Colorado Technical University

CAREERGUIDE

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Available Jobs, Shortage of Skilled Workers

6 Reasons to Get a Computer Science Degree



Software Engineers in Demand: Plus 4 Fastest Growing IT Jobs

Nine IT Roles and Their Salaries



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Important Skills for an IT Career

How to Stay on Top in the IT Industry

Career Guide Presented by

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IT professionals agree that future IT success will

require strong business skills as well as IT skills²

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¹ Source: Journal of Computer Information Systems; Winter2006/2007, Vol. 47 Issue 2, p28-33, 6p. Accessed 7/17/13.

² Source: 2013 TEKsystems IT Professional Perspectives Survey. Accessed 7/17/13.

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A WORD FROM OUR DEAN

A Field in Demand

Information technology (IT) drives everything we do in business and society. IT has created a 24 hour a day, 365 days a year working environment. This focus has created increased demand for IT professionals¹ who must not only have technical knowledge but understand business strategy and operations.² Professionals need to understand big data analytics, cloud computing, virtualization, mobile computing, and other emerging technologies. According to officials at the Partnership for a New American Economy, "U.S. companies are hungry for talent with degrees in STEM [Science, Technology, Math, and Engineering]-these jobs are increasing three times faster than jobs in the rest of the economy."³ We, as a society, are not graduating enough qualified IT professionals to handle all the opportunities available.

IT leaders are needed who can handle the global enterprise as in the role of CIO, CTO or CISO. These leaders must reduce the enterprise costs across the virtual value chain, develop products and new businesses that increase revenue, and keep their eye on the ball of the changing competitive landscape. This has driven the need for IT leaders to shift into other positions such as COO or CEO.

Evolving IT Leadership Roles: CISO and CIO

Security is a major concern of CEO's in all organizations putting significant pressure on the security staff. Many organizations reacted by escalating the top security position to a C level. The Chief Information Security Officer (CISO) is the major driver of business aligned security policy, practices and overall security strategy along with extreme focus on the IT risk management strategy. While the CISO focuses on security the CIO role is very much aligned with operations and business strategy. Educated IT professionals with leadership skills are needed to meet the demands in this evolving field.

Distinction Through Education

At one time it was accepted that the IT professional was self-taught and learned on the job. Today the climate has changed where Bachelor degrees are required and in some instances Master's degrees are preferred for management positions. The IT professional needs to manage not only tangible technology but intangibles such as enterprise software, project management, supply chain management. The IT professional must be able to manage people, processes, and technology introduction and adoption. A formal educational environment that offers exposure to experienced professionals who bring real-world knowledge to tackle the hard-hitting problems of today and tomorrow is essential for IT professionals looking to distinguish themselves.

CTU

CTU's Bachelor of Science in IT (BSIT) integrates not only a strong general education program but core courses that introduce the student to all aspects and disciplines in IT. The BSIT can be formulated into a myriad of specializations giving students a very broad IT program customized for their interest. Students interested in specialization can focus on Network Management, Data Management, Security, Software Application Programming, Web Development and Software Systems Engineering.

CTU's Master of Science in Information technology is the natural follow-up to a superior BSIT program. CTU's relevant curriculum supported by industry advisory boards and focused program committees includes our award winning* Learning Management System, My Unique Student Experience (M.U.S.E).



Dr. Myles Vogel, University Dean IT, Computer Science and Engineering



Dr. Myles Vogel served more than 25 years as chief information officer for a variety of domestic and international firms. He has taught IT courses for more than 17 years and was named the "Outstanding IT professor of the Year" at the Carey Business School in 2007.

* CTU's Online Virtual Campus was recognized as "Best of the Best" in the Education and Academia category of the 2009 Computerworld Honors Program 1. "Foote IT News Analysis - Technology employment trends in the March 2013 Bureau of Labor Statistics United States Employment Report." Foote Partners LLC. 7 April 2013. Web. (Visited 6 June 2013). http://www.footepartners.com/fp_pdf/FooteAnalysis_DOLMAR2013LaborReport_04072013.pdf

2."IT Professionals need business skills: CBA CIO." Spandas Lui, ZDNet. 8 Oct. 2012. Web. (Visited 19 Sep. 2013). http://www.zdnet.com/it-professionals-need-business-skills-cba-cio-7000005357 3. "U.S. Tech Worker Shortage Looms, Study Warns." PaulMcDougall, Information Week. 23 May 2012. Web. (Visited 13 Sep. 2013). http://www.informationweek.com/global-cio/outsourcing/us-tech-worker-shortage-looms-study-warn/240000853

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AVAILABLE JOBS, **SHORTAGE OF** VNRKFR

Expert Job Analyst, CareerBuilder.com

▲ s the American economy continues its slow but steady recovery, Remployers continue to seek skilled workers. For every open job, employers have dozens or even hundreds of applicants eager to be hired. Yet many employers insist that finding qualified candidates is difficult, even in this economy.¹ How can that be?

These employers don't have a shortage of applicants – they have a shortage of qualified applicants. For most positions, the necessary skills, experience and education <http://bit.ly/10eEOmX> requirements are firm and can't be loosened because of a lack of suitable candidates. Employers need to know their workers are the best possible people for the job and they need them to

come with the necessary skills. In a recent CareerBuilder survey of the world's 10 largest economies, employers in each location say they have difficulty filling open positions.² In fact, 28 percent of employers in the U.S. say they have open positions they can't fill. IT positions are among the most difficult for businesses to fill, alongside sales and engineering.

continues on page 5

1. "Skills Gap Causing Losses in Productivity and Revenue in Top Ten World Economies, According to CareerBuilder Survey." CareerBuilder. 20 Mar. 2013. Web. (Visited 21 June 2013). http://www.careerbuilder.com/share/abo 2f20%2f2013&siteid=cbpr&sc_cmp1=cb_pr746_&id=pr746&ed=12%2f31%2f2013

2. "Skills Gap Causing Losses in Productivity and Revenue in Top Ten World Economies, According to Career Builder Survey." CareerBuilder., 20 Mar. 2013. (Visited 21 June 2013). http://www.care %2f2013&siteid=cbpr&sc_cmp1=cb_pr746_&id=pr746&ed=12%2f31%2f2013

A separate 2012 CareerBuilder survey looked at data from its Supply and Demand Portal and found that the five IT positions most difficult to fill are application software engineers, web developers, systems software engineers, computer systems analysts, and systems architects.³

A good worker is hard to find

"These jobs were difficult to fill prior to the economic downturn," says Julian L. Alssid, executive director of the Workforce Strategy Center in New York, in an email interview. "Hopefully, they will be less difficult to fill as we move more toward a more demand-driven workforce development system in the U.S. This means local employers working directly with community colleges, trade schools and other accredited post-secondary institutions that help people gain skills that are in demand by employers."

Education <http://bit.ly/10eEOmX > is an invaluable asset for any applicant, but as many job seekers can attest, it isn't the only prerequisite for employment. When employers are choosing the right candidate for their organizations, they want to see years of experience and an education that isn't outdated. As you can imagine, any worker who falls at extreme ends of the spectrum – such as a new graduate or an industry veteran - can be at a disadvantage. New graduates know the latest research and technology, but they don't have the years of firsthand experience that employers value.

"We do hear employers complain that vounger workers fresh out of school often lack a practical understanding of how to apply what they have learned in their classrooms to the workplace," Alssid says. "That said, we have heard from several experienced workers that they feel they are losing out on jobs to younger - less costly candidates."

Education matters

Don't mistake a need for experience as a reason to dismiss education. The problem is that job seekers have to take responsibility for their education because many employers no longer have the time and budget to groom new hires.

"Employers seem to be less willing to invest in training http://bit.ly/14w4PFt> in this economy. Again, it is the combination of the right credential and practical experience they look for," Alssid says.

In this competitive and ever-changing job market, many decisions are out of your control. However, some workers might find that taking steps to improve their credentials is one way they can actively boost their résumés.

"Many job seekers can make themselves more competitive by getting industryrecognized credentials that are valued in today's workplace," Alssid says.

Many employers are ready to hire

"We hear about the skills shortage from industries including health care, advanced manufacturing, IT and energy," Alssid says. Although no specific job title is in constant need, any positions relying on math and technical expertise are consistently difficult to fill. "I have heard from several advanced manufacturers that they would hire engineers and engineering technicians in a heartbeat."

As a result, job seekers who are applying to these fields and who have the qualifications need to put their experience and skills front and center. In the cover letter, résumé and interview don't let hiring managers forget that you already have the skills they need. After all, you are just one job seeker in a competitive market; show employers that you're different from the rest.

*The employment statistics and statements mentioned above are national figures. Employment conditions in your area may be different. These are national statistics and conditions in your area may vary. These are national historical statistics and are not representative or indicative of the earning potential of graduates

*Colorado Technical University cannot guarantee employment or salary.

3. "IT Companies to Boost Pay, Focus on Training and Recruiting Efforts in 2012, According to Sologig.com Survey." CareerBuilder. 18 Jan 2012. Web. (Visited 21 June 2013). http://www.careerbuilder d=cbpr&sc_cmp1=cb_pr698_&id=pr698&ed=12%2f31%2f2012





REASONS to Get a Computer Science Degree

o you thrive on intellectual U challenge? Are you fascinated by technology? A computer science degree <http://bit.ly/11N5npM> can lead you to a fulfilling career on all three counts. And it has other benefits, too.

Of course, this highly technical and demanding field won't appeal to everyone. But for those with a genuine interest in computers and the possibilities they present for business, science, communication and other endeavors, computer science just might be the degree to get. Consider being able to:

1. Increase your earning potential

It's no secret that computing has the potential for some to provide a nice living. Grads with a bachelor's degree in computer science might be qualified to enter into a number of highearning positions, such as computer systems analyst - which the Bureau of Labor Statistics notes has a median annual salary of \$77,740 in 2011.¹

2. Boost your post-graduation job prospects

NACE's 2012 Student Survey found that computer science majors were one of the three top majors to most likely receive a job offer.² For instance, software developers are projected to grow by 30 percent between 2010 and 2020, according to the BLS, which classifies this rate as much faster than average.³

3. Join a growing industry

Computer-related employment has slowed since the boom of the 1990s, and job

growth has been tempered to a degree by outsourcing. For example, the computer and information research science field remains in excellent shape, as it is projected to grow 19 percent between 2010 and 2020. Meanwhile, according to the U.S. Bureau of Labor Statistics' employment projections, the computer systems design and related services industry is one of the 10 fastest growing

The software publishing industry is also poised for growth, with employment expected to increase 3.1 percent (or approximately 91,800 jobs) between 2010 and 2020.*5

4. Prepare for work in a wide range of fields

industries in the nation.⁴

As an academic discipline, computer science <http://bit.ly/11N5npM> tends to develop strong theoretical and analytical skills that can be applied to many different professional pursuits, from the fields of engineering to medicine to financial analysis. The economy is constantly evolving, and technology is one of the primary reasons. When you have both the practical skills of computer science and the intangible critical thinking and analytical skills, you can use those talents in a variety of industries and businesses.

5. Help make the world a better place

Not all computer whizzes use their powers for good (hackers create plenty of havoc, <http://bit.ly/CTUcyber2013> stealing financial information, disrupting business, etc.) But they also have enormous potential to change the world for the better. People with backgrounds in computer science have made and continue to make contributions in engineering, the arts, science and medicine.

6. Explore undreamed of possibilities

Computers are so ubiquitous that it's easy to forget how quickly they've changed our lives. Fifteen years ago, e-mail was a relatively new phenomenon, the Internet was just gaining steam, and no one imagined they'd be carrying smartphones loaded up with nifty apps (back then, making a call from the street usually meant finding a phone booth). What might the next 15 years bring? If you have a degree in computer science, you might be the first to know.

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*Colorado Technical University cannot guarantee employment or salary.

1. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Computer Systems Analysts. http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm Web. (Visited on July 22, 2013)

2. National Association of Colleges and Employers, The Class of 2012 Student Survey Report. http://www.naceweb.org/uploadedFiles/ NACEWeb/Research/Student/2012-student-survey-executive-summary.pdf PDF. Page 7. (Visited on July 22, 2013).

3. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Software Developers http://www.bls.gov/ooh/computer-and-information-technology/software-developers.htm Web. (Visited on July 22, 2013).

4. Bureau of Labor Statistics, U.S. Department of Labor. "The 20 industries with the largest projected wage and salary employment growth, 2010-20." http://www.bls.gov/news.release/ecopro.t03.htm Web. (Visited 22 July 2013.)

5. Bureau of Labor Statistics, U.S. Department of Labor. "Industry employment and output projections to 2020." http://www.bls.go p/mlr/2012/01/art4full.pdf Web. (Visited 22 July 2013.)

BLAZE THE NEXT TRAIL IN INFORMATION TECHNOLOGY

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SOFTWARE ENGINEERS IN DEMAND **PLUS 4 FASTEST GROWING IT JOBS**

IT Career Expert, CareerBuilder.com

t's no surprise that demand for information technology http://bit.ly/XcKPoY> workers is strong. Our world is increasingly computerized, and technology is changing so fast that many of us struggle to keep up. IT professionals have the keys to opportunity: an in-depth understanding of computer-related topics like networks, data management <http://bit.ly/15VGJ31>, hardware and software.

A recent CareerBuilder survey¹ of the world's 10 largest economies found that IT workers are the most in demand. In seven out of the 10 economies, employers listed IT positions as the most difficult to fill due to an abundance of opportunities and not enough qualified workers. The United States was one of those countries.

Job seekers with computer skills and training <http://bit.ly/11N5npM> are therefore likely to have plentiful opportunities in today's job market. Here are jobs with the brightest prospects:

continues on page 9

1 "Hou the Skills Gap Affects the Global Economy," CareerBuilde http://www.careerbuilder. m/JobPoster/Resources/ page.aspx?template=none&s mp2=JP_Infographic_2013Global SkillsGap&pagever=2013GlobalSkills Gap Web. (Visited 20 June 2013).

• Software Developers²

Projected growth: 30 percent* Projected jobs created: 270,900

Software developers create applications for networks, data systems, the Web and, increasingly, for mobile devices like smartphones or tablets (such as Apple's[®] iPad[®]). When Apple[®] brags that "there's an app for that," the company means that customers have access to a myriad of applications. It also means that the individuals who design those applications - for just about any company - have great potential opportunity.

• Network Systems and **Data Communication** Administrators³

Projected growth: 28 percent* Jobs created: 96,600

These experienced IT experts set up and manage computer networks <http://bit.lv/14oV6As> - both local area networks, or LANs, which connect computers within a single location, or wide area networks, or WANS, which connect computers across big geographic areas (for example, the Internet). They also set up, manage and protect data - a major priority for most organizations. The job category also includes web developers <http://bit. ly/14w7IWD> and administrators, who will have an even bigger role to play as organizations offer more products and services over the Web.

• Information Security Analysts, Web Developers, and Computer Network **Architects**⁴

Projected growth: 22 percent* Jobs created: 65,700

Although each of these roles has a different function, they are all integral to a company's online activity. Information security analysts keep a company's information free of

cyberattacks <http://bit.ly/CTUcyber2013> and vulnerabilities. Computer network architects are also behind the scenes as they create a company's internal network for a business' employees. Meanwhile, Web developers create the front-facing websites users see when they visit the company's pages.

◦ Computer Systems Analysts⁵

Jobs created: 120,400

Whether they're designing a computer system from scratch or tweaking an existing one, systems analysts have to be able to see the big picture. The job requires a thorough understanding of how an organization functions, so that the hardware and software they choose can best serve that organization's needs.

• Computer Scientists⁶

Projected growth: 19 percent* Jobs created: 5,300

Computer scientists ">http://bit.ly/11N5npM> envision new possibilities for computers (like virtual reality or robotics, to name just a few examples) and work to make those possibilities into realities. It's a challenging, highly theoretical job held by an elite group usually with doctoral or professional





Projected growth: 22 percent*

degrees - there were just 28,900 computer scientists in 2008, according to the Bureau of Labor Statistics (BLS). Those numbers are expected to grow by a significant portion, not surprising given the ever-expanding frontiers of computer technology.

*All job growth projection and job creation projection figures listed are based upon the U.S. Bureau of Labor Statistics for the period 2010-2020.

*The employment statistics and statements mentioned above are national figures. Employment conditions in your area may be different. These are national statistics and conditions in your area may vary. These are national historical statistics and are not representative or indicative of the earning potential of graduates

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2. "Software Developers." Bureau of Labor Statistics' Occupational Outlook Handbook. http://www.bls.gov/ooh/ Computer-and-Information-Technology/Software-developers. htm Web. (Visited 20 June 2013).

3. "Network and Computer Systems Administrators," Bureau of Labor Statistics' Occupational Outlook Handbook, http://www. bls.gov/ooh/Computer-and-Information-Technology/Networkand-computer-systems-administrators.htm Web, (Visited 20 June 2013)

4. "Information Security Analysts, Web Developers, and Computer Network Architects." Bureau of Labor Statistics Occupational Outlook Handbook. http://www.bls.gov/ooh/ computer-and-information-technology/information-security analysts-web-developers-and-computer-network-architects.ht Web. (Visited 20 June 2013.)

5. "Computer Systems Analysts." Bureau of Labor Statistics Occupational Outlook Handbook. http://www.bls.gov/ooh/ computer-and-information-technology/computer-systemsanalysts.htm Web. (Visited 20 June 2013.)

6. "Computer and Information Research Scientists." Bureau of Labor Statistics' Occupational Outlook Handbook. http://www. bls.gov/ooh/computer-and-information-technology/co and-information-research-scientists.htm Web. (Visited 20 June 2013)

IT Roles & Their Salaries

CB Salary Expert, CareerBuilder.com

nformation technology is a fast-growing field, and skilled workers are in high demand. As a result, the pay for computerrelated jobs tends to be generous, for workers with the right education and work experience.

CareerBuilder gathered the median salary for nine IT careers based on data from the Bureau of Labor Statistics (BLS), which is listed below. These occupations typically require additional education, sometimes including a graduate degree, and prior professional experience in the field, sometimes up to several years. Salaries are also affected by geographic area, the job applicant's qualifications, the health of the company doing the hiring, and numerous other factors, and should not be considered entry-level.

Still, it's helpful for job seekers to get a ballpark sense of what they might be able to earn in the course of their careers (or what to shoot for in salary negotiations).

1. COMPUTER PROGRAMMERS¹ \$71.380

Computer software engineers design programs, and programmers write the instructions that allow the computers to put the programs into action, typically using a programming language such as C++ or Python. This field normally requires years of experience to reach higher levels of responsibility. When they're not creating new code, they repair and maintain existing programs.

2. WEB DEVELOPERS² \$75,660

The Internet is now such an integral part of daily life that any business or organization that wants a public presence needs a good website. Web developers make websites, focusing mostly on the technical aspects of site creation but in some cases making design choices as well depending upon experience level.

continues on page 11

1. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Computer Programmers. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/computer-and-information-technology/computer-programmers.htm 2. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Information Security Analysts, Web Developers, and Computer Network Architects. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/computer and-information-technology/information-security-analysts-web-developers-and-computer-network-architects.htm

3. COMPUTER SCIENTISTS ³ \$100.660

A deep theoretical understanding of computer technology <http://bit.ly/11N5npM> allows computer scientists to tackle complicated technical problems and dream up new uses for computers. Prior work experience and advanced degrees, such as Doctor of Computer Science <http://bit.ly/CTUDoctoralDegrees> (DCS) or Doctor of Philosophy (Ph.D.) is usually required.

4. COMPUTER SUPPORT SPECIALISTS ⁴ \$46.260

Depending on the business they work for, computer support specialists typically fall into one of two categories: internal IT support or help desk technicians. In the former role, they work with and support the IT workers at the company. In the latter role, they are the first line of technical support for all employees and solve problems ranging from troubleshooting software issues to password resets.

5. COMPUTER AND INFORMATION SYSTEMS MANAGERS⁵ \$115,780

It makes sense that computer and information systems <http://bit.ly/XcKPoY> managers are at the high end of the earning scale for IT jobs - they oversee organizations' computer-related activities, from hardware to software to programming to networking to Internet security <http://bit.ly/ CTUcyber2013>. Because they have so much responsibility, they may need an advanced degree, such as a Master of Business <u>Administration</u> <http://bit.ly/10ag1ln> (MBA) with a technology focus, and also need several years of work experience.

\$73.490

Setting up databases and ensuring their smooth operation is important for any organization with large amounts of information to store and manage. Experienced Database Administrators <http://bit.ly/15VGJ31> fill this important role, designing, testing and troubleshooting databases.

7. SOFTWARE DEVELOPERS⁷ \$90,530

The range of software now used for interesting things.

\$77,740

Systems administrators are responsible for the management and oversight of computer systems, which usually requires in field work experience. Computer systems analysts choose the systems in the first place, selecting hardware and software. They also decide

3. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Computer and Information Research Scientists. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/computer-and-information-technology computer-and-information-research-scientists.htm 4. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Computer Support Specialists. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/computer-and-information-technology/computer-sup specialists.htm

5. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Computer and Information Systems Managers. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/management/computer-and-information/ systems-managers htm

administrators.htm

analysts.htm



6. DATABASE ADMINISTRATORS

business, scholarship and entertainment is truly staggering. Whether they're inventing cutting-edge computer systems or solving a company's inventory problem, experienced software engineers create the applications that allow computers to do new, useful and

8. COMPUTER SYSTEMS ANALYSTS⁸

how the computers an organization already has can be used for new purposes. Most of the time, computer systems analysts specialize in the software and hardware used for a certain type of business, such as engineering <http://bit.ly/ZycbU3> or accounting.

9. NETWORK AND COMPUTER SYSTEMS ADMINISTRATORS \$69,160

In the fast-evolving tech landscape, connectivity between computers is key whether for small clusters of computers (local area networks, or LANs) or computers across huge geographic areas (wide area networks, or WANS, of which the Internet is probably the biggest example). Network administrators <http://bit.ly/16ilQRx> are experts in the design, setup and management of these networks. In an ideal world, businesses wouldn't need systems administrators. But computer systems are delicate requiring qualified experts – usually through years of experience and education – to make sure that all components (software, hardware, networks and security, to name a few) are functioning and working together properly.

Many of these positions require prior work experience, are not entry level positions and the salaries are not entry level salaries.

or salary. These are national statistics and conditions in your area

6. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Database Administrators. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/computer-and-information-technology/database

7. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Software Developers. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/Computer-and-Information-Technology/Software-developers.htm

8. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Computer Systems Analysts, Web. (Visited 16 September 2013). http://www.bls.gov/ooh/Computer-and-Information-Technology/Computer-systems

9. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Network and Computer Systems Administrators. Web. (Visited 16 September 2013.) http://www.bls.gov/ooh/Computer-and-Information-Technology/Network and-computer-systems-administrators.htm

elass IMPORTANT SKILLS FOR AN IT CAREER

ass

CB IT Expert, CareerBuilder.com

he information technology (IT) field has been growing rapidly, and according to the U.S. Bureau of Labor Statistics (BLS), employment in the IT field is expected to grow faster than average across all occupations.¹ A bachelor's degree <http://bit.ly/ XcKPoY> is generally a prerequisite for IT positions, and a postgraduate degree <http://bit.ly/13ynDEj> may be preferred for management roles.²

In several recent surveys, CareerBuilder found that IT is an in-demand field. Even as the economy continues a slow but steady march toward recovery, employers know IT workers are important to their business. At the start of 2013, a survey of 2,611 hiring managers and human

resources professionals found IT as one of the top fields employers intended to hire.³

In a separate survey of hiring managers in the world's 10 largest economies, IT was listed as one of the hardest to fill positions for businesses in seven of these countriesincluding the U.S.⁴ This survey highlighted the global skills gap that exists where employers are having trouble finding enough qualified, skilled workers to meet the demands of their business. In a statement accompanying the survey's results, Matt Ferguson, CEO of CareerBuilder, explains how vital it is for workers to have the right skills in today's economy, particularly in fields in which there is demand, because of the impact on revenue and productivity.

"Major world economies are feeling the effects of this in technology, healthcare, production and other key areas. The study underlines how critical it is for the government, private sector and educational institutions to work together to prepare and reskill workers for opportunities that can help move the needle on employment and economic growth."5

continues on page 13

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Here are some skills that, combined with the right training, personality and work environment, can help IT workers succeed in their careers:

The IT industry is changing as rapidly - if not more than the economy as a whole. Everyone in the industry has to be on their toes to keep up with the evolving global workforce. The ability to keep pace with changing technologies and the willingness to learn new skills are vital in this industry. Look for opportunities to expand your technical skills and program knowledge on the job. Great leaders understand the current trends and latest technology in their field, so look for opportunities on the job to expand your technical skills and program knowledge. As you continue to progress in your career, you can't become complacent with the way things have always been - even at a senior level. Take advantage of professional training courses and certifications through industry associations and <u>advanced degree programs</u> <http://bit.ly/13ynDEj> to keep your knowledge current.

• Project Management[®]

Being able to manage various projects at the same time is one way to show a boss or future employer that you are ready to move up in your career, especially for those in leadership roles. Demonstrating effective project management capabilities could help you gain visibility within an organization and position you for advancement. This is especially true in the IT world, where much of the work is done on a project-by-project basis, both internally at an organization or externally when acting as a consultant. These skills can be important to employers who are looking for qualified applicants who can demonstrate their success in taking a project from inception to completion and possess effective project management capabilities.

• Business Acumen⁷

While technical knowledge is a must for a career in this field, applicants who can enhance their IT résumé with strong business management skills will be even more attractive to prospective employers. An advanced degree, like a Master of Business Administration (MBA) http://bit. ly/10ag1ln can be required for some high level positions⁸, including computer systems analysts, but IT

workers who can bridge the technical world with their business acumen offer insight that employers value because they look at the big picture. Business-oriented workers can find opportunity for revenue and business expansion that, coupled with their IT knowledge, can greatly affect business and gain the attention of other leaders in the organization.

• Interpersonal Communication Skills[®]

Being fluent in ASP.Net, VB.net, XML, PHP, Java, C#, and C++ is very important. But it is also important to peek out from behind the coding screen and be part of the team, whether leading it or just one of several members. A good coder who is an excellent team player has the potential to stand out because he can easily communicate the "why" and "how" to others as well as motivate everyone behind one goal. In an article for CIO magazine, author Anita Bruzzese explains the value of good communicators in IT positions, not just within their own teams but also outside of them. "Keep in mind that business and technology are so intertwined these days that it's critical for IT professionals to be able to work and communicate across departments," Bruzzese says. "IT workers can develop their interpersonal skills by being involved in more interdepartmental meetings and in customer interactions where they must explain technical issues in a way anyone can understand."10

6. "Why you should consider a job as a software developer." Debra Auerbach, The Work Buzz. 12 August 2013. Web. (Visited 19 September 2013.) http://www.theworkbuzz.com/find-the-iob/whv-vou-should-consider-a-iob-as-a-software-developer

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8. "How to Become a Computer Systems Analyst." Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition. Web. (Visited 20 June 2013.) http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm#tab-4.

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10. "How IT Pros Can Improve Their Interpersonal Skills." CIO. 21 December 2012. Web. (Visited 20 June 2013.) http://www.cio.com/article/723854/How_IT_Pros_Can_Improve_Their_Interpersonal_Skills.

11. "How to Become an Information Security Analyst, Web Developer, or Computer Network Architect." Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition. Web. (Visited 20 June 2013.) http://www.bls.gov/ooh/computer-and-information-technology/information-security-analysts-webdevelopers-and-computer-network-architects.htm#tab-4

◦ An Understanding of the Creative **Process**¹¹

You don't need to be a copywriter, visual artist or creative director to understand and appreciate how creative projects come together. However, marketing efforts are increasingly relying on technology, whether it's a simple website or a large-scale campaign involving various interactive elements. If you can speak the language of the creative team that you'll be working with, you can more easily execute their ideas and also give feedback on why certain aspects might not function the way they're envisioning. As the lines between a technological project and an artistic project continue to blur, you could stand out if you can comfortably participate in both sides of the process.

*Colorado Technical University cannot guarantee employment or salary.



certifications from renowned organizations, such as Microsoft, in addition to acquiring extensive work experience.

> "In today's era of frequent IT implementations and modifications, prior

work experience within the field simply does not cut it anymore," Vasko said. "Professionals must also receive certifications recurrently to maintain their knowledge of the industry's most up-to-date technological adaptations."

restoration.

Microsoft Certified IT Professional

The MCITP allows professionals to expand their skill sets and to confirm their expertise within a variety of job roles, including server administration, database development and database administration.

Cisco Certified Network Associate

By acquiring CCNA certification, professionals can further develop their troubleshooting, configuration and installation skills as they focus on improving their organizations' networks and websites.

"In today's era of frequent IT implementations and modifications, prior work experience within the field simply does not cut it anymore"

By accompanying years of experience with steady enrollment in certification courses, professionals can still thrive in the field.

So which certifications* should employees consider obtaining? The following three certifications could prepare professionals for upcoming IT trends.

► CompTIA A+

Such certification trains IT professionals in various capacities, including networking, troubleshooting, maintenance and installation. Certified employees are generally

In addition to earning certifications, professionals should consider subscribing to various IT magazines. Such periodicals offer the latest information in the IT world regarding organizations, technological implementations and industry leaders.

The following three magazines, among others, provide cutting-edge information to IT professionals:

FUSION 13

Subscribe to

- THE IT SUMMIT
- INTEROP

hroughout the 21st century, information technology has become one of the most dynamic, fluctuating fields in the world. While a formal education can lay a firm foundation for an IT career, practicing the following activities will help IT professionals stay sharp and competitive in the workplace.

As computing technology continues to change and advance at a rapid pace, IT professionals must be able to adapt and utilize their skill sets, past work experiences and education accordingly. In doing so, they may positively impact the industry

and pursue their goals within the field.

> But how can IT professionals

adapt to the constant changes of technological advancements? One of the simplest tools at your disposal is social media. Connect with industry specialists on Twitter, Facebook <http://bit.ly/ CTUsoc1004>, and LinkedIn <http://linkd. in/10jaBEo> from your laptop or phone. Industry specialists, such as the faculty at Colorado Tech University, are directly accessible by following @CTUTech on Twitter <http://bit.ly/14whlVj>.

Another way is by obtaining and maintaining IT certifications. Beyond this, subscribing to industry-leading magazines or education resources, such as CTU's IT and computer science faculty blog <http://bit.ly/CTUCSITBlog>, will help maintain your knowledge. Lastly, professionals who attend trade shows are better prepared to stay on top of their game.

Obtain Industry Certifications

As a CompTIA A+ certified IT professional based in Allegan, Mich., Joseph Vasko believes IT employees should earn

CB IT Expert, CareerBuilder.com

NDISTRV



viewed as effective communicators who are focused on customer service and computing



Reputable IT Periodicals

Nashville, October 20-23

San Diego, December 5

Las Vegas, March 31-April 4

Computerworld

Since the 1960s, Computerworld has offered the latest in technological news and information for IT gurus, organizations and users alike.

InfoWorld

Covering a range of emerging topics, InfoWorld provides updates on groundbreaking technological products and developments to inform industry leaders and IT professionals about the most recent merchandise and solutions.

SmartComputing

By offering readers state-of-the-art information about computer viruses and technological support, as well as reviews of hardware and software applications, this publication educates nationwide IT users and professionals.

Attend IT Trade Shows

Finally, IT professionals may be interested in attending trade shows throughout the country. Check with your employer about reimbursement options related to conferences and continuing education <http:// bit.ly/XcKPoY>. Some conferences also offer reduced rates for students, those working in the technology industry, and members of affiliated professional organizations. The following shows will occur throughout 2013 and 2014.

*Colorado Technical University (CTU) does not prepare students to take the exams necessary to receive the cited certifications and does not guarantee third-party certification nerally. Certification requirements for taking and passing rtification examinations are not controlled by CTU but b[.] outside agencies and are subject to change by the agencies without notice to CTU. Therefore, CTU cannot guarantee that graduates will be eligible to take certification exam regardless of their eligibility status upon enrollment

*Colorado Technical University cannot guarantee employme or salary.





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