivate/activities/flydata](http://www.shodor.org/interactivate/activities/flydata)).

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Try your hand at the Simple Maze Game:  
<http://www.shodor.org/interactivate/activities/pmaze>

## Nothing is Better Than Working at Shodor

By Adam Playford, Mentor Center Intern, Senior at Riverside High School

I came to Shodor for a job. It was that simple. I needed money unless I wanted to trade in my car for the equivalent of the Flintstone-mobile. Equally important was filling the 'work experience' line-item on my college application. Some time at the start of junior year, your fantastic progress on building a rounded college application seems to disappear in the middle of the night, since whatever you already have suddenly isn't enough to get you into that college. So I applied to Shodor. And what about a summer internship? I didn't especially feel like working through the summer

All of the above is because of the effort of those who've carefully and caringly planned a fantastic working environment in which teaching and learning are intertwined.

(who does?), but I also didn't have anything better to do.

Fast-forward a few months. I'm eating with a coworker from Shodor on 9th Street, scarfing down New York style pizza, talking shop between mouthfuls and generally making my stomach wish for a more responsible owner. Between bites, my friend pipes up. "You know, I can't think of any-

where better to work than here. Well, Google. But nothing else."

I'm hard pressed to argue with him. One of our interns did just get an internship with IBM, and that sounds pretty cool, but I can't think of anywhere else I could do all the things I've done at Shodor.

What happened in those few months? I taught myself a new programming language, PHP, picking up a generally useful (and marketable) skill that I've already had several chances to use outside of work. I helped teach two week-long workshops for middle school students and then took an intern training course to further develop my teaching skills. I took a different class on scientific program-

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## Ten Years and Counting

By Robert M. Panoff, Ph.D.  
President and Executive Director

Earlier this year, I talked about how every day from now on will be the 10th Anniversary of something in Shodor's history. Many of the milestones have come and gone and we are well into our next ten years with significant momentum. As you can read on these pages, many of our interns continue to make great strides in maturing to be young scientists and teachers. This year we graduated two more high school teachers-Mike Thuente and Susan Edwards- who join Rob-bye Fielden and Allyson West among our illustrious Interns Emeriti in this noble profession. Others have graduated from college and are working in a wide variety of fields, and others are continuing in grad school. A measure of our success is the number of interns who come back year after year, and who contribute so much to the formation of their younger colleagues.

We have also "graduated" our first post-doc to a full faculty position as Dave Joiner is now an assistant professor at Kean University in New Jersey. I would like to thank him for his significant years and service at Shodor, and welcome him now as a colleague with whom we will be collaborating for many years to come.

Our work in the area of materials development and national service is continuing to grow as well. We expect that this fall will see a significant jump in usage in schools and homes across the nation and world as more and more districts and parents and students themselves discover the value of our high-quality, interactive explorations and tools. We are currently working with the Division of Undergraduate Education of the National Science Foundation to bring our Computational Science Education Reference Desk (<http://www.shodor.org/refdesk>) into full partnership with the National Science Digital library (<http://www.nsdlib.org>) as a Pathways Project.

We have had a busy summer as you can read in this edition of Interactions. Besides the local impact of the Mentor Center@Shodor, nearly 400 college faculty signed up for 18 workshops that our National Computational Science Institute conducted across the country. In addition, Shodor staff assisted with the content and instruction in workshops sponsored by other organizations in California (parallel computing), New York (system modeling), Tennessee (agent modeling), North Carolina (mathematics) and Illinois (visualization).

Ten years and counting. And we are counting on you. In the coming months, in order to put Shodor's future on a more secure financial footing given the on-going uncertainty in grant-based funding, we will be exploring ways to grow and strengthen our board of directors and the establishment of an endowment. We will also have to make decisions on where "Shodor will be Shodor" as we look for additional space for all of the interns who want to be part of our dynamic learning environment. All of this will require new thinking and community support to provide a safe and appropriate place for Shodor to grow and put down roots. I thank all of you and each of you for ten wonderful years (so far!) and hope we share many more to come!

# Nothing is Better Than Working at Shodor

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ming, taught by a staff member who used material from the college course he'll be teaching next year. While I spent the morning learning. I taught in the afternoon helping with a class for interns who wanted to learn about dynamic web design. To me, the last stands out as the embodiment of Shodor's atmosphere. At the start of the summer, I struggled to learn PHP by myself; by the end, not only was I fluent in the language, but I also had the opportunity to help Shodor's other interns so that they did not have to struggle quite as much. Many have now gone on to PHP projects of their own that amaze me, discovering in weeks what took me months.

I'd like to say that all of the above is because I'm a super-intern, but that would be a lie. All of the above is because of the effort of those who've carefully and caringly planned a fantastic working environment in which teaching and learning are intertwined.

Shodor is a job, first and foremost – at some point, you have to sweep floors (literally as well as metaphorically) – but the genuine effort put into developing and teaching interns separates Shodor from other organizations. Sometimes I wonder if I'm an employee or more like another customer, similar to the middle school kids I taught. Perhaps it's a bit of both.

In a few weeks, I go back to school, and I haven't gotten to spend quite as much time chillin' or shooting hoops or working out as I wanted to. No matter – I wouldn't trade the last few months for the world. I don't know if I was a good deal for Shodor. But Shodor was surely a steal for me.



Adam assists a student during the Forensic Science workshop this summer.

If you are interested in being an intern at Shodor or attending a SUCCEED workshop, then contact Matt Lathrop by phone at (919) 286-1911 or by email at [moreinfo@shodor.org](mailto:moreinfo@shodor.org)



In an active example of cooperation, students link hands before attempting to untangle themselves.

## Team Interactivate

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One important factor in the success of the team concept, which Shodor stresses, is the ability to work together effectively. We have been able to develop our collaboration skills by not only working with each other, but with other members of the Interactivate team, such as Jacob Fraimow (Durham School of the Arts), Ellie Grano (NC State University), Greg Rubinstein (Chapel Hill High School), Wendell Wilson (North Carolina School of Science and Math), Susan Edwards (recent graduate of Meredith College), Ben Philbrick (recent graduate of Jordan High School), Ryan Niedzialek (UNC Chapel Hill), Emily Mitchell (Meredith College), and Allyson West (teacher at Orange Charter

School). We have become a group of friends with individual skills that we share with each other. Together we can combine our analytical thoughts and tenacity, which enables us to expand our own skills while at the same time finishing projects in a timely, efficient manner.

Overall working at Shodor has been an invaluable experience that has enriched us in many ways. We have learned the value of technology in the area of teaching and as well have had an opportunity to contribute to the learning process for many younger students. The skills we learn as interns at Shodor will help us in building our future as well as helping others in the field of science and education.

If you are interested in being an intern at Shodor, then contact Mentor Center Director Matt Lathrop by phone at (919) 286-1911 or by email at [moreinfo@shodor.org](mailto:moreinfo@shodor.org), or apply online at <http://www.shodor.org/mentorcenter/>