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Improving the Internship and Career Search Process for IS, CS, and IT Students

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Abstract

Universities often centralize career placement personal and online services to provide training, guidance and support for many different disciplines. Comparing the differences among liberal arts, business, education and CS/IS/IT career search processes and tools, it is increasingly important for CS/IS/IT departments and faculty to advise their students of the unique career search strategies related to their discipline. After conducting a literature and Internet review, interviews were conducted for several career placement specialists, IT and HR managers. This study focuses on improving traditional and generic resume, internship and career search services for the needs of CS/IS/IT students. General and applied recommendations are presented.

Keywords: CS/IS/IT Resumes, Online Resume Posting Services, Social Networking, Linkedin Profile, Career Searches, Career Placement Services

1. INTRODUCTION

Resume preparation, job searching, and interview training are career advisement services provided by university, professional and free web site career placement services. Given a student's degree, performance, job qualifications, prestige of the institution, and a host of other employment factors, the job search efficacy of computer science, information system, and information technology (CS/IS/IT) students varies. University level placement goals include the percentage of placements in a career area within a period of time after graduation and average salary. (Want a job, n.d.; UMBC, n.d.; Boston University, n.d.) Rarely do university placement services or academic departments track the quality of the placement, success or failures of the career search process, or long-term career progression after entry-level positions. For example, is placement of a (CS/IS/IT) student in a help desk position a success or a failure? Some industries view help desk positions as entry-level CS/IS/IT positions, while other organizations view help desk positions as a dead-end career path.

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Universities often centralize career placement services to provide training, guidance and support for many different disciplines. Some CS/IS/IT academic departments may offer additional career placement services. Comparing the differences among liberal arts, business, education and CS/IS/IT career search processes and tools, it is increasingly important for CS/IS/IT departments and faculty to advise their students of the unique career search strategies related to their discipline. This study focuses on improving traditional and generic resume, internship and career search services for the needs of CS/IS/IT students.

2. RESEARCH METHODOLOGY

After an initial literature review, an Internet review was conducted to determine the level student career placement services provided by university, professional and web site career placement services. Nine (9) universities career service web sites, ten (14) online job posting web sites, and four (4) social networking sites were reviewed to determine the level and applicability of career services to CS/IS/IT students. In addition, on-site visits to four (4) additional universities were conducted.

Online and face-to-face interviews were conducted with several Career Placement Specialists, IT managers, and Human Relations Directors. Six (6) career specialists were interviewed. The objectives of the career specialist's interviews were to determine the types of career services and training provided, recommendations to improve the internship and career search process, and the level of customized career services for the needs of CS/IS/IT students.

Fourteen (14) IT directors, managers or specialists were interviewed. IT specializations included application programming, infrastructure management, software testing, database services and help desk support. The objectives of the IT interviews were to determine the process and criteria of their internship and job selection, CS/IS/IT resume considerations, and recommendations to improve of CS/IS/IT student search process. Specific recommendation for academic requirements for a given IT discipline were not studied.

Four (4) HR managers or directors were interviewed. The majority of the IT interviewees expressed concerns that initial HR application and resume screening may be rejecting interview candidates that may be acceptable or accepting other candidates that were not qualified. The objectives of the HR interviews were to determine the process and criteria to select interview candidates, the use on online job posting services, legal and social networking considerations, and recommendations to improve the CS/IS/IT student career search process.

Based on the information from the literature review, career-related web sites, and interviews, the authors organized, summarize, applied and presented recommendations for improving the CS/IS/IT career process. These recommendations are organized into four sections a) Beginning the CS/IS/IT career search process, b) Effective CS/IS/IT resumes, c) Online resume posting and job searching, and d) Online professional, business, and social networking. Due to the confidential nature and possible legal implications of the career search process, most interviewees insisted that both their company and personal identity not be disclosed.

3. BEGINNING THE CS/IS/IT CAREER SEARCH PROCESS

Placement services provide general strategies to begin the career process, for example, self assessment, exploration of career opportunities, and networking. (Indiana University, n.d.; McGill University, n.d.; University of Wisconsin-Eau Claire, n.d.; University of Wisconsin Computer Science and Engineering, n.d.) CS/IS/IT professionals provide more specific advice applicable to the discipline such as, take programming intensive courses, don't blow off classes, writing skills are important, you must have an internship, and don't worry that jobs are being out-sourced to foreign countries (Splosky, 2005).

It is very important to encourage CS/IS/IT to begin their career search process early, e.g., freshman and sophomore years. While the industry demand of "qualified" CS/IS/IT students continues to be strong there are significant differences between specializations (Melitt, 2011). His Top 5 list of IS careers included Enterprise Applications, SAAS/XAAS, Business Intelligence, Mobile Technology/Social Media Integration, and Security (emphasis on SAAS and web applications). Other growing IT skills include web application development and testing, enterprise infrastructure, virtualization,

project management, unified communications, and collaboration architecture. (Collet, 2010; Shultz, 2010).

CS/IS/IT Model Curricula, departments and faculty have been challenged to integrate new technologies into the curriculum. However, it is also important for faculty to prepare students to search for these changing career opportunities early in their academic careers. University placement services do not have the expertise and are engaged by students near graduation. For example, virtualization is a technology topic. But, it is also a future career opportunity. Virtualization includes several subdomains; such as, server, storage and network virtualization organized as cloud architecture. These subdomains typically use the keywords IaaS, PaaS and SaaS. However, CS/IS/IT students are rarely aware of popular virtualization job descriptions, for example Virtualization Architect, Engineer or Administrator, or alternative virtualization infrastructures, (e.g., VMware, Citrix, Microsoft, Red Hat , EMC, etc.). The previous list does not include the largest provider of virtualization and cloud services, IBM z/VM and LPARs. In 2012, Dice, a major job posting site, lists 4,000 unfilled virtualization job descriptions. Employers search for candidates frequently based on vendor or architecture keywords.

The operative phrases are "Job Descriptions" and effective "Job Skill Keywords". While preparing students for CS/IS/IT technologies is a four-year process, the process of increasing student awareness of CS/IS/IT careers, job descriptions, and job skill keywords are also a four-year process. Most online job posting sites include automated job skill keywords to filter the large volume of the online resumes. University placement services guide students to report job-related course titles and skills but offer very little advice on how to apply these concepts to the discipline. In response to rapidly changing technologies many course titles and descriptions are generic and will rarely qualify as an effective job skill keyword. Each CS/IS/IT course syllabus should contain a list of "tested" job skill keywords, e.g. virtualization, cloud services, J2EE, Android, application security and testing, etc., recommended to be included in a student internship or job resume.

Certification and self-study are important career components for CS/IS/IT professionals. It is recommended that course syllabi or assignments should contain a career-based, self-study section relevant to the course content. These sections should be designed as a pool of resources to increase student career awareness, not a required student assessment. Early student awareness of specific career opportunities and required skills, provides flexibility to choose electives and specializations. The CS/IS/IT faculty, the content experts, are now engaged in their students career search process.

Relevant Certifications include e.g., Sun Certified Java Programmer, Citrix Certified Enterprise Engineer (CCEE), Microsoft Certified Solutions Developer (MCSD) certifications, IBM System Z certifications, etc. Free and paid supplementary education paths are frequently available. Most major IT companies have either free or student discounted software and training documentation to support self-study, e.g., IBM Academic Initiative, Microsoft DreamSpark (MSDNAA), etc. The easiest way to increase student awareness of new jobs and skills beyond the curriculum is to provide YouTube links, career path web links, assignments and handouts.

The availability and importance of CS/IS/IT internships has increased. Many entry-level IT positions in larger organizations require internships. Internships significantly reduce uncertainty and legal implications of new entry-level hires. Career-changers can demonstrate their skills in adapting to the new career responsibilities. Internships also reduce employers' unemployment benefit and turnover costs. While many CS/IS/IT departments and faculty are engaged in the internship process, preparation for the internship process and skill requirements should be included in early courses and advisement. Recommendations include providing a list of recommended courses, skills and self-study sources for specific internships, mailing internship opportunities to "all" majors, and internship presentations from previous students or employers (preferably captured for easy asynchronous deployment).

4. EFFECTIVE CS/IS/IT RESUMES

Traditional placements services emphasize the role of a job-entry resume as a marketing tool that advertises a student's abilities, skills, accomplishments, related experience and future capabilities. Like many other technical careers, CS/IS/IT career opportunities vary greatly between functional areas, e.g., application development, infrastructure, project management, security, business intelligence, etc. and the level of job skills required. Within

these parameters, employers may have additional job requirements unique to the hiring organization. The bottom line is that CS/IS/IT resumes must be customized.

Resumes are frequently organized using one of three approaches, chronological, functional or hybrid. A chronologically designed resume for entry-level job seekers will frequently list relevant education experience and skills are listed before career experience. Within each category, individual items are listed in reverse chronological order. A functionally designed resume emphasizes relevant transferrable skills and is used by job seekers who have limited formal education and experience. A hybrid approach may combine functional organization within a chronological outline. (Miami University, 2012; Tips for Preparing, n.d.)

Focus on Job Descriptions and Requirements

Specific CS/IS/IT job descriptions and requirements are the major determinants of the design, wording, and presentation of skills on a technical resume. The order of major resume sections, e.g., listing professional experiences, internships and applied projects before the education summary, should be based on the internship or job description.

Students should use as many keywords and job qualification requirements from the job description and requirements in their resume to confirm their knowledge of the job requirements, increase the probability of their resume being selected using skill keyword searches, and demonstrate their ability to be "clear and concise." Every resume should be customized to the requirements of the specific job posting.

Students should eliminate resume sections or reduce content that does not add value to the specific job description. Students frequently list employment history and details not related to the job posting. Detailed descriptions of a student's work experience before or during college are rarely important. On the other hand, the abilities to manage one's personal time between job and school, contributing towards college expenses, maintaining a QPA, and the development a consistent work ethic are more important than the specific job. Unless related to the specific career area or job requirements, a future employer does not really care if a student was employed by a lawn service or worked at a fast food restaurant. A better approach may be

"Contributed 20% of college expenses working part-time jobs." This statement emphasizes effective time management, balancing the responsibilities of school and part-time employment.

Focusing a resume for career-changers present other challenges. While it is important for experienced job-seekers to show a pattern of continuous employment, faced with poor job markets many return to school for CS/IS/IT careers. Never leave significant time gaps in employment history without taking and reporting action to improve future career opportunities. Long periods of idle employment substantially decrease a person's job prospects. A review of an IS student resume with a 20-year history as a former marine drill sergeant provides insight to common mistakes. Listing marine drill sergeant job tasks provides few qualifications for the current job description.

On the other hand, an appropriate guideline is to determine which skills from a previous job experiences makes a person a better or "unique" candidate. For example, a marine drill sergeant may provide the following skills set: management, leadership, self-motivation, effective communication, training, team building, and problem solving. Previous work experience should be connected with skills and accomplishments as values to the specific future job, internship and hiring organization. In the drill sergeant example, the relevant skill is not issue remediation in "100 push-up increments"; rather, it is a "demonstrated ability to successfully train and motivate subordinates in a large group setting".

Most resume reviewers make a decision within the first half page. The acronym PCC may be helpful to remind students that it is imperative to Prioritize, be Clear and Concise. Overly presenting or emphasizing non-relevant experiences may indicate that the job seeker does not understand the priorities and requirements of job position or internship. While being the captain of the high school football team or cheerleaders was an important highlight in the job seeker's life, it most likely will have little bearing getting a person a job interview. Membership in multiple social and professional student organizations may be effective networking strategy, but when inappropriately emphasized on a resume may indicate a job seeker's inability to prioritize their skills in relationship to the requirements of the job position. A resume is NOT an autobiography.

Rather it is a marketing document that lists and directly connects a person's experiences, skills and education to the specific job description, requirements, and organization.

CS/IS/IT Resume Selection Considerations

Contact, personal information, and Linkedin profile.

The Contact or Personal Information section is normally presented at the top of the resume. Traditional contact information includes name, address information, email, and telephone numbers. All CS/IS/IT students should also include a link to a Linkedin Profile. Unlike other social networking tools Linkedin focuses on careers, jobs and a professional image. Other social media is directed to "finding a friend" or informal communication (Samawi, 2011). Rarely, should an entry-level or internship resume be longer than one-page, and never longer than two pages. A Linkedin Profile provides the ability to expand or enhance the content of a traditional resume. While perceived to be a tool for experienced professionals, it is recommended that CS/IS/IT students should start continuously developing their Linkedin Profile as early as a sophomore. It is never too early for a student to demonstrate their professionalism.

Career objective statement, executive summary or profile section.

Every CS/IS/IT entry-level resume should have a clear focus and objective. But should all CS/IS/IT entry-level resumes contain a Career Objective Statement? Some professional resume writers consider the Career Objective Statement as being antiquated, verbose, and biased to the candidate - not to job-seeking organization (Levinson, 2012). Others indicate that a job-specific, customized career objective statement may provide focus and attract the reader's attention (Doyle, n.d.b). However, one should ask the following question, "What is more important to the job recruiter, the candidate's skills, experience and professional requirements to meet the needs of the job description and requirements, or the candidate's need to find a job?"

Tim Mellitt (2011), CIO GE Hitachi Nuclear Energy, indicated that many IT employers seek candidates with the appropriate technical aptitude, business acumen, and leadership. However, it is also important that CS/IS/IT students develop other important skills; such as clear and concise communication, problem solving, critical thinking, finance, time management, project management, and exposure to real world technologies (Mellitt, 2011). These skills are important skill keywords of a CS/IS/IT entry-level resume.

While an Executive Summary section may not be appropriate for most CS/IS/IT students, a more generic Profile Section may permit the job candidate to introduce skills not presented in the other resume sections. Consider the following example Profile Section text. "Information System graduate looking for the opportunity to learn and apply development, problem solving and communication skills in a project-based organization." It is important to emphasize that whatever format the candidate selects, this section is optional; should not be verbose, or may be eliminated if resume page space can be put to other better uses.

Education and professional certifications section.

This section should begin with the listing of the most recent degree, major or academic concentration, followed by other degrees and professional certifications. The name and location of the appropriate university, college or certification should also be listed. Listing high school or pre-bachelor degrees may provide little value. The advantages and disadvantages of listing the date of graduation or certification should be considered. Listing these dates may provide evidence of the lack of technical currency or continued professional development, or age of the applicant.

While it is illegal to discriminate against applicants on the basis of age, getting to the interviewing process provides career-changers with the opportunity to demonstrate their advantages as candidates, e.g., job performance in other careers, experience in problem solving, management style, loyalty, maturity, discipline, and dedication. Younger candidates have not been tested by the rigors and challenges of continuous employment. Older CS/IS/IT students can sell their advantages during the interview. Most IT organizations value these advantages of mature graduates assuming that these students will also be making a long-term commitment to the organization.

The Education Experience section should also include GPAs, honors and awards. Many employers require a minimum G.P.A., e.g., 3.0. A high G.P.A. represents a level of skill, as well as maturity, discipline, and flexibility. High

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major career G.P.A.s may indicate that the student enjoys the subject matter or professor. In industry, one will encounter entry-level positions that are not interesting or are required to report to poor managers. A student may "drop their course or instructor", but they cannot drop their boss. How should students present G.P.A. information in a resume if they do not have the minimum required G.P.A.? One solution may be to present only a major G.P.A., e.g., 3.5 in the major. Such an approach may prevent a resume from being eliminated by the HR department initial review or automated keyword search. Based on the major G.P.A., student candidate may qualify for interview process where they can present their other skills.

Professional skills section.

Traditional resume design recommends a brief listing of relevant courses. This strategy is questionable for CS/IS/IT students since (a) course titles are rarely standardized as other disciplines, (b) course titles do not emphasize technical or vendor-specific skills required, or (c) courses may ignore other support skills, for example business acumen. Table 1 presents a resume format and keywords for a sample Professional Skills Sections. A quick review of the keywords emphasizes the importance of CS/IS/IT faculty to support their student's career searching process. These skills may be acquired by many sources, e.g., course work, internships, self-study, accreditation, work experiences, etc. Listing the appropriate skill keywords will help a resume to be selected and the candidate can later discuss their level of expertise in an interview. Listing multiple versions and vendor-specific keywords may be important. For example, in 2011 Windows XP remains the second most deployed desktop operating system as compared to Windows 7. For other Resume Guidelines - See Table 2.

5. ONLINE RESUME POSTING AND JOB SEARCHING

Career placement services often direct students to popular job boards like Monster, Career Builder, and Indeed (Doyle, n.d.c). Indeed.com offers a job search consolidation search tool for of other "job, web sites, job boards, newspapers, blogs, company career pages, and associations."(Doyle, n.d.a) In 2011, Indeed introduced a resume posting service similar to those provided by other job board sites (Zappe,2011). See Tables 3 and 4.

While free to job seekers, many online resume posting services charge a fee to the employer. For example Monster and DICE charge between $210 and $495 for a 30 or 60-day standard job posting (Monster.com, n.d.; Dice, n.d.; Computerjobs.com, n.d.).

There are two implications to Monster.com fee that affect student. First, while the high cost of online job posting services may be lower than hard-copy job postings, many employers will use fee-based services for higher skill careers and different methods for posting for entry-level positions. A quick review of many online posting services finds that positions require experience and skill levels normally not found in undergraduate and graduate students. The importance of internships, relevant volunteer engagements and hands-on experience cannot be overestimated.

Secondly, it is important to consider the 30 or 60-day duration of a typical online job posting. If an employer can quickly find the candidate for a job, Monster will not delete the job posting until the 30 or 60-day contract has passed. This means that Monster and other Resume Posting sites continue to post a job even after it has been filled. It is important for Monster to provide a larger inventory of job postings to attract job hunters as well as employers.

Small or medium-size IT employers may view the fee based sites like Monster.com to be an effective recruitment tool for skills that are difficult to find, or to provide greater regional, national, or international reach, and image exposure, etc. The responses from a successful job posting may exceed four hundred resumes in the first 48-hours after release. Many IT employers or HR staffs do not have the resources to review large volume of resumes.

This has two implications for students searching for a career. First, job searching is a full-time job. Depending on the skill requirements and level of the job, it is important to respond to new employer online posting within 24 hours of the original employer post date. It is normal for an HR department to find twenty or more qualified resumes in the first 24-hour period. Additional resumes may be reviewed if the original candidate pool does not meet the need of the IT staff, but the chances are low that a resume will even be reviewed. Secondly, students often get frustrated after they get no responses from job postings. Improving their

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posting time, more appropriate keywords, and resume design may improve their chances.

In recent years, there has been a trend to switch the responsibilities for screening recruitment functions from the IT staff to the HR department. This change has meant a) significantly fewer IT staff visits to colleges, b) increased importance of job descriptions, requirements and skill keywords, and c) lack of technical expertise in the initial resume review process. Getting past the HR review sometimes may be as difficult as surviving an IT managers review and interview.

6. ONLINE PROFESSIONAL, BUSINESS, AND SOCIAL NETWORKING

The use of social networking tools has implications for the entry-level candidate as well as the job recruiter. From the entry-level job seeker's perspective the use of social networking tools may provide information leading to more job leads. Recruiters use social networks as an advertisement tool, and also for social or professional contacts.

Cheung and Dougherty (2005) proposed a social networking job search model that would have an impact on job search self-efficacy and self-esteem (Cheung and Dougherty, 2005). Extrapolating from face to face social comparison research (Festinger, 1954; Wood, 1989), entry-level job seekers should be able to use feedback from their social networks to provide information to appraise their results from the job search process. Social networks are often comprised of individuals who have either higher, comparable or lower job search expectations, qualities, or experiences as compared to the entry-level candidate. Comparing their job search process to higher quality individuals allows students to discover deficiencies in their job search process, resulting in self-improvement. On the other hand, social comparisons to lower groups may contribute to high self-esteem (Festinger and Willerman, 1954; Wood, 1989).

In 2008, a CareerBuilder.com survey reported that 22% of 3169 hiring managers used social networks to 1) provide additional evidence to hire a job seeker (24%) or provide additional evidence not to hire someone (34%). Samples of the social network evidence that was used not to hire included drinking and/or drug photos, poor or unprofessional communication skills, provocative photos, and lying about qualifications. If employers do use social networks searches, they are not required by law to notify the candidate if the search objective does not involve a credit check process covered by federal credit regulations. Some states do have laws that limit use of "leisure information", if current employees engage in the same behaviors. In spite of these limitations, it is reasonable to expect that hiring managers will not report or document their use of social network searches that result in a non-hire decision. However, federal contractors are required to keep records on the use of social network searches (Harpe, 2009). Students should be encouraged to actively manage their online presence in terms of, professionalism, communication skills, currency of skills, and accuracy (Back, 2011).

Face-to-face networking is more effective than using online social networks. Networking includes internship opportunities, attendance at professional meetings, and conferences. Attendance should not be viewed as a primary job-hunting process. Rather students should view meetings as strategy to understand the organization and to develop a network of advocates who will search for relevant jobs. Students could also volunteer their services for professional associations and related organizations and non-profit groups. This makes it much easier to meet people in the profession and demonstrate skills. Preferably, volunteering skills should begin before the job search process. Document of these professional volunteer activities should be included on resumes and during the interview as appropriate.

7. CONCLUSION

Many faculty want to deliver vendor-neutral curricula. Traditional placement services provide generalized job searching services appropriate to any discipline. However, IT employers require specific vendor and hands-on skills. Given technical nature of vendor-specific skills sets, CS/IS/IT faculty are more qualified to guide students in the use appropriate career-based keywords. Early encouragement and advisement of keyword skills, demanded specializations, career-valued electives, professional certifications, self-study opportunities, internships, and proper use of social media tend to be discipline specific. Effective student career searches are so complex it can no longer be outsourced to university placement services.

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APPENDIX

Sample Professional Skills Section Table 1	
Category	**Examples and Keywords**
Application Development, Scripting, and IDE/Version/Testing	* J2EE, .NET, ASP.NET, C, C++, PHP, Android, IOS Objective-C, Mumps, COBOL, Embedded DB2/CICS , JavaScript, AJAX, Restful, Ruby, Power Shell, PERL, BASH * Eclipse, RDz, Rational (RAD), Windows Studio, JDeveloper, * CVS, SVN, HG, manual or automated unit/functional/integration testing tools.
Platforms and Virtualization	*** Desktop and Mobile** - Windows XP/Vista/7/8, Linux, MAC OS X Lion, Android, iOS *** Servers/Enterprise** - Linux, Solaris, AIX, zLinux, RHEL, Windows Server 2008 R2/2012, z/OS *** Virtualization** - VMWare ESXi/Fusion/Server/Workstation/Player, Xen, z/VM/LPAR, Hyper-V, x/VM, Vbox
Infrastructure Management	* Enterprise - Cluster, Distributed, desktop, * Network - Configuration, monitoring, CISCO IOS, security * Directory Services - Active Directory, OpenLDAP * Storage - SAN * Web Application
Database, Data Warehouse, Data Mining and Related Components	* DB2, Oracle 11g/Express, SQL Server, MySQL Access, PL/SQL, SQL Server 2012 * SSAS, Cognos, SPSS, SAS, * SQL Management Studio, phpMyAdmin, Navicat, Visio, Oracle data Modeler,
Web and User Productivity	Expression Web, Macromedia, Microsoft Office, Open Office, Macros
ERP Configuration	SAP, Oracle Financials, PeopleSoft, Dynamics
Related Skills	Project Management, Finance, Managerial/Cost Accounting,

General Resume Guidelines (Levison, 2011) Table 2	
Resume Guidelines	**Comments**
Never use the first person, e.g., "I", "We"	First person resumes are un-professional. "I worked on a capstone project that I developed a user interface, web application and database ".
Sections, Short Phrases, and outline bullets	Outline structures are more readable. Do not use long complex sentences.
Use Action Words appropriate to the skill and Job Descriptions	Start with SDLC phases, e.g., Assess project requirements, Analyzed, Fact Finding, Design, Modeled, Developed, Unit Tested, Functional Tested, Secured, Deployed, and Maintained.
List Major Projects, Significant Research Papers and Assignments	Provide a title/topic, skills, etc. Capstone Project: "Retail Bookstore Web Application Project" - Assessed project requirements, designed, developed and tested web interfaces, Java applications using an Oracle 11i database Research Paper: "A Comparison of Web Application Platforms". COBOL/CICS/DB2 Customer Maintenance Application
Review Online Resume Examples	
Do not lie about qualifications, experience, or criminal record or experience	Even after hiring, lying on a job application is grounds for dismissal. Expunge previous criminal arrests and convictions at least 6 months before the job hunting.
Letters of Reference	Brining copies of letter of references to the initial interview rather than listing them on the resume.
Do not make common mistakes	Typos, grammar, font faults, salary requirements,

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Management Information Systems Job Search Engines (University of Tulsa, n.d.) Table 3	
Beta Gamma Sigma: Career Central	http:/careercentral.betagammasigma.org/
ComputerJobs.com - focused solely on the IT professional	http:/www.computerjobs.com/homepage.aspx
Dice- The leading career website for technology and engineering professionals	http:/www.dice.com/
TechCareers - Premier online career community for information technology and engineering professionals.	http:/www.techcareers.com/
Systemz Job Board IBM Enterprise SystemZ Careers. e.g., z/OS, legacy and zLinux open-source	http:/www.SystemzJobs.com

General Job Search Engines (University of Tulsa, n.d.) Table 4	
CareerBuilder.com	http:/ www.careerbuilder.com/
CareerJet.com	http:/www.careerjet.com/
CollegeRecruiter.com -Premiere information source for college students, grads and recent graduates who are seeking employment	http:/www.collegerecruiter.com/
Free Career Search - a robust search engine that lets you scour the largest Internet database of career resources.	http:/www.freecareersearch.com
Indeed.com	http:/www.indeed.com
Job.com - source for local jobs, career advice, and services to manage the job search process	http:/www.job.com
JobBank USA	http:/www.jobbankusa.com/
JuJu A job search engine providing quick access to jobs found on thousands of employer websites and job boards	http:/juju.com
LinkedIn - an interconnected network of experienced professionals	http:/www.linkedin.com/
LinkUp - Lists jobs taken directly from company websites.	http:/www.linkup.com/
Monster.com - devoted to matching employers with employees.	www.monster.com
Nation Job	http:/www.nationjob.com
Simply Hired	http:/careers.simplyhired.com
Vault - Career Intelligence, job search articles, little focus on CS/IS/IT	www.vault.com
Yahoo! HotJobs	www.hotjobs.com

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