

# Diversity/Careers in Engineering & Information Technology

MINORITY  
COLLEGE ISSUE

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**Women in  
engineering**

**Tech pros  
with disabilities**

**Co-ops & interns  
in engineering**

**Grad programs in IT**

**Computer-related  
careers**

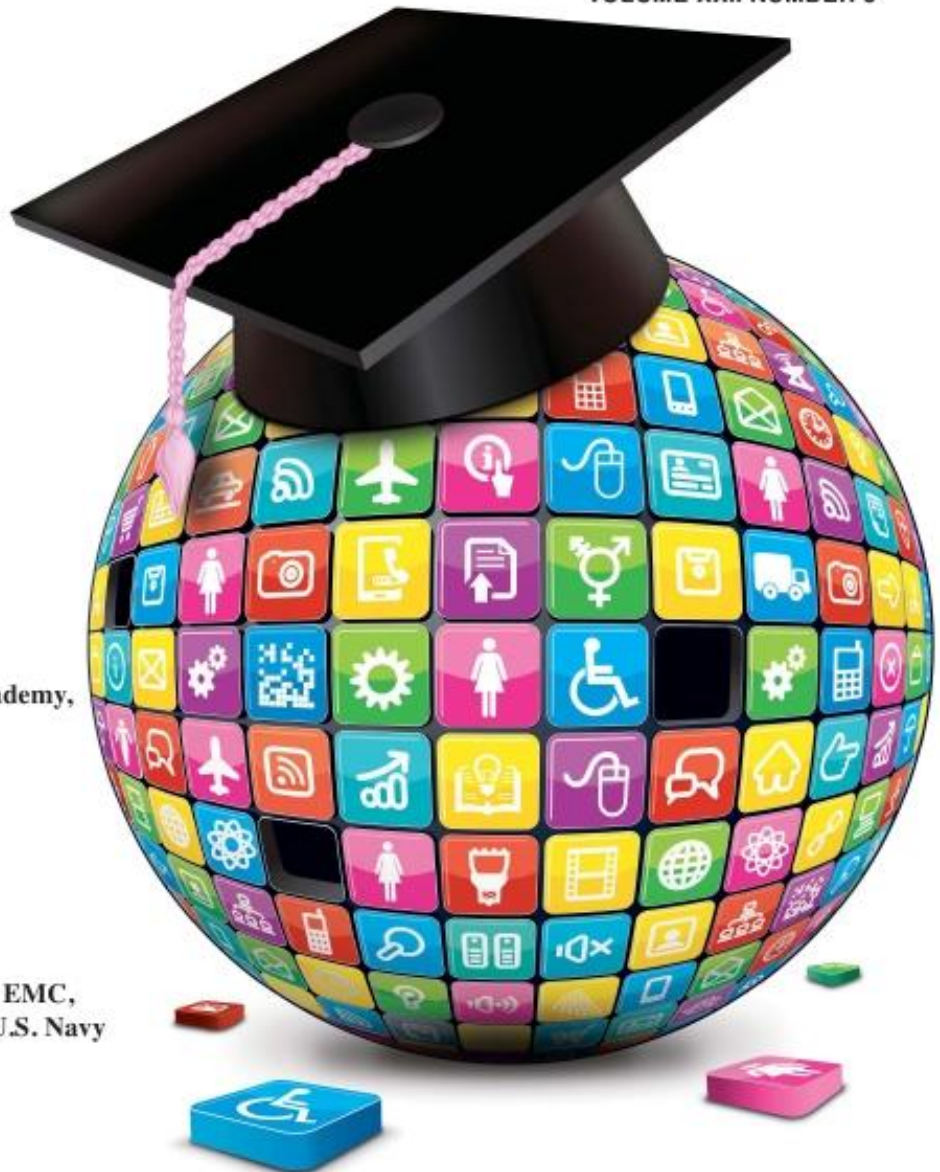
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## Job market

### The door is wide open for new grads in computing careers

According to BLS data, computer-related professions will be among the top STEM jobs by 2020

By  
Adriene Marshall  
Contributing  
Editor



Ranée Pratt joined the PhD Project as a doctoral student; today she's an advisor.



Kristen Dunlap sees IT as a "wide open field." She's moving up the ranks at Altria.



Bank of America's Laura Batten: relationships help deliver solutions.

The demand for professionals with computer science and software engineering degrees is through the roof and is expected to grow by 32 percent over the next decade, faster than any other profession, according to Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov)) data. Computer support specialists, system and information security analysts, software developers for applications and systems, network and computer systems administrators, programmers, web developers and computer network architects will be among the top STEM jobs by total employment in 2020.



Jeff Gray of University of Alabama.

These jobs are not just in the traditional places, like Google, Microsoft and Amazon, says Jeff Gray, PhD, associate professor of computer science at the University of Alabama (Tuscaloosa, AL). "Computer science grads can work in a variety of domains," Gray explains. "The Mercedes S-Class luxury sedan requires twenty million lines of computer code. The average electric razor has fifty thousand lines. Where there's a need for automation, computer scientists are in the forefront helping to drive that automation."

Technology is so pervasive that there is demand for more computer scientists than there are graduates with these de-

grees, notes Gray. "In May 2012, CS students averaged 2.8 job offers per student, which is more than for any other major. This is significant in an economy where grads in some majors struggle to get interviews for jobs below what their education would suggest."

Getting hired is only the beginning. "Those who are successful in industry are the ones who continually evaluate and learn new technology," observes Gray. He suggests that new grads join professional organizations and attend conferences to network and stay abreast of the latest innovations.



Anita Borg's Telle Whitney.

Telle Whitney, president and CEO of the Anita Borg Institute ([ABI.anitaborg.org](http://ABI.anitaborg.org)), confirms that computer science and software engineering jobs cover a wide range of specialties. "Programming, algorithm development, user interaction and data analytics jobs are numerous, not only in traditional tech companies but also in defense and aerospace, communications, finance, retail and entertainment." By 2018 there will be 1.4 million new computing and computer-related jobs created in the U.S., she says.

There are a number of job hunting and mentoring resources for recent graduates at [anitaborg.org/news/resources](http://anitaborg.org/news/resources), Whitney

notes. "It is always helpful for new graduates to network and connect with mentors."

#### Altria is committed to finding diverse talent

Altria is dedicated to promoting a diverse workforce, says Dan Cornell, VP of information services. "To compete in today's complex and dynamic business environment, we need employees who have a wide range of thoughts, perspectives and experiences. A diverse workforce enables us to define creative solutions that drive the best possible business results for Altria."

Barbara A. Jones, senior manager of information services and campus recruiting manager, notes that college hires with computer science degrees are typically placed in roles like support analyst, business analyst, data/information analyst or workstation analyst. "We fill entry-level positions from our internship program. Each year we have about ten interns in the information services organization, and about half of them get fulltime job offers at the end of the summer."

Altria Group (Richmond, VA) is the parent company of Philip Morris USA, John Middleton, U.S. Smokeless Tobacco Company, Philip Morris Capital Corporation and Ste. Michelle Wine Estates.

#### Kristen Dunlap: technology analyst for client services at Altria

Kristen Dunlap is from Charlotte, NC. "At



Aruba Networks' techie Nethra Muniyappa follow your passion and stay focused.



Ginger Folker, software developer at Accentura, finds programming fulfilling.

least that's what I claim," Dunlap says with a smile. "I grew up in a military family, so we moved around a bit."

California and Louisiana were among the places she lived before the family settled in North Carolina, where she graduated from high school and earned her bachelors at Winston-Salem State University.

Dunlap describes her college experience as amazing, both personally and as a stepping stone to her career. "I chose to pursue a career in IT because I saw how technology touches everything, from the business world to the way we interact with each other," she explains. "I felt that IT would give me a chance to help the world respond to technological events."

As an undergrad, Dunlap interned with organizations that included the National Aeronautics and Space Administration (NASA) and Altria. "I liked the fast-paced corporate culture of Altria. There seemed to be many opportunities to grow my career and build my skills," she says. "Altria focuses on helping interns and new hires perform at the next level." She joined the company full time after graduation.

When Dunlap started as a fulltime employee at Altria, she provided user support for the sales team's category management analytic tool and helped make system enhancements. Recently, she was promoted to a new position.

"I'm now supporting a project to update our manufacturing system framework

and applications," she says. "I manage scheduling and lead testing efforts to ensure that our enhancements don't adversely impact what's already in the system. It's a great opportunity."

Dunlap found a job more easily than her classmates and friends with other degrees. "With IT and computer science, you can land a great job in corporate America right

out of college, continue your education to get an advanced degree, or contribute to research," she notes. "It's definitely a wide open field."

**The PhD Project helps minorities establish careers in academia**

The PhD Project ([phdproject.org](http://phdproject.org)) is a non-profit organization established in 1994 by the KPMG Foundation to encourage African Americans, Hispanic Americans and Native Americans at the graduate level to consider careers as business school professors, often with a technical focus.



KPMG's Bernard J. Milano

"Information systems is one of the five major business disciplines along with accounting, finance, management and marketing," says Bernard J. Milano, president of the PhD Project and the KPMG Foundation. "When the PhD Project started, one percent of business school professors in the U.S. were minorities. Right now, it's up to about four percent, while more than sixteen percent of business school undergrads are Hispanic American and an even higher percentage are African American. We believe strongly that if you have programs to

*Continued on page 68*

*"Computer science grads can work in a variety of domains."  
— Jeff Gray, University of Alabama*

DIVERSITY-MINDED COMPANIES LOOKING FOR CS AND SOFTWARE GRADS	
Check website for current listings.	
Company and location	Business area
<b>Accenture</b> (Dublin, Ireland) <a href="http://www.accenture.com">www.accenture.com</a>	Global management consulting, technology services and outsourcing
<b>Altria Group</b> (Henrico County, VA) <a href="http://www.altria.com">www.altria.com</a>	Tobacco products and wine; parent company of Philip Morris USA, U.S. Smokeless Tobacco Co, John Middleton and Ste. Michelle Wines Estates
<b>Aruba Networks</b> (New York, NY) <a href="http://www.arubanetworks.com">www.arubanetworks.com</a>	Network access solutions for mobile enterprises
<b>Bank of America</b> (Charlotte, NC) <a href="http://www.bankofamerica.com">www.bankofamerica.com</a>	Multinational banking and financial services
<b>Merck</b> (Whitehouse Station, NJ) <a href="http://www.merck.com">www.merck.com</a>	Pharmaceuticals
<b>PhD Project</b> (Montvale, NJ) <a href="http://www.phdproject.org">www.phdproject.org</a>	Encourages underrepresented minorities to consider careers as business professors
<b>St. Jude Children's Research Hospital</b> (Memphis, TN) <a href="http://www.stjude.org/careers">www.stjude.org/careers</a>	Research and treatment of children with cancer and other life-threatening diseases
<b>WellPoint, Inc</b> (Indianapolis, IN) <a href="http://www.wellpoint.com">www.wellpoint.com</a>	Health insurance

## Computing careers

*Continued from page 67*

attract minority students, then you need faculty and administration that reflects that student body." He adds that since the PhD Project started eighteen years ago, the number as well as the percentage of minority business school professors in the country have quadrupled.

Many of the PhD Project's recruitment efforts have focused on people working in industry who are interested in switching to academia. "We have a presence at many of the professional conferences, and our own conference every November in Chicago attracts more than 100 universities," Milano says.

"The corporate world spends a tremendous amount of energy on diversity training, partly because many graduates are not used to working alongside someone from a different ethnic background," he notes. "Having minority faculty not only shows minority students that they belong, it also sends a message to non-minority students that people of different backgrounds can be knowledge experts."

### Dr Renée Pratt: PhD Project faculty advisor

Renée Pratt, PhD, first heard about the PhD Project through a direct mailer she received while pursuing her masters in management information systems (MIS) at Case Western University (Cleveland, OH). She attended the PhD Project annual conference in 2002 and began studying for a PhD in MIS at Florida State University (Tallahassee, FL) the following year. As a doctoral student, Pratt was an active member of the PhD Project, holding the positions of secretary, vice president and president. Today, she serves as a faculty advisor to the PhD Project Information Systems Doctoral Student Association.

Pratt is assistant professor of business administration at Washington and Lee University (Lexington, VA). She teaches courses in MIS, computer forensics and e-commerce/web development. She received her BS in mathematics from the University of Florida (Gainesville, FL).

Before switching to academia, Pratt worked in industry, managing hardware/software inventory, website and intranet development, and doing ASP programming. "During this time, I began to notice disconnects in how IT professionals and business professionals communicate about project scope, timelines, design and development," she says. "I saw a need to educate people in these fields so that systems could be designed to the users' requests but within reasonable constraints."

Pratt, whose research is widely published in industry journals, is a 2012-2013 Fulbright U.S. Scholar. Her research interests include post-adoption diffusion behaviors, traditional and clinical enterprise systems, and healthcare IT.

The PhD Project allows participants to see the many opportunities available to them, she says. "It is my hope that my experiences in the workforce and in academics will encourage, motivate and engage others to explore computer science and information systems in ways they never imagined."

"If you have an interest in programming and development, also explore the types of programs you enjoy creating," Pratt suggests. "Develop an expertise in a functional area, such as human resources or accounting. IT/IS permeates every aspect of an organization today. You will never be bored."

### Aruba Networks looks to hire new grads in May and December

"Within our engineering development organization, we have opportunities for engineers with a background in software development and testing," says Greg Rocha, engineering director in the R&D group at Aruba Networks (New York, NY). "Windows of opportunity for hiring new grads at Aruba Networks occur in May, June and December."

Aruba Networks provides network management software, modular switches and wireless access points for wired and wireless infrastructures. "The R&D division is looking for new-grad talent to supplement the different levels of expertise we already have in our group," notes Rocha.



*Dominic Orr of  
Aruba Networks.*

Equal employment opportunities are a company priority, according to president and CEO Dominic Orr. It's company policy to recruit, hire, promote, reassign and train qualified persons without regard to race, color, religion, sex, sexual orientation, national origin, age, disability or veteran status.

### Nethra Muniyappa: Technical staff member at Aruba Networks

Nethra Muniyappa has been a fulltime technician in the access point wireless software engineering division at Aruba Networks since 2011. "Aruba handles wi-fi enterprise-level networking for

colleges and hospitals," she explains. "I'm responsible for determining the quality of individual connections, identifying external interferences to connectivity, and troubleshooting."

Originally from Bangalore, India, Muniyappa received her bachelors in engineering, specializing in electronics and communications, at Dr Ambedkar Institute of Technology (Nagarbhavi, Bangalore, India).

"When I was an undergrad, I took an interest in microprocessor and microcontroller programming using algorithms to solve problems," Muniyappa says. "My senior project involved direct digital frequency modulation, where I had to generate analog signals from the digital data using C programming. Writing algorithms fascinated me and these projects made me want to become more involved in programming."

After graduation in 2004, Muniyappa landed a job in Bangalore as an R&D software engineer working on maintenance and enhancement of CDMA switches. Ringback tones and location-based services for emergency calls were important parts of her work. She took some postgraduate courses in programming to strengthen her skills. "After working there for three years, I realized that I wanted to learn even more," she notes. "That's when I decided to go abroad to get my masters degree."

She convinced her loving and protective family that she was ready to assert her independence, and came to the United States to attend the University of Southern California (USC, Los Angeles, CA). She majored in electrical engineering with a concentration in wireless technology. "Although there are not a lot of women in my field, I had several technically strong woman professors at USC," Muniyappa says. She finished her MSEE degree in 2010.

As a student, Muniyappa interned at Aruba. "I was exposed to industry-level applications for wireless technology," she says. "I liked the job I was doing so I accepted the offer to work full time."

Many students find it difficult to figure out what they want to specialize in, notes Muniyappa. "Follow your passion and stay focused," she urges. "Whether it's networking, cloud computing or data storage, if you keep up with the technology and interact with knowledgeable people, you can grow in the field."

### Accenture has worldwide openings for new grads with tech skills

Accenture (Dublin, Ireland), a multinational management consulting, tech-



*Accenture's John  
Campagnino.*

nology services and outsourcing company, is actively recruiting. "Accenture has technology labs around the world and seeks to hire the best people to work with clients on innovative transformation," says John Campagnino, managing director of global recruiting.

"We're seeking both entry-level and experienced professionals to work in our consulting and outsourcing businesses," says Campagnino. "We look for experience with Oracle, SAP, Java/J2EE, Siebel, Workday and OpenLink Endur, plus expertise in digital and mobile technologies, the smart grid and technical architecture." Candidates need to communicate effectively, work as part of an integrated team and demonstrate leadership skills.



*Jorge Benitez  
of Accenture.*

"At Accenture, we take the widest possible view of diversity and are committed to creating and providing an inclusive, open and equitable environment for individuals with different backgrounds, lifestyles, needs and expectations," says Jorge Benitez, chief U.S. executive and managing director for North America. "Our core values, including best people, integrity, and respect for the individual, are the foundation of Accenture's diverse workplace, which spans countries, cultures, languages, generations, backgrounds and educational experiences."

Benitez notes that Accenture has received recognition from groups such as the Human Rights Campaign, Great Place to Work Institute and *Working Mother* magazine. "Inclusion and diversity have long been fundamental to Accenture's culture, fostering a collaborative work environment that helps our people succeed and enables the company to more effectively compete in the global marketplace," he says. "Our workforce is a reflection of the clients we serve, the suppliers with whom we do business and the communities in which we live and work."

### Ginger Folker: software developer at Accenture

Ginger Folker works in the St. Louis, *Continued on page 70*