

Development of the Science Gateways Community Institute Workforce Development Documentation and Communication Site Pages

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Elizabeth City State University

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ABSTRACT

The Center of Excellence in Remote Sensing Education and Research (CERSER) program on the campus of Elizabeth City State University is part of the Science Gateways Community Institute (SGCI) led by the San Diego Supercomputing Center (SDSC). SGCI was created to provide resources, expertise, community support, and education to the creators of gateways serving science and engineering research and education. SGCI is one of two Scientific Software Innovation Institutes funded by the National Science Foundation (NSF). SGCI was created to provide a resource that would bring together gateway creators from a wide variety of fields of research providing technologies and strategies so that designers can focus on development needed by their specific user communities.

ABSTRACT

SGCI is divided into five sections: Incubator, Extended Developer Support, Scientific Software Collaborative, Community Engagement & Exchange, and Workforce Development. Dr. Linda Hayden, the CERSER Principal Investigator, leads the Workforce Development Section. The Workforce Development goals are to increase the development pipeline of science gateway young professionals and educators with an emphasis on increasing involvement of students from underrepresented groups.

ABSTRACT

Documentation and communication with Workforce Development participants have been divided between during the first years of this project between the web site maintained by CERSER and the site utilized by the SGCI team. The goal of this year's undergraduate research project was to consolidate these pages with the SGCI site where the server now has a dedicated space to construct this set of pages. Utilizing HTML and graphics packages, the team developed content within the Liferay Content Management System utilized by SGCI.

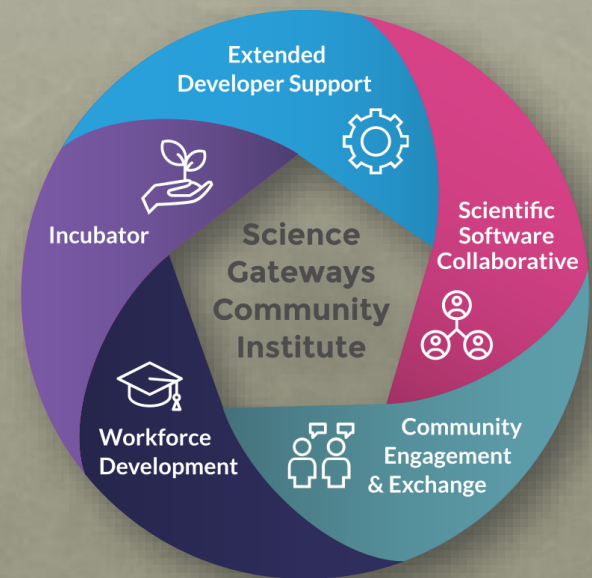
SCIENCE GATEWAYS COMMUNITY INSTITUTE



Science Gateways
Community Institute

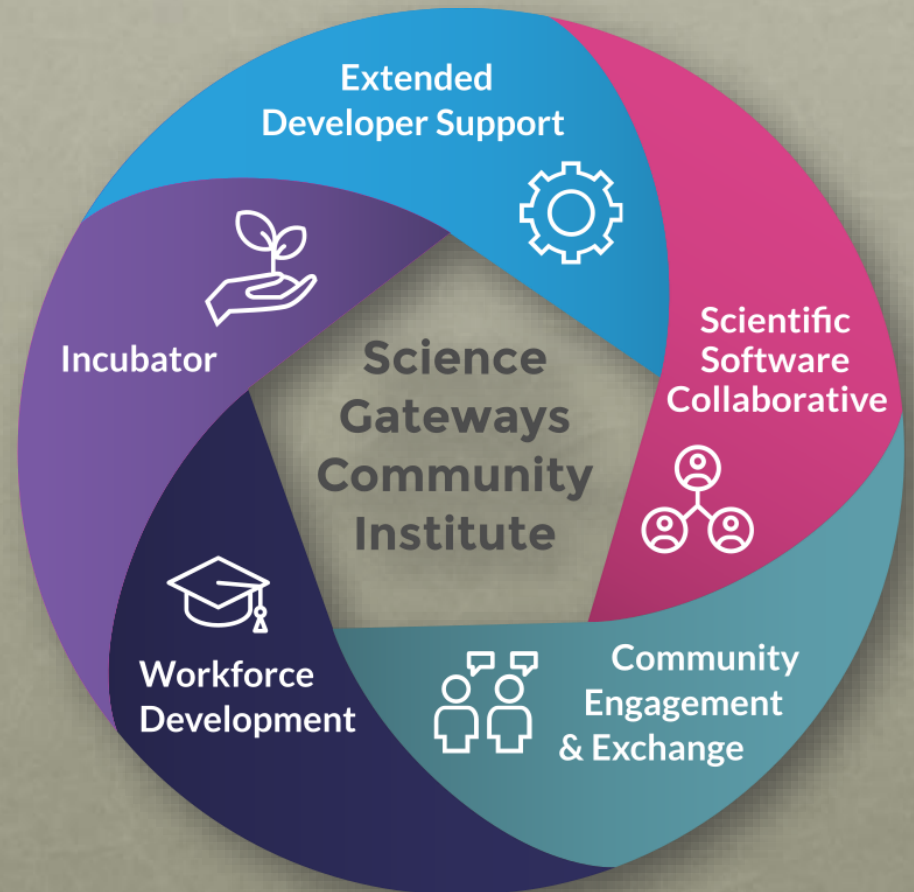
SGCI

- Science Gateways Community Institute
- Five components
 - Incubator
 - Extended Developer Support
 - Scientific Software Collaborative
 - Community Engagement and Exchange
 - Workforce Development



SGCI WORKFORCE DEVELOPMENT

- Workforce Development
- Leadership
- Student Opportunities



SOFTWARE AND LANGUAGES

CONTENT MANAGEMENT SYSTEM

- CMS
- Used to create, manipulate, organize, and publish content
- Permits for multiple users to develop content at once



LIFERAY

- Development
- Content Management System
- Usage



HYPERTEXT MARKUP LANGUAGE

- HTML
- First developed in 1993
- Structure
- Tags `<tag>`



CASCADING STYLE SHEETS

- CSS
- Usage

CSS



METHODOLOGY - GOAL

- CERSER to SGCI
- HTML to Liferay
- Responsive Redesign



INITIAL MEETING

Representatives

- Nancy Wilkins-Diehl (Director, SGCI)
- Katherine Lawrence (Associate Director, CEE)
- Linda Hayden (Associate Director, WD)
- David Montoya (Website Development, SSC Staff)
- Nayiri Mullinix (Community Engagement Coordinator)
- Jeff Wood (WD Staff)

INITIAL MEETING

Initial outline:

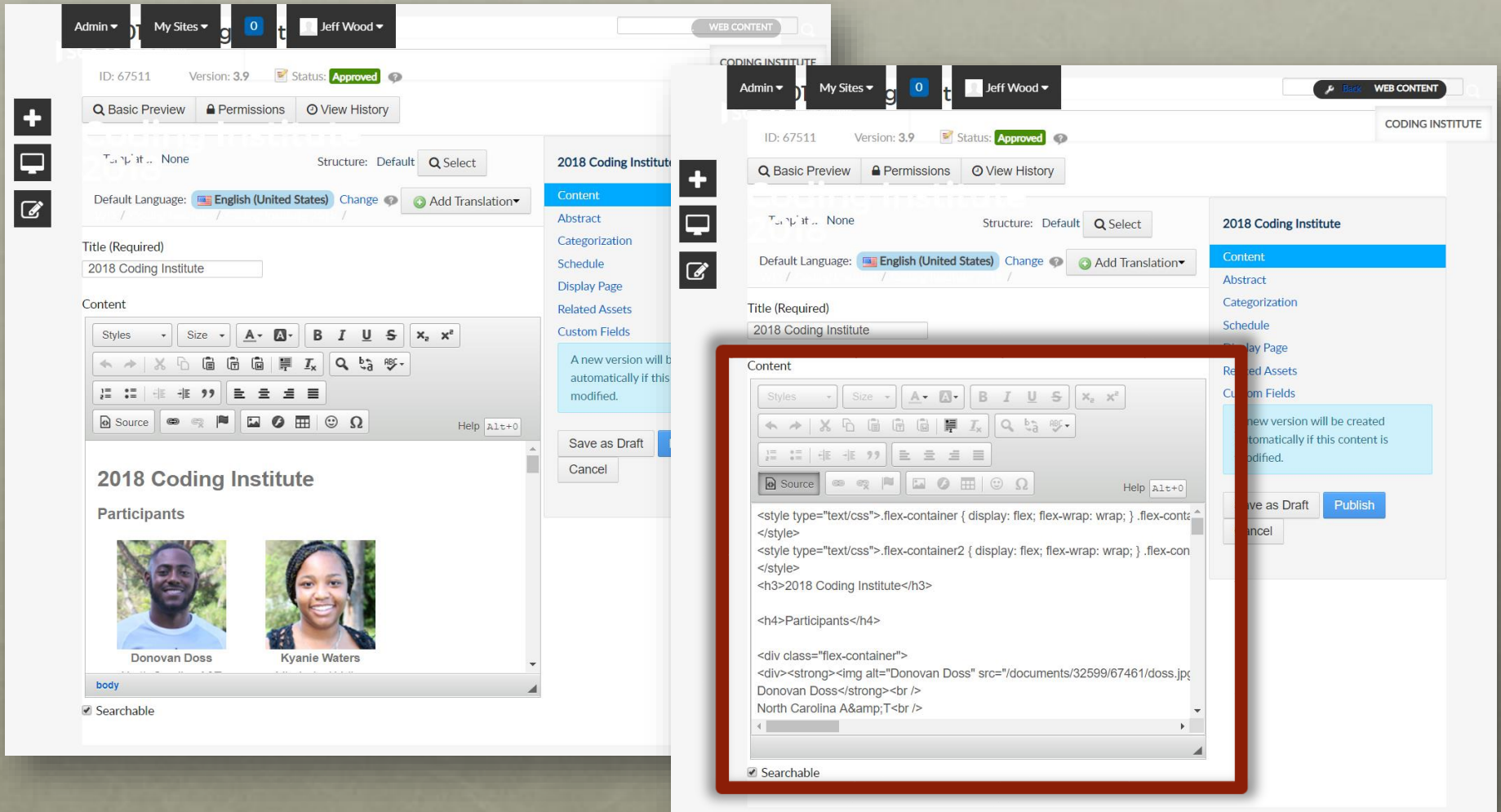
1. Young Professionals Network
 - a. Young Professionals Network
 - i. Mentoring
 - ii. Special Events
 - b. Events (Set up like Blog/News)
 - i. Young Professional of the Year Award
 - ii. YPN Liaison/Spotlight/Webinars
 - iii. Mentoring
 - iv. Special Events
2. Events Workshops
 - a. From CERSER menu
3. Internships
 - a. About
 - b. Application
 - c. Current & Past Interns
4. Coding Institute
 - a. Application
 - b. 2017
 - c. 2018

REWRITING PAGES TO HTML CODE

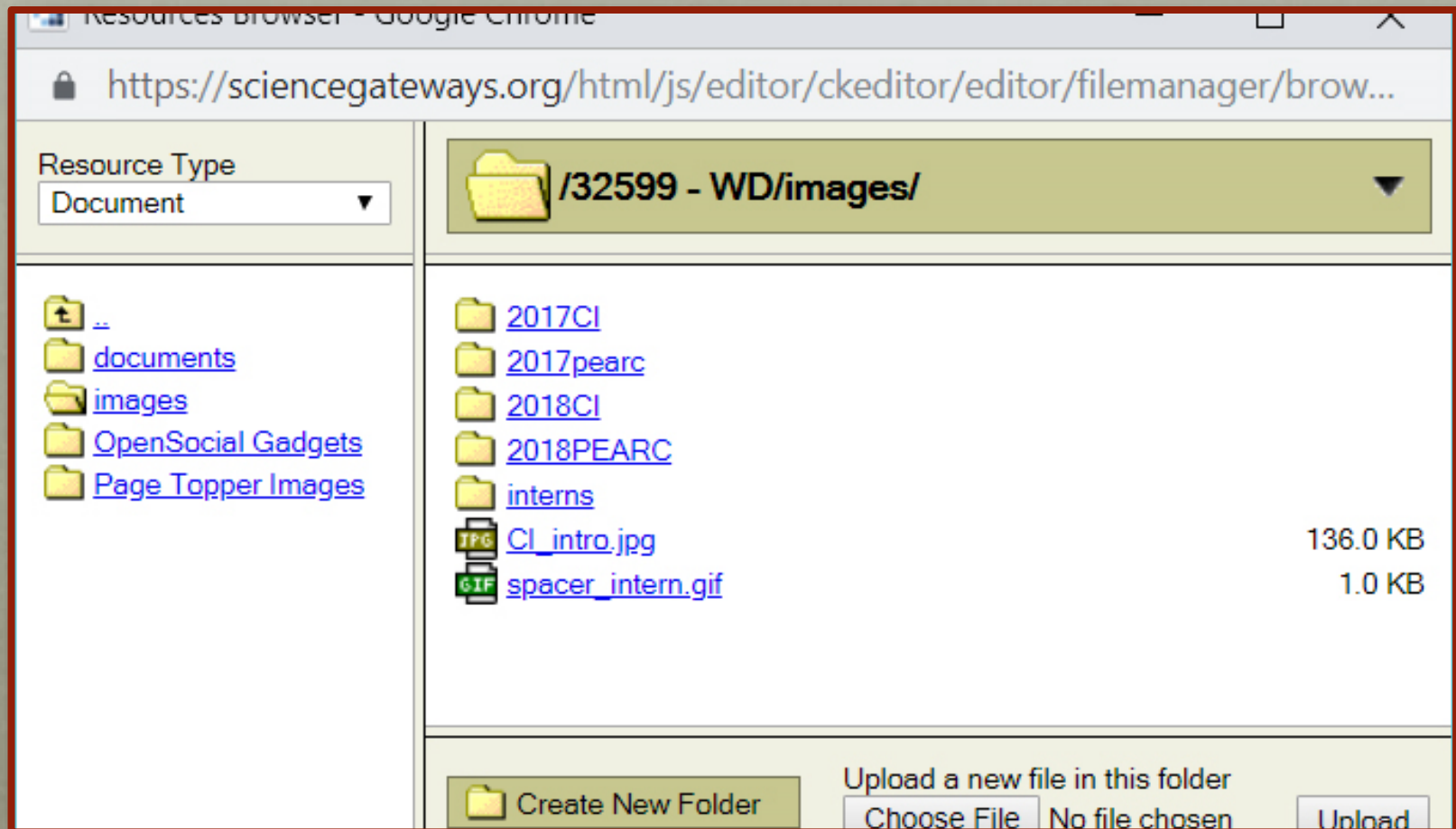
- HTML Tutorials
- CSS Tutorials
- Code Rewrite
- Testing in Liferay



HTML TO CMS



OTHER ASSETS



ASSET MANAGER

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SGCI Science Gateways Community Institute

HOME YOUNG PROFESSIONALS NETWORK EVENTS **INTERNSHIPS** CODING INSTITUTE


Current and Past Interns

WD / Internships / Current and Past Interns /

About

Applications

Current and Past Interns



Yuexi Chen

Intern at: University of Maryland

David Fushman, UMD

[Resume](#)

[More](#)

I dedicated myself to interdisciplinary research when I was a sophomore at the University of Science and Technology of China (USTC). At that time, I was an engineering major and worked in a computational lab that used mathematical and physical models to help experimentalists to explain experimental phenomena and reveal mechanisms. Unsatisfied about only developing explanatory models, I switched my interest to computational biochemistry when I was a senior, hoping to develop predictive models to better assist researchers to design experiments.

At the University of Maryland, I'm advised by Prof. David Fushman, a structural biologist, and Prof. Max Leiserson, a computational scientist and computational biologist. In Prof. Fushman's lab, my research focuses on studying the conformations of proteins via the integration of different NMR data. In Prof. Leiserson's lab, I develop algorithms to study peptides presented on cell surfaces (antigen presentation), and work on missing link prediction methods for biological networks. I study different proteins in both labs, but the major goal is unified: help experimentalists to integrate experiment data from different sources to gain insights into biological interactions.

Gradually, I realized that many scientific programs are not easy to use for general researchers since they don't have graphical user interfaces and require some knowledge in Java/MATLAB. Moreover, they are separate programs and if someone wants to do a bunch of analysis, they have to install multiple programs and deal with different runtime environments of different languages. When I work with biochemists, I find they are often unwilling to install and run those heterogeneous programs. More

ANALYSIS

- Implementation
- Headers



ANALYSIS

Initial outline:

1. Home (**Incomplete - Text/Images**)
2. Young Professionals Network (**Complete**)
 - a. Young Professionals Network (**Complete**)
 - b. YPN Liaison/Spotlight/Webinars (**Complete**)
 - c. Mentoring (**On Hold**)
 - d. Special Events (**On Hold**)
3. Events (**Incomplete - Images**)
 - a. Upcoming Events (**Incomplete - Blog Development [Montoya]**)
 - b. Past Events (**Complete**)
 - i. NOBBChE 14 (**Incomplete - Images**)
 - ii. NOBBChE 15 (**Incomplete - Images**)
 - iii. PEARC17 (**Complete**)
 - iv. PEARC18 (**Complete**)
 - v. Hackathon 2018 (**Complete**)
4. Internships (**Incomplete - Images**)
 - a. About (**Complete**)
 - b. Applications (**Complete**)
 - c. Current and Past Interns (**Incomplete - Asset Management**)
5. Coding Institute (**Complete**)
 - a. Application (**Complete**)
 - b. 2017 (**Complete**)
 - c. 2018 (**Complete**)

CONCLUSION

- Liferay
- Initial Tasking
- Future Development



Young Professionals Network

WD / Young Professionals Network /

Young Professional of the Year Award
YPN Liaison/Spotlight/Webinars
Mentoring - ???
Special Events - ???

Supporting the education and development of newcomers to the world of science gateways

The SGCI Young Professionals Network is a community for those just starting out as well as experienced researchers and educators who are beginning to use Science Gateways. Supporters of the Young Professionals Network serve as mentors, workforce development committee members, and hosts for Young Professionals activities. Please fill in the [Young Professionals Network Application](#) and email it to ypnetwork@sciencegateways.org.

Questions? Email ypnetwork@sciencegateways.org.

[Download SGCI Young Professionals Flyer](#)



This project is funded by the National Science Foundation under award number ACI-1547611. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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Young Professional of the Year Award

WD / Young Professionals Network / Young Professional of the Year Award /

Young Professional of the Year Award

YPN Liaison/Spotlight/Webinars

Mentoring - ???

Special Events - ???

SGCI Young Professional of the Year Award

Acknowledging young professionals for notable achievement in the advancement of science gateways. The award includes a certificate plus an honorarium and website highlight.

The application for the 2018 YPs of the Year has closed. Award recipients were recognized at the Gateways 2018 conference.

2018 Awardees (recognized at the Gateways 2018 conference)

Je'aime H. Powell

Senior Systems Administrator, Curriculum Specialist, Lecturer
Texas Advanced Computing Center, University of Texas at Austin
PhD Student
MS Applied Mathematics with a concentration in Remote Sensing
BS Computer Science with a minor in Aviation

Sean B. Cleveland

Cyberinfrastructure Research Scientist
University of Hawaii
PhD Microbiology with a concentration in Bioinformatics
BS Computer Science

Carrie Arnold

Software Engineer, Web and Mobile Applications
Texas Advanced Computing Center University of Texas at Austin
MS Computer Science
BM Music Engineering Technology, Saxophone Minors: Computer Science, Applied Physics (Electronics)

Jaewoo Shin

Graduate Professional, PhD Student

NOBBChE 14

WD / Events / Past Events / NOBBChE 14 /

Upcoming Events

Past Events

NOBBChE 14

NOBBChE 15

PEARC17

PEARC18

Hackathon 2018

NOBBChE 2014: STEMulating Economic Growth Through Innovation and Entrepreneurship

On September 23, 2014, Dr. Linda Hayden attended the 41st Annual National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBBChE) Conference as a representative of the Science Gateways Institute. Dr. Hayden is the Director of Elizabeth City State University's Center of Excellence in Remote Sensing Education and Research (CERSER) and leads the NSF Science Gateway Institute workforce development efforts.

The NOBBChE conference brought together distinguished research scientists, promising young investigators, outstanding student members and young professionals for interactive and informative meetings. The NOBBChE Professional Development Program utilizes the collective experience of members and current information relevant to academic and corporate success to prepare students and professionals to excel in their chosen fields.

The Science Gateways Institute sponsored four student presentations in computational chemistry.

The Role of Chemical Co-Solvents on G-Quadruplex structures in the c-MYC and VEGF Proto-oncogene Promoters

Quinea Lassiter

University of Arizona - Graduate Student

[Presentation in PDF format](#)

Using DNA Computational Design to Construct and image Nanostructures

Jamarius Waller

University of Mississippi

[Presentation in PDF format](#)

Examination of the Aggregation Behavior of Polymer-Grafted Nanoparticles Using Molecular Simulation and Theory

Jessica Haley - Graduate Student

Vanderbilt University

NOBBChE 15

WD / Events / Past Events / NOBBChE 15 /

Upcoming Events

Past Events

NOBBChE 14

NOBBChE 15

PEARC17

PEARC18

Hackathon 2018

NOBBChE 2015: Bridging Generations through STEM

On September 21, 2015, Dr. Linda Hayden attended the 42nd Annual National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBBChE) Conference as a representative of the Science Gateways Institute. Dr. Hayden is the Director of Elizabeth City State University's Center of Excellence in Remote Sensing Education and Research (CERSER) and leads the NSF Science Gateway Institute workforce development efforts. Her presentation can be found [here](#).

The NOBBChE conference brought together distinguished research scientists, promising young investigators, outstanding student members and young professionals for interactive and informative meetings. The NOBBChE Professional Development Program utilizes the collective experience of members and current information relevant to academic and corporate success to prepare students and professionals to excel in their chosen fields.

The Science Gateways Institute sponsored six student and one faculty presentations in computational chemistry.

The role of His 293 in Protein Arginine Methyltransferases 1 (PRMT1)

Brittany Boykin

Chemistry and Biochemistry - Computational Chemistry

Auburn University

[PowerPoint Presentation](#)

Ionization Rate Studies of Small Atoms and Molecules Using Time-Dependent Density Functional Theory

Adonay Sissay

Department of Chemistry

Louisiana State University

[PowerPoint Presentation](#)

Quantitative Microkinetics Model to Study the Coupling Mechanisms between Self-defects in Rutile TiO₂

Kandis Gilliard

University of Illinois

Metal-Organic Frameworks as Vehicles for Drug Delivery

PEARC17

WD / Events / Past Events / PEARC17 /

Upcoming Events

Past Events

NOBBChE 14

NOBBChE 15

PEARC17

PEARC18

Hackathon 2018

PEARC17 Conference

Students from the SGCI Coding Institute attended the PEARC17 conference in New Orleans, LA. Several students presented their research during the poster session and also served as student volunteers.

PEARC17 is for everyone who cares about the challenges in using and operating advanced research computing. Organizations supporting this new conference include the Advancing Research Computing on Campuses: Best Practices Workshop (ARCC), XSEDE, the Science Gateways Community Institute, the Campus Research Computing (CaRC) Consortium, the ACI-REF consortium, the Blue Waters project, ESnet, Open Science Grid, Compute Canada, the EGI Foundation, the Coalition for Academic Scientific Computation (CASC), and Internet2.

While there, students completed hands-on projects and gave presentations as listed here:

- [Mathematical Modeling for Malaria Transmission Dynamics I](#)
- [Mathematical Modeling for Malaria Transmission Dynamics II](#)
- [Prediction Model for Human and Mosquito Populations in Malaria Afflicted Regions](#)
- [Modeling the Zombie Apocalypse](#)
- [Using RK4 to Model Felix Baumgartner's 38969 m Skydive](#)



PEARC18

WD / Events / Past Events / PEARC18 /

Upcoming Events

Past Events

NOBBChE 14

NOBBChE 15

PEARC17

PEARC18

Hackathon 2018

PEARC18 Conference

Students from the 2018 SGCI Coding Institute attended the PEARC18 conference in Pittsburgh, Pennsylvania on July 22-26, 2018. Students presented their research and also served as student volunteers.

PEARC18 was for everyone who cares about the challenges in using and operating advanced research computing. Speakers from the University of Notre Dame, University of Illinois, Urbana-Champaign, and the Office of Advanced Cyberinfrastructure - NSF delivered presentations to attendees. Organizations supporting this conference included CISCO, Cambridge Computer, CloudyCluster, Intel, DDN Storage, Dell, XSEDE, VMWARE, and others who can be found at <https://www.pearc18.pearc.org/exhibitors>.

While there, student participated in several activities, including:

- Intensive collaborative modeling/analysis challenge
- Session on careers in high-performance computing
- Technical program
- Mentorship program
- Opportunities for students to volunteer to assist with conference activities



Hackathon 2018

WD / Events / Past Events / Hackathon 2018 /

Upcoming Events

Past Events

NOBBChE 14

NOBBChE 15

PEARC17

PEARC18

Hackathon 2018

2018 SGCI Hackathon

hack-a-thon / 'hækə THən/

A gathering where programmers collaboratively code in an extreme manner over a short period of time.

In conjunction with PEARC18 in Pittsburgh, SGCI sponsored an SGCI Hackathon July 26-27, 2018 to challenge up and coming programmers for tomorrow's science gateways. Undergraduate and graduate students competed on gateway projects established by SGCI partners.

The competition took place in the Wyndham Grand Pittsburgh Downtown where the PEARC18 conference was held.

Projects for the Hackathon were provided by the following:

- myGeoHub :: <https://mygeohub.org/>
- SEAGrid: <https://seagrid.org/>
- Cosmic2 :: <https://cosmic2.sdsc.edu:8443/gateway/>
- SimCCS Gateway :: <https://geosurveyiu.scigap.org/>

Sponsors included:

- Alfred P. Sloan Foundation
- Texas Advanced Computing Center
- DELL EMC
- CloudyCluster

FantasticSIM4



Applications

WD / Internships / Applications /

About

Applications

Current and Past Interns

Summer 2019 Gateway Development Internships

If you are a **student** and would like to apply for an internship, [complete this application form](#). The deadline for submitting this application and supporting documents is **April 26, 2019**. We will begin to fill slots on March 8, 2019, and will continue the review process until all slots are filled.

If you are an **SGCI client, partner, or someone else interested in hosting a student intern**, [complete this application form](#). SGCI's Workforce Development service area can either select an intern for you, or you may recommend a student that you'd like to work with. If you decide to recommend a student, you'll need to provide their details on the form. In order to accommodate as many students as possible, full or partial funding through the host institution is requested but not required. The deadline for submitting this application is **April 26, 2019**.

Sign up for our [newsletter](#) to find out when it is time to apply for future opportunities.

Usability Internships at Purdue University

Additionally, our Incubator offers **internship positions for master's-level students concentrating in usability and user experience design at Purdue University**. This internship gives students based at Purdue the [opportunity to conduct usability evaluations of gateway projects](#) located anywhere in the US. Interns are hired and supervised by Dr. Paul Parsons, Assistant Professor in Computer Graphics Technology at Purdue University. For more information, please email help@sciencegateways.org.



Current and Past Interns

WD / Internships / Current and Past Interns /

About

Applications

Current and Past Interns



Yuexi Chen

Intern at: University of Maryland

David Fushman, UMD

[Resume](#)

[More](#)

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Application

WD / Coding Institute / Application /

Application

Coding Institute 2017

Coding Institute 2018

Summer 2019 Coding Institute Application

Our Summer 2019 workshop will be a four-week Coding Institute for undergraduate students that will take place June 3-28, 2019, on the campus of [Elizabeth City State University](#). The workshop will cover the core skills needed to be productive in the design and maintenance of science gateways. The program will be presented as short tutorials alternated with practical experiences, and all instruction will be done via live coding.

Eligible applicants are undergraduate students majoring in computer science or computer engineering (or related fields) who have an interest in the design and maintenance of science gateways. Ten participants will be selected for the Coding Institute. Participants of the Coding Institute will receive a weekly stipend of \$500 plus funding for transportation and housing. All selected participants will be required to attend either the [PEARC19](#) or the [Gateways 2019](#) conference. Funding to attend both conferences will be provided by SGCI's Workforce Development.

If you are an **undergraduate student** who would like to apply for the four-week Coding Institute, [complete this application form](#). The deadline for submitting this application form and supporting documents is **April 26, 2019**.

Sign up for our [newsletter](#) to stay updated on future opportunities.



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Coding Institute 2017

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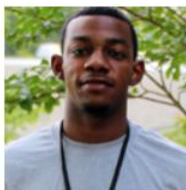
Application

Coding Institute 2017

Coding Institute 2018

2017 Coding Institute

Participants



Percy Adams
Mississippi Valley
State University
[LinkedIn](#)



La'Andrea Gates
Mississippi Valley
State University
[LinkedIn](#)



Jeffrey Guzman
Saint Augustine's
University
[LinkedIn](#)



Reginald Kelley
Elizabeth City
State University
[LinkedIn](#)



Derek Morris Jr
Elizabeth City
State University
[LinkedIn](#)



Edsel Norwood II
College of the
Albemarle
[LinkedIn](#)



Coding Institute 2018

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Application
Coding Institute 2017
Coding Institute 2018

2018 Coding Institute

Participants



Donovan Doss
North Carolina A&T
[LinkedIn](#)



Kyanie Waters
Mississippi Valley
State University
[LinkedIn](#)



Shaniqwa Barber
Mississippi Valley
State University
[LinkedIn](#)



LaQuandria Murry
Mississippi Valley
State University
[LinkedIn](#)



Solomon Gebrhana
Mississippi Valley
State University
[LinkedIn](#)



Lilshay Rogers
Elizabeth City
State University
[LinkedIn](#)



QUESTIONS?

