

A FORCE FOR CHANGE

newsletter

January 2011

Welcome



Dear A4RC,

We would like to welcome you to this, our inaugural issue, of the A4RC Newsletter. We hope that this newsletter will be an effective way of communicating the many highlights and success stories of our alliance. We are extremely proud of the impact that each of you is having on your departments, colleges, and universities. A4RC is getting the word out, encouraging students

to move towards graduate study, developing engaging research programs, and making an impact! Notably, through our efforts we have achieved an increase in the number of African-American students entering Ph.D. programs. This is extremely exciting and has caught the attention of Jan Cuny, our NSF Program Manager! So we look forward to the continued success of our alliance as we work together in our common pursuit — to truly be 'A Force for Change!'

We hope that you are just as excited as we are of the highlights that you will read about in this issue (and in the issues to come)! There are so many A4RC success stories! So please keep sending them in. We want the whole alliance to know about the hard work and the impact that you are having!

Keep up the great work!

God bless you!

Gerry Dozier
A4RC Principal Investigator

Inside this Issue

- 2 What's New:** Tips for Applying to Graduate School, Research Tips, 2010 Best Companies for Blacks in Technology, and Assessment Update
- 3 Student Spotlight:** Keenan Black
- 4 Faculty Spotlight:** Dr. Felicia Doswell
- 7 Opportunities:** Internships, Research, Scholarships, Conferences, Student Competitions, and Publications

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Mission

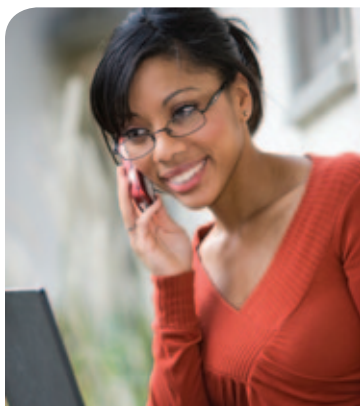
The mission of the Alliance for the Advancement of African-American Researchers in Computing (A4RC) is to increase the number of African-American recipients of advanced degrees in computing, particularly at the Ph.D. level.

A4RC is dedicated to building an environment that promotes pathways from undergraduate computing programs in HBCUs to graduate degrees in computing. To learn more, visit www.a4rc.org.

A4RC Partners & Affiliates

Auburn University
Clemson University
Dillard University
Florida A&M University
Fort Valley State University
Georgia Tech University
Hampton University
Indiana University
Jackson State University
Mississippi Valley State University
Norfolk State University
North Carolina A&T University
Prairie View A&M University
Shaw University
Sinte Gleska University
University of Arkansas at Pine Bluff
University of Colorado
Virginia State University
Virginia Tech University
Winston Salem State University





Tips for Applying to Graduate School

In an effort to increase the number of African-American Researchers in Computing,

it is important for A4RC to assist African-American students in the graduate school application process. Below is a list of useful websites to peruse throughout the graduate school process. Enjoy!

1. admissionsuccess.endlex.com/Types/computerscience.htm
2. matt.might.net/articles/how-to-apply-and-get-in-to-graduate-school-in-science-mathematics-engineering-or-computer-science
3. www.cs.ubc.ca/~rap/grads.html
4. www.stanford.edu/~pgbovine/grad-school-app-tips.htm
5. www.cs.cmu.edu/~harchol/gradschooltalk.pdf
6. gradschool.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.cs.rose-hulman.edu%2F%7Eardis%2FCSDept%2FGradSchool%2Flepinski.txt

2010 Best Companies for Blacks in Technology Award Winners

Allstate Insurance
American Airlines
BlueCross BlueShield of IL, NM, OK, & TX
Compuware
Eli Lilly
IBM
Intel
Merck
Prudential Financial
State Farm Insurance
U.S. Navy
Wal-Mart Stores
WellPoint
Wells Fargo

The National BDPA, Black Data Processing Associates (www.bdpa.org), and WorkplaceDiversity.com (www.WorkplaceDiversity.com)

How to Ask a Professor to do Research with Them

1. Do your homework – learn more about the professor via their institutional and/or personal web page.
2. Update your résumé and list your year in school, GPA, relevant previous experience and skills, and your research interests.
3. Schedule an appointment with the professor to discuss their research interests, your research interests, and interest in working with them.
4. During your meeting, be prepared to share the following information:
 - Your availability (have a print out of your class schedule)
 - Academic experiences (have a copy of your transcript)
 - Your relevant skills (have a copy of your résumé)
 - Your research interests
 - Why you want to do with research with the professor (What specific projects interest you?)
 - Have a list of your own questions

Assessment Nugget... Did you know?

Our evaluator, Dr. Jerlando Jackson, has informed us that A4RC schools have experienced (on average) a 15% increase in graduate enrollment while non-A4RC schools have experienced a 9% decrease.



Keenan Black

Hometown: Born in Camden, NJ and raised in Philadelphia, PA.

A4RC Institution: North Carolina Agricultural and Technical State University.

Degree program: Computer Science

Year: Senior

Post graduation plans: Attending graduate school

Why did you choose to major in computer science?

Computer science is a very broad major. This is the reason I chose it to major in. I love learning about different subjects and then seeing how they are related.

Which courses have you enjoyed the most? The least? Why?

I enjoy all of my programming classes. The ones that I enjoy the most is Computer Theory and Methodologies and Software Engineering. I like those classes because I was able to apply everything that I was taught about programming and I actually created applications that were useful to society.

The course that I have enjoyed the least is physics. I know that it is an important subject to learn but it is just not for me.

What are your research interests?

I have many research interests within computer science. What I am most interested in is network security and robotics.

Describe your research experiences.

I've done research in robotics and data visualization. While doing robotics I studied learned behavior and how to make robots respond autonomously to a situation based off human

simulations. With data visualization I researched different algorithms and which ones were best to represent chemical and biological data.

Describe your most rewarding research experience. Your most challenging.

My most rewarding research experience was this past summer at Indiana University. It was a good feeling winning the poster presentation after working hard all summer. The most challenging was working with robotics because we had to create a robotic operating system from scratch and with no documentation.

What have you gained from your research experiences?

I got to see how computer science was needed by more than just engineers. I worked with scientists, psychologists, mathematicians, and plenty other professions.

If you could change one thing about your research experience, what would you change and why?

I enjoyed all of my research experiences. If I could change one thing I would make them longer. Towards the end I was either having too much fun or I just wanted to continue studying there.

What words of advice would you offer other students interested in doing computing research?

Don't be afraid to ask questions. The mentors provided are very knowledgeable, but if you don't ask questions, you won't get the kind of help that you need.

What words of advice would you offer faculty members working with students doing computing research?

Challenge your students more and allow them to solve problems by using all of their resources.

What are your short-range career goals?

Graduate from graduate school with a Ph.D.

What are your long-range career goals? How are you preparing yourself to achieve them?

I hope to be a successful software engineer. While I am in school I am learning as much as I can about it to do so.

Who, or what, has influenced you most during your tenure as a computer science student?

Other computer scientists that were students just like I am influence me. I see that they have made it and they enjoy what they are doing. I can see myself in their position years from now.



Dr. Felicia Doswell

Title: Assistant Professor

A4RC Institution: Norfolk State University

Department: Computer Science

Doctoral Granting Institution: Virginia Tech

Honors/Awards:

Award for Excellence in Mentoring to the Undergraduate Research Program (June – July 2010)

Award for Outstanding Grantsmanship 2009 – 2010

Tapia Conference Panel Co-chair (April 2009)

Award for Recruitment Mission 2006 – 2010

Grants:

F. Doswell, PI, “BPC-AE: Collaborative Research: The Alliance for the Advancement of African-American Researchers in Computing (A4RC)” NSF-BPC Grant. September 1, 2009 – August 31, 2011

F. Doswell, PI, “The Effects of Cloud Computing on Location, Security and Privacy of Data” NSU Star-Massie Summer Research Grant. June 1, 2010 – July 19, 2010

F. Doswell, PI, “Digital Forensics Project Exploration for Research and Course Implementation” NSU Stars Summer Research Grant. June 1, 2009 – July 19, 2009

F. Doswell, Co-PI, “Alliance for the Advancement of African American Researchers in Computing” NSF-BPC Grant. June 1, 2008 – June 1, 2009

F. Doswell, PI, “Enhancing Computer Security for the General Computer User Population” NSU Stars Summer Research Grant. June 1, 2007 – July 19, 2007

Fellowships:

CMU Information Assurance Capacity Building Program Faculty Fellow, July 2010

Women’s Institute in Summer Enrichment (WISE) Fellow Sponsored by the Team for Research in Ubiquitous Secure Technology (TRUST), Nashville, TN, June 2010

STEM Women of Color Conclave Fellow, Washington, DC, June 2010

IGERT Fellow/Trainee (2000 – 2005)

State Dean’s Fellow (1995 – 1998)

Why did you choose to pursue a career in computer science?

I find it intriguing to be a part of the design and development of technology that I use every day. Computer science was and is a field that constantly changes. As a researcher in this field, I have the ability to fulfill my interest in solving problems and satisfy my need for work that is not monotonous and that has a creative approach to it. It keeps me learning new concepts due to the changing dynamics. The computer science field also enables a reasonable standard of living.

Which courses have you enjoyed teaching the most? The least? Why?

I enjoy teaching any course that allows me to engage students in technology that is prevailing and applies to current computing uses in society. Courses that relate to networks, computer security, and the newest programming languages are most interesting to me. I don’t have a course topic that I least like to teach, but there are courses that students find most difficult to understand that prove to be a challenge to get the subject matter across to the students. It takes creative approaches and devotion of time to make sure that the students actually understand the content in these circumstances.

What are your research interests?

My current research interests are in the areas of information assurance, networking, and human computer interaction. I am investigating security in cloud computing environments, forensic analysis solutions for mobile devices, and usable security solutions to enhance human interaction in various settings while maintaining privacy of information for all users of computing technology. My efforts address the challenges of increasing access to computer technology and engaging all users in trustworthy computing practices including non-traditional users such as the economically disadvantaged, visually impaired, and physically challenged. I am actively involved in graduate and undergraduate curriculum development and research initiatives to ensure that students have

a comprehensive educational experience. This includes advising graduate students in information assurance research projects, digital forensics curriculum development, workshops to educate users on secure computing, and research efforts to solve digital security concerns of the general population. In addition, I am devoted to engaging undergraduate students in research to encourage pursuit of graduate education and to increase the number of underrepresented participants in computing. My work with the NSF BPC Alliance for the Advancement of African-American Researchers in Computing (A4RC) makes this work possible.

How have you involved students in your research?

I have involved students in my research by advising Senior Project students who are required to work on research projects prior to graduating, by offering course credit for the research involvement through special topics courses and by merging my teaching with my research in my assigned courses where appropriate. By teaching courses close to my area of expertise, it is possible to engage students in my research interest by exposing them to literature that stimulates dialogue, assisting them to write professionally on the topic, and encouraging them to produce posters, presentations, and papers.

Describe your research pod.

There have been three research pods at Norfolk State University involving a different group of students each year. I have worked with two of these pods. These research pods:

1. Engage students in a course during the spring semester to gain hands-on experience in conducting research in collaboration with faculty at Virginia Tech.
2. Students work with me in a university classroom laboratory on a project related to networking and interface design. Projects involve background reading of technical literature and reports, introduction to interface design techniques, enhancement of programming and presentation skills, group discussions, and project team meetings.
3. The students work together on a group project and create a scientific poster and a project report at the end of the group project.
4. Students have an opportunity to participate in a series of professional development and social activities throughout the semester that sometimes involves the entire Computer Science Department.
5. The students are introduced to talks and resources that encourage them to pursue graduate school after completing their undergraduate degree.
6. The students then transition from the course to a summer Research Experience for Undergraduates (REU) with the research faculty at Virginia Tech. During the summer REU, students gain further research experience and practice in developing software and produce a research report at the end of the summer experience.
7. Students work collaboratively with faculty at both Norfolk State and Virginia Tech to produce a paper to be presented at a conference.
8. Beyond the pod experience, a mentoring relationship is established between the students and the advisor that continues throughout the student's undergraduate education and potentially beyond it.

The 2008-2009 research pod consisted of 4 undergraduate male students, 1 undergraduate female student and 1 graduate female student. Their research involved development of iPhone interface software to operate a smart home.

The 2009-2010 research pod consisted of 2 undergraduate female students, 2 undergraduate male students and 1 graduate female student. Their research involved development of an interactive health game built to run on iPhone mobile devices.

Both pods have presented research posters at a conference and currently have a research paper accepted to the HCI International 2011 Conference.

The graduate student functioned as a peer mentor to the undergraduate research pod and was able to attend all conferences with the pod. She was privy to any of the seminar, course material and professional contacts that would lead her to pursue a Ph.D. degree.

Describe your most rewarding research experience working with students. Describe your most challenging.

My most rewarding research experience in working with the students is to observe their realization that there is more to producing computing software than just programming. After the course and research experience, they have a deeper understanding of the options beyond just taking courses and obtaining employment after graduation. They now know what research is and they recognize that research is an interesting option that gives them better choice in what they ultimately want to do. In addition, I enjoy the great pride the students express in the work they produce especially when presenting it at a conference.

My most challenging research experience working with the students is that the dual roles that my position imposes results in my feeling that my research sometimes competes with my teaching. I find that the students sometimes experience this feeling as well when the research is in addition to their courses rather than a part of their courses. The workload can be overwhelming depending on the other tasks required of the individuals.

What words of advice would you offer students interested in doing computing research?

1. I would encourage students to participate in a Research Experience for Undergraduates (REU) sometime during their tenure in undergraduate education. Many institutions host undergraduates for the summer who participate in research. This is a great

experience for students to participate in research while building connections with other computing professionals and scientists. These connections can often go a long way towards helping you get into a specific graduate school or research group. In addition, the students get paid a stipend for the summer, and lodging and travel is paid for by the institution where they perform the research activities. To begin this process, choose the field that you would like to perform research in, and then choose the school where you would like to perform research. School websites generally publish their application process.

2. Find a faculty member to work with on research. Talking to faculty members in the area of computing research in which you have an interest is another way to get involved in research. Sometimes this can be sparked by interest in a class project that you worked on or a problem in society that you think needs to be solved. Contact with researchers in your department will provide an opportunity for you to interweave your courses with your research interest.

3. Attend conferences, seminars and colloquiums in your research area of interest. Check announcements of conference and workshops of computer science societies. Participate at these professional meetings and find out the problems that other researchers are currently working on or are interested in. This may be an opportunity for collaborating, sharing ideas, or meeting others who may assist in your later educational or employment goals.

What words of advice would you offer faculty members working with students doing computing research?

The following items are some suggestions for faculty wishing to work with students on computing research:

1. Try to have the research associated with a course so that the student is accountable for the work produced.
2. Obtain resources prior to the students beginning work.
3. Establish the workload and schedule prior to the student starting work.
4. Encourage the students to target a conference for their research work.

What have you gained from your research experiences working with students?

The students provide various approaches to a problem based on the experience they come with. Therefore, an enthusiasm for my area of research is renewed by the demonstration of enhanced knowledge shown by the students' engagement in the research activity. In addition, the students provide pieces of the work for which my various faculty requirements do not afford me the opportunity to devote a great deal of time to, such as programming a system. There is a tradeoff here where the students gain more needed experience in programming and reviewing

literature, and I am able to focus on training how to evaluate such systems, writing research papers, and organizing research projects to get recognition for the work. In addition, the results of the collaborative efforts of the students and my work potentially lead to the writing of research grants that fund students' works to continue the research cycle.

Who, or what, has influenced you most during your tenure as a computer science professor?

There are many people and things that have influenced me during my tenure as a computer science professor. Senior faculty, junior faculty, students, industry professionals, and community all play a role in my quest to produce qualified and professional graduates from NSU. For example, the community in which I work and live influences my research interest and what I bring to the classroom in terms of the experience of the students within my community. I like for my research activity to have a practical piece to it and therefore industry influences what content to introduce in the classroom and the types of projects that students would be interested in pursuing to encourage research efforts. Colleagues within NSU and external to the university play a role in supporting my research and teaching efforts and result in valuable critique, advice, and approval to encourage progress toward obtaining tenure. A4RC has been instrumental in introducing me to many of the people who support my research and professional efforts toward reaching the goals I have set for myself.

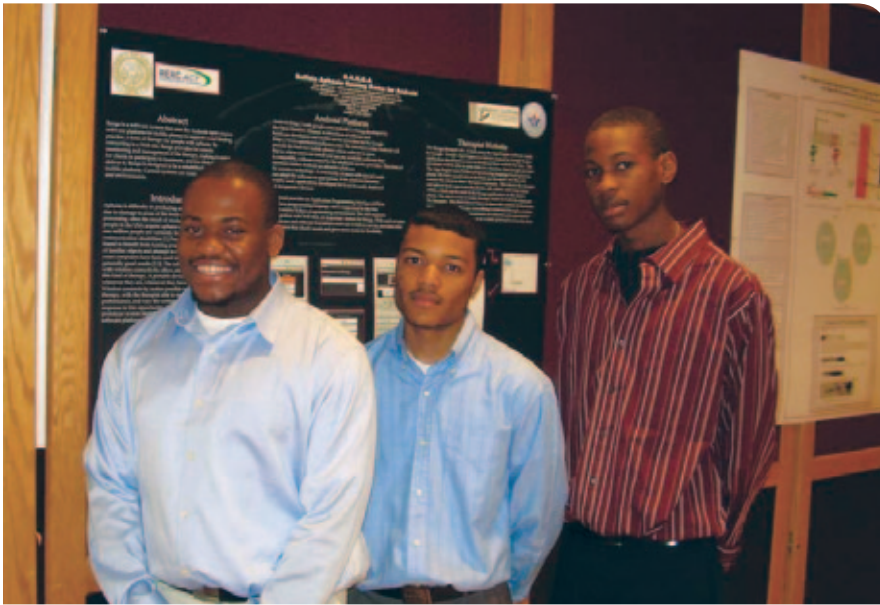
Is A4RC making a difference in the field of computer science? If so, how? If not, what could A4RC do to make a difference?

A4RC is making a difference by exposing students to the thought of pursuing graduate education when they otherwise were making plans to obtain employment with industry upon graduating with an undergraduate degree. Many students think that obtaining a graduate education is beyond their reach or they are unaware of the benefits to extending their education. The seminars provided through the A4RC efforts and encouraged and supported by A4RC help to dispel these myths. The offering of these seminars at HBCUs involved in the alliance allows the message to extend beyond the reach of the pod groups.

The collaborative efforts of A4RC also offer research opportunities to students and faculty who would otherwise not have pursued the connection between an HBCU and R1 institution. This pairing offers many advantages for both institutions including products that are rich in diverse ideas including grant and research paper collaborations, teaching strategies, and enhancements to classroom dialogue due to the collaborations.

What book or article have you read lately that you would recommend to others?

Advisor, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering. National Academy Press, 1997, 0-309-06363-9.



(From left) Chris Benjamin, Jesse Harris, and Alex Moncrief (all A4RC JSU) presenting a poster on their work at the University of Colorado, Boulder.

Internships

CRA-W/CDC Distributed Research Experiences for Undergraduates (DREU)

The CRA-W/CDC DREU Program (known as the DMP from 1994-2008) matches promising undergraduates with a faculty mentor for a summer research experience at the faculty member's home institution. The objective of the DREU is to increase the number of women and students from underrepresented groups entering graduate studies in the fields of computer science and engineering. The DREU experience is invaluable for students who are considering graduate school, providing them with a close-up view of what graduate school is really like and also increasing their competitiveness as an applicant for graduate admissions and fellowships.

Funding for the student consists of \$6,000 for the summer (10 weeks), plus relocation travel assistance when appropriate. Additional funds may be available to support student conference travel, either during the summer or afterward, and for outreach activities promoting the DREU.

An online application for students and faculty mentors, more information about DREU, and webpages authored by previous participants are available at parasol.tamu.edu/dreu.

Application Deadline: February 15, 2011

Awards Announced: mid-March 2011

OSSI:SOLAR

OSSI:SOLAR is a NASA-wide system for the recruitment, application, selection and career development of undergraduate and graduate students primarily in science, technology, engineering and mathematics disciplines. Opportunities for students in other disciplines are available.

Fellowships, internships, and scholarships are available. Find more information at solar.nasa.gov/web/public/guest/searchOpps.

Research

Institute for Broadening Participation: Pathways to Science

Find more information at www.pathwaystoscience.org/Summerresearch.asp.

National Science Foundation Computing and Information Science and Engineering Research Experiences for Undergraduates (REU)

Find more information at www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=5049.

Scholarships

The Google Anita Borg Memorial Scholarship: USA

Applicants must satisfy all of the following criteria to be eligible:

- be a female student entering her senior year of undergraduate study or be enrolled in a graduate program in the 2011-2012 academic year at a university in the United States;
- be enrolled in Computer Science or Computer Engineering program, or a closely related technical field as a full-time student for the 2011-2012 academic year;
- maintain a cumulative GPA of at least 3.5 on a 4.0 scale or 4.5 on a 5.0 scale or equivalent in your current program.

Find more information at www.google.com/anitaborg/us.

Application Deadline: February 1, 2011

Google United Negro College Fund Scholarship

The Google-UNCF Scholarship is awarded annually to a group of African-American students pursuing undergraduate and graduate degrees in computer science or computer engineering. The program offers "last dollar" scholarships based upon unmet financial need for students majoring in computer science or computer engineering. Scholarship recipients will receive an academic scholarship as well as be invited to attend the Annual Google Scholars' Retreat in Mountain View, CA.

Find more information at www.uncf.org/forstudents/scholarship.asp.

Competition to Open: January 10, 2011

Conferences

Richard Tapia Celebration of Diversity in Computing Conference 2011

April 3-5, 2011
San Francisco, CA

Poster Submission

We invite students to submit poster abstracts that focus on late-breaking research results. Poster proposals must be submitted to the following URL: tapiaconference.org/2011/posters.

The submission deadline is January 21, 2011. Authors will be notified of acceptance decisions by February 4, 2011.

Scholarships for Tapia 2011

The Tapia Conference Scholarship Program facilitates attendance of those individuals who would otherwise be unable to attend. The scholarships cover travel, hotel, and conference registration. Preference will be given to students and mentors who present posters, panels, or BoFs. In addition, preference will be given to teams comprised of faculty and students. Scholarship applications must be submitted to the following URL: tapiaconference.org/2011/scholarships/apply.

The submission deadline is January 21, 2011. Authors will be notified of acceptance decisions by February 15, 2011.

ADMI/A4RC 2011 Conference: Cloud Computing: A Paradigm Shift

April 14-16, 2011
Clemson University, Clemson, SC

This unique conference showcases innovative graduate and undergraduate research and provides a forum to disseminate and discuss initiatives designed to increase the numbers of minority computer scientists and computer engineers, and activities being utilized by institutions that serve minority populations.

A special emphasis is placed on original research papers and posters. An impor-

tant area of interest for this Symposium is "Cloud Computing". Papers on this topic will be given priority.

Find more information at www.admiusa.org/admi2011/2011-PRE-symposium-files/callforparticipation2011.pdf.

Paper Submission Deadline:

February 15, 2011

Poster Abstract Submission Deadline:

February 15, 2011

4th Annual Data Sciences Summer Institute (DSSI)

May 22 - July 2, 2011
University of Illinois at Urbana-Champaign
Department of Computer Science

The 2011 Data Sciences Summer Institute (DSSI) is a 6-week long program in data science areas. This summer program consists of an intensive class in the mathematical foundations of data sciences, tutorials on advanced data science topics, expert speakers, and collaborative research projects.

Find more information at mias.illinois.edu/DSSI2011.

Contact:

Nancy Komlanc
Education Director, Data Sciences
Summer Institute DHS Center of Excellence
University of Illinois at Urbana-Champaign
Phone: 217-244-4675
E-mail: DSSI-cs@illinois.edu

Student Competition

CMD-IT Undergraduate Student Competition: Introductory CS Course Projects: It's All About Inclusion

The objective of this competition is to have students develop descriptions of computing projects that they find exciting, inspiring, and appealing to students from underrepresented groups (African-Americans, Hispanics, Native Americans, Pacific Islanders, and People with Disabilities). The projects can be artistic (for example using motion detection to make music with body movement) or practical

(for example using embedded microchips to help in emergency situations). Medical, cultural, economic — the projects can focus on any topic so long as it includes computing. The competition does not require implementation of the proposed project.

The scope of the project should be consistent with what a team of two students can implement in a two week time-frame for an introductory computing course.

Prizes

- First Place: \$3,000
- Second Place: \$1,500

The prizes will be presented to the winning teams at the Tapia Conference in San Francisco on April 5, 2011. The winning teams will receive support to attend the Tapia Conference.

Eligibility

The contest is open to students attending a U.S. institution and meeting the following Eligibility Criteria:

- You are actively enrolled as an undergraduate student at an accredited college or university during the contest period.
- A team may consist of up to three (3) eligible students.
- A student may be involved in only one team.

For more information visit www.cmd-it.org/projects.html#P3.

Entry Deadline: January 31, 2011

Publication

Computer Science Undergraduate Research Journal

This is an international, all-electronic online journal that will host research papers authored by undergraduate students and with the nomination of one of their faculty members.

Find more information at www.csurj.org/index.php/csurj.