REPRESENTATIVE DOCUMENTS
OSS Contributor Agreements
UNIVERSITY OF CALIFORNIA GUIDELINES FOR CONTRIBUTING TO OPEN/COMMUNITY SOURCE SOFTWARE

I. PURPOSE

The University of California not only uses Open Source Software and Community Source Software (O/CSS) in furtherance of its mission, in a growing number of cases the University also contributes code back to those O/CSS communities. Benefits accrue to the University as a result of making such contributions, but in doing so the University takes on certain associated responsibilities.

The purpose of this document is to:

• Summarize the rights and responsibilities associated with O/CSS contributions made on behalf of the University;
• Provide guidelines by which the University can most effectively and appropriately evaluate and manage making such contributions, taking into account pertinent licensing, technical, intellectual property, legal, policy and cost/benefit issues; and
• Identify organizations, roles and responsibilities pertinent to the implementation and management of the guidelines outlined herein.

II. APPLICABILITY

These Guidelines apply to:

• All Open Source Software and Community Source Software (as defined in Section III below) used by the University of California;
• All software code that has been created by, or on behalf of, the University of California, that is based upon and intended to correct, modify or enhance existing O/CSS software code, and which the University of California determines is in its best interest to contribute to that O/CSS community;
• All employees, including student, part-time and temporary employees;
• All departments and organizations of the University of California; and
• All third parties whose conduct, in the performance of their work for the University of California, is under the control of the Regents of the University of California.

III. DEFINITIONS

Community Source Software (CSS), as used in these Guidelines, means a software model that blends elements of directed development, in the classic sense of an organization employing staff and resources to work on a project, and the openness of traditional Open Source Software projects.

License, as used in these Guidelines, means a contract in which a copyright owner grants to another permission to exercise one or more of their rights under copyright.
Open Source Software (OSS), as used in these Guidelines, means computer software that is available in source code form for which the source code and certain other rights normally reserved for copyright holders are provided under a software license that permits users to use, study, change, and improve the software.

Source Code, as used in these Guidelines, means a collection of human-readable text and/or programming commands needed to specify the actions to be performed by a computer or computing device.

IV. STATEMENT

The University of California not only uses O/CSS in furtherance of its mission, in a growing number of cases the University also contributes code back to those O/CSS communities. Benefits accrue to the University as a result of making such contributions, but in so doing the University takes on certain associated responsibilities.

Benefits that accrue to the University as a result of contributing code to communities supporting the O/CSS solutions it uses include:

- Adoption of an O/CSS solution can be an important long term investment. Every effort that the University makes to contribute to that O/CSS solution helps to ensure its ongoing success which in term protects the University's investment in that solution.
- Contributing code can enable the University to influence the direction of an O/CSS solution to ensure that it continues to align with the University's needs.
- Code developed by the University for an O/CSS solution is likely done to customize the O/CSS to meet the University's specific needs. Each time the University upgrades to a new version of that O/CSS, it may have to expend additional resources to develop the same code customization to apply to the new version. If the code that the University contributions back to the O/CSS community is incorporated into the core code for all subsequent versions, then the University will save resources by not having to develop the same customized code for each new version.
- It is easier to ask for and receive support from an O/CSS community when one also gives back to that community. By helping others, we help ourselves.

Responsibilities that the University takes on as a result of contributing code to communities supporting the O/CSS solutions it uses include:

- The University’s contribution of code does not guarantee that it will be approved for incorporation into the core code. For this reason it is important that the University ensure that any code it may contribute meets a sufficient level of technical quality and usefulness.
- The University must take appropriate steps to confirm that the code to be contributed was fully created by the University and/or its representatives, and does not contain the intellectual property of others.
- The University must take appropriate steps to ensure that the code to be contributed does not have prior conflicting intellectual property rights obligations or restrictions. Code developed under some form of externally sponsored research should be closely reviewed for this.
- The University must take appropriate steps to determine that the contribution of the code is in the University's best interest.

The use of each individual O/CSS solution is governed by the terms and conditions under which it is licensed, and is protected under United States Copyright law. Furthermore, the University has various internal policies related to Intellectual Property (IP) that may be pertinent to the contribution of code to O/CSS communities. The University is obligated by policy and law to ensure that any code contributions to an O/CSS community are in compliance with the terms and conditions of the pertinent license, laws and internal policies.
V. GUIDELINES

Under the executive sponsorship of the UC Information Technology Leadership Council (ITLC), the UC Technical Acquisition Support (TAS) group researched State and Federal law, and existing University policies pertinent to making contributions to O/CSS. As a result of that research, TAS developed the following guidelines, and proposes that they be implemented as an effective mechanism by which the University can ensure that any code contributions it may make to an O/CSS community are in compliance with the terms and conditions of the pertinent license, laws and internal policies.

1. Each campus should establish a process by which to ensure that any contribution of University developed code to an O/CSS community is in the best interest of the University and is in compliance with the pertinent licenses, laws and policies.

2. The process noted above should include a mechanism by which to effectively confirm that the code to be contributed was fully created by the University and/or its representatives, and does not contain the intellectual property of others. This mechanism should include identification of who specifically authored the code to be contributed, and a review of the laws and/or policies pertinent to that individual's relationship to the University (staff, faculty, contractor/consultant, etc.).

3. The process noted above should include a mechanism by which to effectively confirm that the code to be contributed does not have prior conflicting intellectual property rights obligations or restrictions.

4. The process noted above should include a mechanism by which to effectively confirm that any code to be contributed meets a sufficient level of technical quality and usefulness.

5. The process noted above should include a mechanism by which to effectively confirm whether or not the benefits derived by contributing the code exceed the benefits that could be derived by the University retaining exclusive intellectual property rights to the code. In cases where an O/CSS solution has already been vetted through the appropriate internal governance process and identified as a campus-wide solution, then it may be prudent to establish that the contribution of University developed code to that O/CSS project is understood to be in the best interest of the University. NOTE: If the code to be contributed is for an O/CSS solution licensed under the GPL or other “Reciprocal” license, then the University could choose to use the code solely for internal purposes, but would not have the right to externally distribute for a profit.

6. The process noted above should include identification of the positions and offices responsible for each element of the process.
   a) At most UC campuses, the office responsible for technology transfer and/or intellectual property rights is the primary authority in this area and is likely to be the primary office responsible for managing this process. See the the list of UC Copyright Contacts (http://www.ucop.edu/ott/faculty/crcontac.html) for the contact information for this office at each campus.
   b) Project leads, supervisors, managers, department heads, directors and senior management are responsible for identifying projects in their units to which these guidelines apply, and ensuring that any code contributions are compliance with the established process.

7. It is recommended that this process be clearly defined and documented in a contribution agreement (CA) that can be completed by each individual developer/contributor, and reviewed by the responsible individuals and/or offices prior to the contribution being made. The CA should include the following:
   a) Identification of the code to be contributed;
   b) Identification of the individuals who contributed to the development of the code;
   c) Identification of the approved campus-wide information technology project with which the contribution is associated, if any;
   d) Identification of the benefits that would accrue to the University as a result of the contribution;
   e) Identification of any code authored by others that may be included in the code to be contributed;
Guidelines for Contributing to Open/Community Source Software


f) Identification of the nature of the code to be contributed (patch, enhancement, new functionality, etc.);
g) Identification of the source and date of the internal technical review; and
h) An acknowledgment of understanding of the terms under which the code is being contributed.

A sample CA document is attached and may be customized to reflect the pertinent unique information for each UC campus.

VI. REFERENCES

4. UC Guidelines on University-Industry Relations - (http://www.ucop.edu/ott/genresources/policy_pdf/IndRelGuidelines.PDF)
7. UC Copyright Contacts- (http://www.ucop.edu/ott/faculty/crcontac.html) and (http://www.ucop.edu/ott/contacts.html)
10. Open Source Definition - Open Source Initiative - (http://www.opensource.org/docs/osd)
11. Open Source License Types - Open Source Initiative - (http://www.opensource.org/licenses/alphabetical)

VII. ATTACHMENTS

1. Sample CA form
Contributor License Agreements

DuraSpace desires that all contributors of ideas, code, or documentation to DuraSpace projects submit a completed and signed individual Contributor License Agreement (CLA). This agreement clearly defines the terms under which intellectual property has been contributed to DuraSpace. This agreement will help us defend the project if there is a legal dispute regarding the software in the future. A signed CLA is required to be on file before an individual may commit to a DuraSpace project.

Download DuraSpace CLA:
- icla.pdf
- icla-redline.docx (redline against Apache icla, for comparison purposes only)

In the case of an organization, such as a corporation or academic institution, that has assigned employees to work on a DuraSpace project, a Corporate Contributor License Agreement (CCLA) is available. This agreement may be used to contribute intellectual property that may be assigned as part of an employment agreement. However, a CCLA does not remove the need for every developer to sign their own CLA as an individual, to cover any of their contributions that are not owned by the organization signing the CCLA.

Download DuraSpace CCLA:
- cla-corporate.pdf
- cla-corporate-redline.docx (redline against Apache ccla, for comparison purposes only)

Submit completed CLAs to: legal@duraspace.org

Projects

Fedora

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Per the Collaboration and Partnership Memorandum of Understanding of the Hydra Originating Steering Group Members, one of the foundational tenets of the Hydra Project is to foster a rich, sustainable open source code base.

Section II of the MOU states

II. Intellectual Property Licensing and Ownership

In keeping with the long-term vision of Hydra as a robust and distributed open source product, Hydra Partners and code contributors adopt and are governed by the following principles:

1. Code contributors ("Contributors") warrant that their work created for the Hydra project does not infringe on the legal rights of any person or entity, including but not limited to intellectual property rights. This warranty includes ensuring that Contributors have properly addressed any institutional rights of their “home” or employing institutions, and that they have properly treated any third party software that has been incorporated, including any open source software.

2. The Hydra Steering Group determines at its sole discretion if a Contributor’s code is in scope and appropriate for the Project.

3. All code contributed and accepted to the project will be distributed as open source software, licensed under an Apache 2.0 license (or an appropriate Apache or Open Source Initiative (OSI) approved license sequellae that is designated by the Hydra Steering Group). Contributors must agree to and sign the applicable (individual and/or corporate) licensing agreement before contributing any code.

4. Hydra project documentation, designs and other written artifacts will also be made available under a Creative Commons or similar license. For the avoidance of doubt, the Hydra name and identity is subject to legal protection and is not subject to use by others except with the permission of the Hydra Steering Group.

All code contributors must have an Individual Contributor License Agreement (iCLA) on file with the Hydra Project Steering Group, a process which is initiated by completing an iCLA and emailing it to legal@projecthydra.org. If the contributor works for an institution which has rights over materials that they contribute, the institution should also have a Corporate Contributor License Agreement (cCLA) on file; when no such cCLA exists the potential contributor will be asked to confirm in an email to legal@projecthydra.org, copied to their line manager, that they have institutional authorization to enter into the iCLA.

Hydra also seeks to have clarity around the Intellectual Property of non-code contributions to the Project. Its CLAs cover these non-code contributions as well as code contributions...
and CLAs will be required from individuals and institutions offering non-code materials. At the present time the Hydra Steering Group have determined that such materials should be sub-licensed using a Creative Commons Attribution-Share Alike 3.0 Unported License as permitted under paragraph 2 of the CLA.

- Hydra Project cCLA
- Hydra Project iCLA

The Hydra Project Contributor License Agreements are based on the Apache Foundation CLA’s. Redlined versions of both CLA’s show the differences between the stock Apache agreement and the Hydra Project agreement.

- Hydra Project Redlined cCLA
- Hydra Project Redlined iCLA

CLA status page
- iCLA request letter (code contributions)
- cCLA request letter (code contributions)
- iCLA request letter (non-code contributions)
- CLA collection process

Licensed software
- Licensed software acceptance procedure

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Full name: ______________________________________________________
(optional) Public name: _________________________________________
Mailing Address: ________________________________________________

Country:   ______________________________________________________
Telephone: ______________________________________________________
E-Mail:    ______________________________________________________
(optional) preferred Apache id(s): ______________________________
(optional) notify project: ______________________________________

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by, or are under common control with that entity are considered to be a single Contributor. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

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4. You represent that you are legally entitled to grant the above license. If your employer(s) has rights to intellectual property that you create that includes your Contributions, you represent that you have received permission to make Contributions on behalf of that employer, that your employer has waived such rights for your Contributions to the Foundation, or that your employer has executed a separate Corporate CLA with the Foundation.
5. You represent that each of Your Contributions is Your original creation (see section 7 for submissions on behalf of others). You represent that Your Contribution submissions include complete details of any third-party license or other restriction (including, but not limited to, related patents and trademarks) of which you are personally aware and which are associated with any part of Your Contributions.

6. You are not expected to provide support for Your Contributions, except to the extent You desire to provide support. You may provide support for free, for a fee, or not at all. Unless required by applicable law or agreed to in writing, You provide Your Contributions on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE.

7. Should You wish to submit work that is not Your original creation, You may submit it to the Foundation separately from any Contribution, identifying the complete details of its source and of any license or other restriction (including, but not limited to, related patents, trademarks, and license agreements) of which you are personally aware, and conspicuously marking the work as "Submitted on behalf of a third-party: [named here]".

8. You agree to notify the Foundation of any facts or circumstances of which you become aware that would make these representations inaccurate in any respect.

Please sign: ___________________________ Date: ________________
OSS Licenses
The Software Process

Copyright Notice

Copyright notice can be added to software as soon as it is written. Formal copyright registration is not necessary. Proper copyright notice for University of Colorado software is as follows:

Copyright Regents of the University of Colorado. All rights reserved.

Add this notice to your source code files, on each copy of the documentation and on your website.

Licensing Strategy

Ultimately, the end-goals of a project are defined and protected through permission statements and license agreements. A software license agreement defines how binary or source code is to be used, copied, distributed, and changed. Simply stated, it defines and protects the relationships which surround the research, results, and adoption of a project. Some considerations for sharing copyrighted software are covered in this bulletin on software licensing.

Here are a few templates that are ready to use:

- Source Code Agreement for Non-Profits
- Research License Agreement for both non-profits and for-profits

Open Source and Free Software

Open source and free software licenses come in many varieties. For help in deciding which is most appropriate for your software, see the Technology Transfer Bulletin, Working with Open Source Software. The two basic varieties are free software such as the GPL, which requires that the licensee only distribute derivative products under the GPL, and open source such as the MIT-style license, which allows the source code to be incorporated into a closed, "proprietary product".

Commercial Licenses

The Technology Transfer Office can develop a custom commercial license agreement for end users or distributors of your software.

Managing Projects

All members of the project team should agree on common goals for the software and the roles of group members. As the developer community grows, it will likely expand beyond the University of Colorado. It is very important that the copyrights are managed so that the University has the rights to the copyrights that are contributed by other parties. We recommend asking all contributors to agree to the Contributor License Agreement (need to create a new link) which is based on the Apache Software Foundation's agreement.

University software is subject to the royalty distribution formula in the Policy on Discoveries and Patents. If a software project grows to many CU staff and students over time, each individual is entitled to a portion of the 25% inventor's share of royalties. Some groups choose to direct the inventors' share into a pool of funds to support the project itself. It is necessary for all CU contributors to sign a Project Participation Agreement (need to create a new link) to make that possible.
Software Licensing

If you are a software developer, there are traditionally two approaches to making your software available to others: releasing your work commercially or sharing it via open source licensing.

Commercial Software

IURTC has helped several clients, including ANCEL Learning and Optiform, successfully market software solutions.

If you are interested in assessing the commercial potential of your software, we invite you to begin the technology commercialization process.

It is also sometimes possible to combine commercial development with open source sharing. Contact us if you would like to pursue that option.

Open Source Licensing

If you are not interested in commercializing your software, it is not necessary to disclose your discovery to IURTC nor to obtain our permission to explore open source options.

However, you will need to contact your department to determine any obligations you may have to release software under a particular open source license. These may include requirements in grants or pre-existing open source licenses attached to any software you have incorporated into your work. Your department can help you with these issues.

Open Source Resources at Indiana University

In the United States, the Open Source Initiative (OSI) promotes open source technologies and offers certification for open source licenses and software. Although not legally required, this certification indicates that a license or product complies with OSI's definition of open source.

Two open source communities supported by several universities, including Indiana University, are:

- Kuali Foundation, which supports the development and maintenance of open source administrative software from financial management tools to research administration
- Sakai Foundation, which supports development of open source collaboration and learning environments that support teaching and group collaboration, from scheduling to wikis to social media.
About Open Source Licenses

Open source licenses are licenses that comply with the Open Source Definition — in brief, they allow software to be freely used, modified, and shared. To be approved by the Open Source Initiative (also known as the OSI), a license must go through the Open Source Initiative’s license review process.

Popular Licenses

The following OSI-approved licenses are popular, widely used, or have strong communities (as defined in the 2006 Proliferation Report):

- Apache License 2.0
- BSD 3-Clause “New” or “Revised” license
- BSD 2-Clause “Simplified” or “FreeBSD” license
- GNU General Public License (GPL)
- GNU Library or “Lesser” General Public License (LGPL)
- MIT license
- Mozilla Public License 2.0
- Common Development and Distribution License
- Eclipse Public License

All Approved Licenses

Many other licenses are also OSI-approved, but fall into other categories, such as special-purpose licenses, superseded licenses, or retired licenses. Complete lists that include all approved licenses are available:

- sorted by name (alphabetical)
- sorted by category

Questions?

The OSI maintains a FAQ, which includes a lot of useful background on open source licensing, including:

- Can Open Source software be used for commercial purposes?
- What is “free software” and is it the same as “open source”?
- What is “copyleft”? Is it the same as “open source”?
- What is a “permissive” Open Source license?
Which Open Source license should I choose to release my software under?
Is <SOME PROGRAM> Open Source?
Can I call my program "Open Source" even if I don't use an approved license?
Is <SOME LICENSE> an Open Source license, even if it is not listed on your web site?

For more information about open source licenses and in particular about the Open Source Initiative's approval process, see:

- The Open Source Definition (annotated version)
- The OSI License Review Process
- Information on License Proliferation and the 2006 License Proliferation Report

Help shape the future of the Open Source Initiative...
visit and participate in the OSI wiki.

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Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

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Applying the Apache 2 License to Code

All Hydra code should be located in the ProjectHydra Github project. Each repository in the project should contain a single LICENSE.txt file that carries the Apache 2 License statement, (excerpted here):

```
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```

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The copyright statement should

1. start with the date and name of the originating author(s)—institutional or individual, as appropriate
2. if and when additional contributions are made beyond the original IP holders, the contributors may elect to append an additional copyright statement
3. contain this text string: "Additional copyright may be held by others, as reflected in the commit history."

This will recognize the first committer(s), any subsequent committers, and indicate that additional contributors may hold partial copyright to contributions.

For example, for code originally contributed by Stanford and then enhanced by Penn State & DCE, the copyright statement might read:

```
Copyright 2012 Stanford University
Copyright 2013 Penn State University
Copyright 2013 DCE
Additional copyright may be held by others, as reflected in the
```
commit history.

Read Me

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Examples

See exemplars of these at

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This code was created by the Georgetown University Libraries to assist in the management of DSpace. Local customization will be required before running this code.

Project Page: http://georgetown-university-libraries.github.io/batch-tools/

batch-tools Wiki: https://github.com/Georgetown-University-Libraries/batch-tools/wiki

Installation and customization: https://github.com/Georgetown-University-Libraries/batch-tools/wiki/Batch-tools-customization-steps

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OSS Adoption Decision
Customizing VuFind

Costs and Opportunities

Clint Bellanger - Software Developer
Auburn University Libraries
Costs? VuFind is free* software!

* Zero licensing costs
* Free as in Freedoms and Rights
* Elbow grease not included
Common Customizations

- Institutional Branding
- ILS Integration
- Data Wrangling

Note: most of this work is required for every discovery tool.
VuFind could do *exactly* what you want

- Custom Facets
- Include Google Results
- Index Digital Collections
- University Log-in
Levels of Customization

Vendor Solution

Configure VuFind

Change VuFind

Least Control
High $$$ Cost

Most Control
High Staff Cost
Is internal development worth it?

- In-house expertise
- Change is difficult
- More possibilities
- GPL contribution

- Licensing fees
- Waiting for fixes/features
- Limited customization
- Support safety net

Do It Yourself    Vendor Solution
What You'll Need

- Supportive and critical Research Librarians
- Patron feedback
- More meetings and time than you expect
- But most of all ...
What You'll Need (cont.)

... Mad Scientist Programmer(s)!

*Frankenstein*, 1910. Public Domain
Case Study: Auburn University Catalog

- 18 months from experimentation to Beta to default*
- 1 project leader spending 50% time
- 2 software developers each spending 50% time
- 1 server admin spending 5% time
- 1 graphic designer spending 5% time
- 5-8 departmental representatives in weekly/biweekly meetings
- Server costs

*Development continues. Meetings are smaller and monthly.
Risks

- Software project failure rate is notoriously high
- Considerable staff costs
- Customize too much and upgrading is painful
- Google Scholar gains sentience; then what?

Rewards

- Less patron frustration, especially among undergrads
- Increase in patron service usage
- Campus-wide interest in indexing local data
- Leads to publishing, seminars, and grants!
- Share improvements with libraries around the world
Job Descriptions of OSS Contributors
Information Technology Specialist IV/V
(Software Developer/System Administrator)

The Auburn University Libraries (AUL) is accepting applications for a Software Developer/System Administrator. This position is part of the Information Technology (IT) suite. It is based in the AUL Systems Department and reports to the Senior Software Developer in that department.

DUTIES: Develops library-oriented software applications as needed, a duty that may include modifying and adapting open-source software applications or utilities; writes custom scripts for routine library functions; works with Auburn University Libraries faculty and staff on digital library projects requiring in-house coding; works with faculty and IT staff from other university departments on related projects, including an institutional repository (IR) and undergraduate research journal; serves as a backup System Administrator. In this capacity, helps Systems staff manage the Library's Linux and Windows servers, including software upgrades and patches, security, and backup. Installs, configures, maintains, and (if necessary) extends third-party software applications (e.g. Integrated Library Systems, digital content-management software, document-delivery software); helps maintain an in-house Wiki on various aspects of library IT; shares a rotating weekly schedule of evening and weekend on-call duty; serves on university committees as needed and represents the Auburn University Libraries at the state, regional, and national levels.

REQUIRED QUALIFICATIONS: Thorough knowledge of at least one high-level programming or scripting language (e.g. Java, C#, C, C++, PHP, Perl, Python, Ruby) and experience developing custom applications using at least one of these languages. Experience with modern version-control software (e.g. Subversion, Git, Mercurial). Experience administering Linux servers, including shell scripting; or the ability to learn how to administer servers with these operating systems. Ability to clearly document all software development projects and programs. Effective written and interpersonal communication skills and the ability to interact professionally with a diverse group of users and support staff. Proven ability to successfully initiate, track, and manage multiple detail-oriented projects simultaneously. High school diploma or equivalent plus at least 6 years relevant experience as a software developer, database designer or administrator, and/or System Administrator. Employer will consider advanced degrees in lieu of experience.

DESIRED QUALIFICATIONS: Experience developing custom applications in a wide variety of programming languages. Experience planning, implementing, and/or maintaining an institutional repository (IR) using DSpace or another IR package (e.g. Fedora). Experience working with open-source software for next-generation library catalogs and discovery tools (e.g. VuFind, Blacklight, Koha, Evergreen). Experience in database administration (e.g. PostgreSQL, MySQL, Oracle, Solr). Experience in structured software testing and quality assurance. Experience working in an academic library environment, especially experience with digital library projects. Preferred educational level: Four-year college degree in computer science, MIS, or a related field.
The NCSU Libraries has a well-earned reputation for creating adventurous library spaces and innovative services that delight today’s students and researchers. The D. H. Hill Library combines the best of tradition and innovation, housing special collections and a beautiful gallery alongside vibrant, experiential spaces such as the Learning Commons and Technology Sandbox. Soon we will open a magnificent new library that promises to be nothing less than the best learning and collaborative space in the country. Located on NC State’s Centennial Campus, the James B. Hunt Jr. Library will be an iconic space, a place where people gather to explore new ways to research, learn, experiment, collaborate, and affect the world. Designed as a working incubator for educational technology, the Hunt Library will serve as a second “main library,” complementing the D. H. Hill Library, with services focused on the Centennial Campus community. If you are a person who would like to provide a new generation of library users with everything they can imagine and more, consider applying for the following position.

The NCSU Libraries invites applications and nominations for the position of Digital Technologies Development Librarian in the Digital Library Initiatives department. Digital Library Initiatives develops and delivers an information environment that significantly advances end-user resource discovery and use of library services. As a member of the Digital Services Development group, the Digital Technologies Development Librarian works as an active member of a team that advances digital library services through applied research and application development, and manages the entire life cycle of projects, from requirements gathering to deployment.

Responsibilities
The Digital Technologies Development Librarian provides technical leadership and hands-on programming expertise for a portfolio of digital library projects. In close collaboration with technical and non-technical partners across the Libraries, she or he identifies emerging technologies that have potential for new and improved library services. Working both independently and in team settings, the incumbent develops functional prototypes of new digital library services through an iterative, data-informed, and test-driven process that emphasizes performance, sustainability, and usability. The Digital Technologies Development Librarian maintains and provides enhancements to existing digital library applications and collaborates closely with Information Technology staff to develop and maintain supporting infrastructure. The incumbent participates in library planning and serves on library-wide committees, task forces, and teams. NCSU librarians are expected to be active professionally and to contribute to developments in the field. Reports to the Lead, Digital Services Development.

Required qualifications:
- ALA-accredited MLS or equivalent advanced degree
- Server-side application development experience with one or more open source programming languages such as PHP, Python, or Ruby; as well as SQL
- Database development skills
- Evidence of ability for ongoing professional development and contribution

Preferred qualifications:
- Knowledge of user-centered design processes, including user studies and usage data analysis
- Experience using client-side web technologies including JavaScript and CSS, HTML5, and related technologies.
- Experience in mobile application development and knowledge of mobile design principles
- Familiarity with version control systems such as Git or Subversion
- Experience working on or contributing to open-source software projects
- Experience working in an academic library
Sr. Software Engineer

The Sr. Software Engineer plays a central role in the ability of the library to cater technical solutions to the needs of the university in its mission to advance scholarship, learning and research. This position proactively architects reliable back end data services and infrastructure which anticipates the evolving information needs of students and faculty members. Responsibilities include the design and implementation of scalable applications and software components, engagement with library constituents in negotiating the diverse research and learning needs of the university, as well as communicate with and educate library staff, faculty and administrators regarding emerging trends in technology in order to meet goals and strategic initiatives. Incumbents also have the responsibility to research as well as implement current trends and innovations in both library technology and technical industry best practices and standards. The position also requires a high degree of accountability, and thus requires that individuals working in this position manage project time lines, deliverables, and resources to ensure that planned objectives are met.

The Sr Software Engineer:

- Designs, implements, tests, deploys and supports a wide range of software applications in support of core library objectives
- Architects and implements robust and dependable infrastructure components, data services, and software integration services
- Engages with library faculty and staff, university teaching and research faculty, as well as students at all levels in order to ensure that library software and web related services are meeting the needs of the library and the university
- Plans and manages project tasks, updates documentation, works with quality assurance and usability professionals.

Requires a Bachelor’s degree in computer science, or combination of Bachelor’s degree and relevant experience.

Requires knowledge of programming in Ruby and Ruby on Rails; High degree of experience with web technologies and standards such as HTML, CSS and Javascript; Database schema design; SQL; Strong knowledge of object oriented design and implementation; basic linux systems administrative skills; experience with web based APIs; systems integration skills; use of version control system such as git; some experience with test driven development; strong verbal and written skills requires. Knowledge of programming in the areas of PHP, Perl, Java, advanced knowledge of software testing; shell scripting; XML/XSLT; JSON; Coffeescript; SASS; jQuery.
UI Software Engineer

With a focus on user interface design, we are seeking a web and mobile application developer for digital collections, research data, and library digital services. This position will leverage both programming and graphic design skills to design and develop digital exhibits, research data visualizations, and digital media portals for the web and mobile devices. The incumbent will work closely with other applications developers to integrate these elements into web sites using Ruby on Rails, CSS, JavaScript, HTML5, and other emerging web technologies. Mobile application development will focus on responsive web design, but may include native iOS and android application development as well. Mobile applications are increasingly important to collect, organize, and share data while conducting research and learning.

This position will participate in cross departmental and organizational groups with partners from the Center for Research Computing (CRC), Academic Technologies, OIT, University Archives, researchers, and Hesburgh Libraries to support research and collection management throughout campus. A major focus of this position will be on improving library services through user interface software engineering. The incumbent will help to support key library discovery applications and related electronic resources.

In collaboration with universities such as Stanford, Virginia, and Northwestern, the incumbent will also contribute to an open source project called Hydra (http://hydraproject.org) that was formed to pool our resources to create groundbreaking digital library tools for ourselves and for the wider community. Faculty, researchers, students, and staff utilize these Hydra solutions for preserving data, managing descriptive information, and sharing of research information mandated by grant funding agencies such as NSF.

The UI Software Engineer:

- Designs and develops user focused parts of ruby on rails applications including graphical elements, user interfaces, and other application elements for digital exhibits, digital library services, and discovery applications. Integrates responsive web design into web sites to support mobile devices; creates mobile targeted websites; creates native iOS and Android applications.
- Works with other applications and digital library infrastructure developers, designs front end solutions and orchestrates interactions with services including metadata management, digitization workflows, image transformation, etc.
- Develops digital infrastructure services
- Participates in conferences, committee meetings, and planning meetings with partners on community projects.

Required Qualifications:

- 1+ years experience with a modern web framework e.g. Ruby on Rails, Django, Play, or Symphony
- Intimate knowledge of JavaScript, HTML, and CSS
- 1+ years experience developing with relational databases such as MySQL, PostgreSQL, or Oracle
Preferred:

- Understanding of the elements of art and the principles of design
- Knowledge of HTML5 and CSS3
- Ability to design and implement responsive web pages and applications interfaces
- Experience with JavaScript visualization tools like D3, Raphael, TimelineJS, etc.
- Experience with JavaScript mapping tools like Leaflet, OpenLayers, or the Google Maps API
- iOS or Android application development experience
- Experience designing HTTP interactions that employ the correct verbs and status codes
- Experience working on a team that employs the agile development process
- Strong analytical, reasoning and problem resolution skills and demonstrated success in applying technology to meet user needs
- Ability to handle interpersonal communications tactfully and accurately with a diverse community of users and vendors
- Ability to work independently and in close conjunction with others in a team-oriented setting
- Ability to learn and master new skills and technologies quickly
- Experience with Fedora Commons Repository, iRODS, LOCKSS, or other preservation system
- Experience utilizing Apache Solr or Lucene indexes

Requires Bachelor’s Degree in Informatics, Information Science, or equivalent experience in end user applications design.

In addition to strong application development skills, we are also looking for someone with strong design instincts to create polished user interfaces for interacting with our unique resources within our digital repository.
2 openings
Systems Developer / Engineer Non-SAP
Working Title: Applications Developer
Job Code: 8189
Classification: A&P (non-SAP)
Position #: TBD
Hours/Shift: 8 a.m. – 5 p.m.

Position Organization: 32015 Information Technology
Work Location: 18th Ave Library
Reports to Position #: 00061038, Head, Applications Dev/Support

Summary of Duties:
University Libraries are seeking an Applications Developer for the Applications Development & Support (AD&S) department in the Information Technology Division of the University Libraries. As a member of the AD&S team, the successful candidate will be responsible for designing, developing and managing innovative web-based applications that support, enhance, and extend the mission of The Ohio State University Libraries. With this goal in mind, the candidate will design, develop, implement, and test web applications, as a suite of products and services, for delivery via OSU Libraries public and private web sites, library catalog, and/or other web related systems that are in accord with industry best practices, the Libraries' and Ohio State’s branding standards, and web accessibility guidelines. This position provides a great opportunity to design creative and usable solutions, making a significant impact on how patrons, faculty and staff experience services at the University Libraries.

Additional Information for Applicants: (Please submit this section to OHR and request this information be added to the Additional Information section provided on the jobs board)

Services We Provide
AD&S provides four service offerings to the Libraries: collaboration and communication platforms which include the Libraries’ content management system, blogs and Intranet; custom application development; Integrated Library Systems support (i.e. catalog services); and IT project management.

The Team
The AD&S team currently includes two developers, one project manager/business analyst, and two team members who support the ILS (Integrated Library System). We are expanding our team to a total of five developers to diversify our skill sets, increase throughput, and support a growing Digital Initiatives program. We collaborate closely with the Infrastructure Support department in monitoring, supporting, and maintaining systems.

How We Work
AD&S practices agile software development as appropriate with emphasis on short iterations, lightweight requirements-gathering, and developer-functional expert partnerships. Our typical week includes Maintenance Monday (dedicated to ticket resolution and application maintenance), daily standups, a sprint planning meeting, and three days of project work. The developer chosen for this position is expected to form productive pairs with developers on our team and spend a good deal of time in pair programming. We value close collaboration (within the Libraries and with other groups on campus), face-to-face communication, and transparency, and we are results-driven while balancing time for fun and innovation.

What We Use
The developers work with open-source software whenever possible. The exception is our ILS which is third-party, but we will soon be able to interact with its catalog data via SQL queries and an API. Our primary languages are Java, PHP, and Ruby, and we use MySQL and PostgreSQL databases. In addition, we support a large installation of DSpace (ls.osu.edu) and a CMS on Silverstripe (library.osu.edu).
Representative Documents: Job Descriptions of OSS Contributors

OHIO STATE UNIVERSITY
Systems Developer/Engineer

Read more about us at: library.osu.edu/blogs/it

Supervision and Essential Duties:
- May supervise student employees

Duties Description:

50% Application Development
Designs, develops, implements, and tests new web applications, as a suite of products and services, for delivery via OSU Libraries public and private web sites, library catalog, and/or other web related systems that support, enhance, and extend the strategic and operational goals of the University Libraries; serves as a member of a team of developers working in close collaboration with a significant percentage of time engaged in pair programming; champions an agile and user-centered approach to software development; adheres to professional software engineering best practices, including continuous integration, source code control, and test-driven development; closely collaborates with the project manager in planning sprints and releases, managing product backlogs, and communicating project status; explores, evaluates, and recommends new and alternative technologies and tracks industry trends; designs and maintains MySQL, PostgreSQL and other relational databases; ensures that applications meet ADA web accessibility standards

20% Application Maintenance and Support
maintains, troubleshoots, and refactors legacy web applications, services, and databases;

20% Systems Support
collaborates closely with Infrastructure Support in monitoring, supporting, and maintaining systems; maintains accurate and thorough inventories, stack diagrams, and technical documentation of applications and systems; recommends server configurations and tools that optimize applications and systems for stability, reliability, reuse, security and performance; identifies root causes of systems outages and recommends steps to prevent future systems downtime; monitors the integrity of a multi-tier development environment, including development, staging, and production environments

10% Outreach and Service
demonstrates a strong service orientation and commitment to the strategic goals of the organization; serves on Libraries’ committees, working groups, and task forces; expands skills and personal network through participation in university-level technology initiatives and users groups and attendance at conferences, training programs, and workshops

Education and Experience:

Required Qualifications
Bachelor’s Degree in computer & information science or engineering, or an equivalent combination of education and experience; programming experience, preferably in open-source programming languages and frameworks such as Ruby on Rails or PHP; experience working with relational databases, such as MySQL or PostgreSQL;

Desired Qualifications
Demonstrated experience working with and/or designing APIs; experience programming in Java; experience in HTML, JavaScript-based frameworks, CSS and responsive design; familiarity with the principles and practices of user experience (UX), web accessibility, and user interface design

Please submit to OHR the below for the required supplemental questions and request no other supplemental questions be created, we want to avoid screening questions which suggest that the example languages are required:
1. *Do you have at least 1 year of programming experience? 
   Yes
   No
2. *Do you have at least 1 year of experience working with relational databases? 
   Yes
   No
Position Title: Java / Web Application Developer  
Organization: University of Rochester, River Campus Libraries

Position Summary Statement:  
Seeking a Java application developer for an exciting opportunity in the Libraries' Digital Initiatives Unit. This position will be responsible for various web development projects serving the evolving needs of the University community. The primary responsibility is to develop the web front-end for our institutional repository system, which is based on MIT’s open-source DSpace software. This includes the development of user interfaces as well as back-end connectivity to databases and other web services. The position reports to the Web Initiatives Manager.

Responsibilities:

- Develop software using Java, JavaServer Pages (JSP), Java Servlets, JDBC, SQL, HTML and CSS
- Extend an existing open-source platform for institutional repositories (DSpace) to be used for the University archive and to be shared with institutions across the country
- Collaborate with the MIT DSpace federation and developers at other universities to share code and build working relationships
- Integrate web services including search and retrieval (SRU/W, XML), metadata harvesting (OAI), and streaming (Real/WMP)
- Integrate web applications with various commercial library products
- Participate in the design of software platform architectures and databases
- Work closely with members of the Digital Initiatives Unit including the Web Initiatives Manager, Graphic Designer, Social Scientist, and other developers to understand project requirements and carry out project planning, tracking, and implementation activities
- Produce well designed, documented, and tested code.
- Deploy and maintain the code base for completed applications

Qualifications and Experience (Required):

- A Bachelor's degree in Computer Science or similar
- Experience in Java, JSP, Servlets and other Java Technologies
- Experience with database design and programming (JDBC, SQL)
- Experience with website development (HTML, CSS)
- Evidence of development experience (screen shots, code samples)
- Experience integrating web applications with various components and web services
- Ability to work collaboratively with diverse groups in project planning and development
- Ability to handle simultaneous projects and clearly articulate how the project tasks are being prioritized
- Experience with software design methods, models, and standards.
- Excellent oral and written communication skills and above average technical aptitude

Qualifications and Experience (Preferred):

UNIVERSITY OF ROCHESTER
Experience with XML and XSLT
Familiarity with metadata standards and schemas
Basic knowledge of Photoshop
Experience with Apache, Tomcat, Java Mail, JAF, and PostgreSQL
Familiarity with persistent identifiers and the Digital Object Identifier System
Familiarity with library technologies and standards
JOB TITLE: Programmer Analyst

DEPARTMENT: University Library, University of Saskatchewan

PRIMARY PURPOSE: To provide effective management of library applications and servers to support the teaching, learning and research needs of the University of Saskatchewan (U of S) community.

NATURE OF WORK: Reporting to the Library Systems and Information Technology (LS & IT) Project Manager, the programmer/analyst works as part of a professional IT services team to provide senior-level programming, analysis and systems administration for applications and servers. The Programmer/Analyst will be responsible for the implementation of new systems as well as the enhancement, maintenance and support of existing ones.

The work requires a breadth of knowledge and skill in both application development and server management. Programmer/Analysts are regularly tasked with solving complex, challenging problems and succeed through continual learning and the application of new technologies. The Programmer/Analyst is fully responsible for the design, development and testing of solutions that will meet client needs. There may be times where the Programmer/Analyst is expected to act as a technical lead for a team of programmers and should be able to identify and assign tasks accordingly. As an experienced member of the team, the programmer/analyst will be expected to provide leadership and guidance regarding best practices in application development and server management. The incumbent is required to balance multiple and sometimes competing priorities, deadlines and expectations. The incumbent must possess effective leadership, communication and organizational skills to contribute effectively. Occasional weekend and evening work will be required.

LS&IT provides services to the University Library and the Saskatchewan Health Information Resources Partnership (SHIRP). The library operates Innovative Interfaces’ integrated library system including the online catalogue, circulation, acquisitions, cataloguing, electronic resources and patron web services modules; Ex Libris resource discovery tool (Primo) and link resolver (SFX); OCLC ILL software (VDX), Drupal, Solr, Cascade Server, Content DM, D-Space, Shibboleth, OpenURL, EZ Proxy and LDAP schema; hosts and administers Windows and Linux servers.

ACCOUNTABILITIES:
- Ensures IT systems are designed and implemented to meet client needs and in accordance with library and university standards of practice
- Ensures uninterrupted and reliable access to library services and resources is available for all patrons
- Ensures the safety, security and integrity of the library's data and systems are maintained to limit exposure to undue risk
- Ensures effective troubleshooting, problem-solving and investigation, training and user support is provided
- Provides expertise and information to allow for effective IT-related planning and decisions that support the unit's goals and objectives.
- Ensures that leading practices in programming and systems administration are identified, standards of practice are defined and used, and encourages the continual improvement of LS & IT services
- Contributes to a positive team environment within the unit through effective communication and collaboration
- Builds and fosters collaborative relationships with organizations both internal and external to LS&IT

QUALIFICATIONS
Education: An undergraduate degree in Computer Science or a related discipline.

Experience: A minimum of 5 years experience as an application developer in a Linux environment. Demonstrated experience in requirements analysis and software architectural design; vendor software implementation and customization; web application development and database design; network security and authentication; application development and code management tools and directing the work of other developers. Preference will be given to candidates with previous Linux systems administration experience.
UNIVERSITY OF SASKATCHEWAN
Programmer Analyst

in a virtual environment. Experience with mobile application and/or java web application development would be an asset.

Skills: Demonstrated ability to develop and integrate user-friendly applications within a database environment using PHP frameworks, Javascript, XML, SQL; demonstrated ability to develop web applications using a WCMS (Cascade, Drupal, or other); demonstrated ability to organize work, set priorities and meet deadlines, work independently and use initiative; demonstrated ability to provide mentorship and guidance to junior programmers; effective interpersonal and communication skills to build and maintain relationships with various campus organizations, clients and co-workers; ability to work collaboratively in a challenging environment; and effective investigative, analytical and problem-solving skills.
THE UNIVERSITY OF TENNESSEE
POSITION DESCRIPTION QUESTIONNAIRE (PDQ)

POSITION INFORMATION:
Name of Current Holder (if occupied): Personnel No.:
IRIS Position Number: Pay Grade: 40
Position Title: IT Admin II
Job Title: Programmer, Digital Initiatives
Name of Supervisor: Phone:
Responsible Cost Center Number and Name: E01-6010 (Library)
Department Contact: Email address: Phone:

REASON FOR EVALUATION:
__ New Position
__ Reclassification Request (Significant Change in Duties)
__ Reorganization
_ X_ Standard Review Cycle
__ Vacant Position
   Name of Last Incumbent:
__ Other (Please Specify):

HR/PERSONNEL USE ONLY:

Analysis:          KH ______________ PS _____________ ACC ______________
Total Points: _____
Job Title: ________________ Pay Grade: ______
Job Family: __________________________
FLSA Category: __Exempt  __Non-Exempt
Comments:
A. POSITION SUMMARY:

Why (or for what reason) does this position exist?

One of the University of Tennessee Libraries' high priority strategic goals is to provide comprehensive and efficient access to our users where they are. The work of the individual in this position is vital to successfully meeting this goal.

This position resides in the department of Digital Initiatives within the University of Tennessee Libraries and serves as a programmer and system administrator. Programming duties include developing new and extending existing open-source platforms and vendor provided solutions in order to help the Libraries deliver high quality digital collections and other services as needed. System administration duties include responsibility for a number of enterprise class Linux servers, both physical and virtual, and range from operating system level implementation and maintenance to programming custom authentication and access to services.

The person in this position will work with minimal supervision both independently and collaboratively as part of a team of library computer programmers. This position will complete projects as assigned to them by the Assistant Professor and Systems Development Librarian (to whom they will report). When assigned tasks, this position will be responsible for choosing the best computer programming languages, software, and hardware in order to complete projects within the required deadline and budget. The position will be expected to work with minimal supervision and to make sure that completed projects function as detailed in the initial request and meet the goals of the project overall.

The person in this position will create specifications for complex library information systems and software using accepted systems analysis techniques and procedures and in consultation with other library and university programmers, systems administrators, technical support staff, and end users. These system specifications will be utilized to design, develop, test, document, and implement new computer programs and information systems and technologies as well as to modify, enhance, and extend existing information systems and technologies already in place within the UTK Libraries.

B. MEASURES OF IMPACT:

What areas does this position impact? (Mark all that apply):

- Program
- Department
- Division/College
- Campus/Institute
- University
- External to the University

Describe the level of responsibility this position has in the area(s) checked above.

Department (University of Tennessee Digital Initiatives)

Will share with other members of Digital Initiatives the responsibility for identifying, investigating, integrating, and creating new and emerging technologies in support of library operations, goals, and end-user information-seeking needs. Will provide support for administering resources used by other department members such as web services, networked connections, and authentication.

Division/College (Library)
Will be responsible for ensuring the library meets the strategic goal of providing comprehensive and efficient access to our users where they are.

**Campus**
Will greatly improve access to virtual library information resources for campus faculty, staff, and students such that they will be able to more efficiently and effectively conduct research, teach, and complete coursework.

**University**
Supports the university’s teaching and research mission by working to develop more effective and efficient ways for faculty, staff, and students to access virtual information resources equally across the state regardless of physical location.

**External to the University**
Knowledge, techniques, solutions, code, documentation, and so on developed by this position will be shared with external library, university, and information technology communities.

What type of budget impact does this position have on the area(s) for which it is responsible?

- [ ] Full authority to commit funds (Explain)*
- [ ] Effective recommendations to commit funds (Explain)*
- [ ] Maintain or audit funds committed (Explain)*
- [ ] Little or no budget responsibility

*Explanation:
Provides technical expertise in evaluating the costs of implementing, developing, and supporting emerging technologies and recommends accordingly the purchase of all necessary hardware, software, or other equipment.

The server hardware that will host all or part of the new programs, systems, and services created as a result of this position, and for which the library will have to budget for the ongoing management, maintenance, and periodic replacement of, is valued in excess of $100,000.

C. POSITION DUTIES:
What are the essential functions and responsibilities of this position (please indicate approximate percentage of time devoted to each function)?

<table>
<thead>
<tr>
<th>Function/Responsibility</th>
<th>% of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming</td>
<td>50%</td>
</tr>
</tbody>
</table>

Fulfill library-centric information technology needs by developing custom in-house computer programs, systems, and services.

Enhance the performance and usability of existing library-centric information technology by optimizing and extending computer programs, systems, and services.

Automate tasks so work can be carried out by others.

Customize open source and commercial computer programs, systems, and services.
Integrate custom-developed technology into existing computer systems and services.

Implement new online delivery systems as needed.

Provide ongoing upgrades, enhancements, security patches, and bug fixes to implemented computer programs, systems, and services.

**System Administration** 25%

Work closely with departmental system administrators to develop, implement, and carry out procedures for both immediate and long-term administration and support of all new information technology computer programs, systems, and services this position is responsible for creating and implementing.

At a minimum this includes:

- Work as a part of a team of admins to manage digital library program servers and maintain all server software and hardware for each implementation including software upgrades.
- Training other departmental system administrators on newly implemented technologies.
- Work closely with departmental server administrators to continually maintain and improve the stability, availability (up time), performance, and security of implemented computer programs, systems, and services.
- Work closely with departmental backup server administrators to perform disaster planning that ensures all data for implemented computer programs, systems, and services is backed up and fully recoverable in the event of catastrophic system failure.
- Troubleshooting any problems that may occur and developing and implementing solutions and procedures designed to minimize the chance of their recurrence in the future.

**Collaboration** 25%

Collaborate with department members, faculty librarians, and other library staff on assigned information technology development projects.

At a minimum this includes:

- Attend and contribute to project-related meetings.
- Commit custom development and modification of existing code into a shared revision control system.
- Track progress of assigned tasks and keep clear lines of transparency and accountability by using departmental project management tools.
- Ensure that assigned tasks are completed on time and within budget in order to ensure the projects and departmental needs are met successfully.
- Work with others to solve project-related problems in a timely and effective manner.
- Document and share procedures with other department members to ensure long-term sustainability of library systems.
Consult with supervisor and department members to identify and recommend optimal technologies, techniques, and strategies for successful project completion.

Consult with end users, other library programmers and technologists, OIT technologists, and UTK Libraries' faculty and staff concerning user needs, usability requirements, campus computer security requirements, and integration of new programs and services with existing library and university computer systems and services.

Participate with other members of the department on regular on call rotations.

Actively research and evaluate new technologies for the improvement of the digital library program and make recommendations for future information technology development projects.

Provide programming support and guidance for the digital library program and Technical Services metadata creators.

D. DECISIONS:
What types of decisions does this position make?

Performs daily work tasks with minimal supervision.

Determines and recommends the best computer programming languages, practices and techniques, computer hardware and software, and other technology as needed to meet the needs of specific assigned tasks and projects.

What types of decisions are referred to others?

Decisions to change project goals and priorities.

Decisions involving additional funding for projects and technology beyond what has already been approved.

How are decisions implemented?

By the application of education, knowledge, experience, and professional judgment.

E. SUPERVISION:
What types of supervisory responsibility does this position exercise?

☐ Hiring, disciplining, supervising, granting increases (Explain)*
☐ Effective recommendations in hiring, etc. (Explain)*
☒ Providing work direction to a group of employees (Explain)*
☒ Assisting others by providing guidance (Explain)*
☐ Little or no supervisory responsibility

*Explanation:
This position will provide technical expertise in software development that will influence all aspects of any development project they are a part of including specific technologies used, software development strategies and techniques, timelines, and costs.

As the expert on the computer programs, systems, and services they will be responsible for implementing, the person in this position will provide guidance to others in the proper use of the computer programs, systems and services within the parameters of their inherent capabilities.

Number or employees/students that this position supervises:

- Exempt employees
- Non-exempt employees
- Students
- Others (Explain)*

*Explanation:
This position will not serve in a direct supervisory capacity.

F. MINIMUM QUALIFICATIONS:
What are the minimum qualifications in terms of education, experience, job skills, and physical requirements of the job which would be required?

Education:
Bachelor’s degree

Experience:
5-6 years computer programming experience with several years working in a networked or Web-based environment.

Mastery of at least two programming languages (For example: JavaScript, PHP, JAVA, Python, Ruby).

1-2 years experience working in an enterprise server environment.

Experience or knowledge of media streaming (For example: Quicktime streaming from an Apple Xserv server).

Experience or knowledge of electronic media formats (For example: Quicktime, MPEG-4, AAC).

Experience or knowledge of mobile device application development (For example: iPhone App development).

Experience or knowledge of SQL or other database environments.

Experience or knowledge of Web applications and services.

Demonstrated experience working with RESTful and / or SOAP based APIs.
Experience or knowledge of XML schemas or DTDs such as TEI, KML, or RDF.

Experience or knowledge of libraries, preferably academic libraries.

**Job Skills:**

Ability to work on unique, one-of-a-kind projects.

Excellent oral and written communication skills.

Ability to work collaboratively with others from diverse personal and professional backgrounds.

Ability to work independently or collaboratively in group settings.

Ability to quickly learn new programming languages and technologies.

Ability to think creatively and problem solve.

Highly flexible.

**Physical Requirements:** *(Please complete attached chart)*

**G. ADDITIONAL INFORMATION:**

Please provide any additional information you believe will assist in understanding this position:

This position will work side-by-side on a daily basis with other programmers and system administrators as they develop and implement new and emerging information technologies in a library environment. The individual in this position will routinely engage in deeply complex technical planning, problem solving, and decision making concerning computer programs, systems, and services which students and faculty teachers and researchers in our university community will depend upon.

The key to success for the individual selected for this position is the ability to quickly learn and smoothly transition to new programming languages/technologies as specific projects demand. Unlike many programmer positions that are focused on a specific core set of technologies, this position will be much more diverse and require great technical agility.

*Attach the Departmental Organizational Chart prepared by your department with names and titles (include to whom this position reports, others who report to the same individual, and who reports to this position).*

**H. APPROVAL:**

This Position Description Questionnaire (PDQ) has been reviewed by the individuals whose signatures appear below, indicating that the PDQ accurately reflects the job content of the position:
## THE UNIVERSITY OF TENNESSEE

### POSITION DESCRIPTION QUESTIONNAIRE (PDQ)

### POSITION INFORMATION:

<table>
<thead>
<tr>
<th>Name of Current Holder (if occupied):</th>
<th>Personnel No.: N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IRIS Position Number:</strong></td>
<td>Pay Grade:</td>
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<tr>
<td><strong>Position Title:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Job Title:</strong> IT Admin II</td>
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<tr>
<td><strong>Name of Supervisor:</strong></td>
<td><strong>Phone:</strong></td>
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<tr>
<td><strong>Responsible Cost Center Number and Name:</strong></td>
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</tr>
<tr>
<td><strong>Department Contact:</strong></td>
<td><strong>Email address:</strong></td>
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<td><strong>Phone:</strong></td>
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</table>

### REASON FOR EVALUATION:

- [ ] New Position
- [ ] Reclassification Request (Significant Change in Duties)
- [ ] Reorganization
- [x] Standard Review Cycle
- [ ] Vacant Position
  - Name of Last Incumbent:
- [ ] Other (Please Specify):

### HR/PERSONNEL USE ONLY:

<table>
<thead>
<tr>
<th>Analysis:</th>
<th>KH</th>
<th>PS</th>
<th>ACC</th>
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<td>Total Points:</td>
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<tr>
<td><strong>Comments:</strong></td>
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</tbody>
</table>
A. POSITION SUMMARY:
Why (or for what reason) does this position exist?

One of the University of Tennessee Libraries' high priority strategic goals is to provide comprehensive and efficient access to our users where they are. The work of the individual in this position is vital to successfully meeting this goal.

This position will be a member of the Systems department within the University of Tennessee Libraries and will help jump-start the development and implementation of new and emerging information technologies for enhanced virtual access.

The person in this position will work with minimal supervision both independently and collaboratively as part of a team of library computer programmers. This position will complete projects as assigned to them by the Assistant Professor and Systems Development Librarian (to whom they will report). When assigned tasks, this position will be responsible for choosing the best computer programming languages, software, and hardware in order to complete projects within the required deadline and budget. The position will be expected to work with minimal supervision and to make sure that completed projects function as detailed in the initial request and meet the goals of the project overall.

The person in this position will create specifications for complex library information systems and software using accepted systems analysis techniques and procedures and in consultation with other library and university programmers, systems administrators, technical support staff, and end users. These system specifications will be utilized to design, develop, test, document, and implement new computer programs and information systems and technologies as well as to modify, enhance, and extend existing information systems and technologies already in place within the UTK Libraries.

B. MEASURES OF IMPACT:
What areas does this position impact? (Mark all that apply):

- [ ] Program
- [x] Campus/Institute
- [x] Department
- [x] University
- [x] Division/College
- [x] External to the University

Describe the level of responsibility this position has in the area(s) checked above.

Department (University of Tennessee Systems):

Will share with other members of Systems the responsibility for identifying, investigating, integrating, and creating new and emerging technologies in support of library operations, goals, and end-user information-seeking needs.

Division/College (Library):

Will be responsible for ensuring the library meets the strategic goal of providing comprehensive and efficient access to our users where they are.
Campus:
Will greatly improve access to virtual library information resources for campus faculty, staff, and students such that they will be able to more efficiently and effectively conduct research, teach, and complete coursework.

University:
Supports the university’s teaching and research mission by working to develop more effective and efficient ways for faculty, staff, and students to access virtual information resources equally across the state regardless of physical location.

External to the University:
Knowledge, techniques, solutions, code, documentation, and so on developed by this position will be shared with external library, university, and information technology communities.

What type of budget impact does this position have on the area(s) for which it is responsible?

- Full authority to commit funds (Explain)*  
  Size of budget impacted
- Effective recommendations to commit funds (Explain)*  
  Size of budget impacted $100,000+
- Maintain or audit funds committed (Explain)*  
  Size of budget impacted
- Little or no budget responsibility

*Explanation:

C. POSITION DUTIES:
What are the essential functions and responsibilities of this position (please indicate approximate percentage of time devoted to each function)?

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<tr>
<td>Programming</td>
<td>50%</td>
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  o Fulfill library-centric information technology needs by developing custom in-house computer programs, systems and services.
  o Enhance the performance and usability of existing library-centric information technology by optimizing and extending computer programs, systems, and services.
  o Customize open source and commercial computer programs, systems, and services.
  o Integrate custom-developed technology into existing computer systems and services.
  o Provide ongoing upgrades, enhancements, security patches, and bug fixes to implemented computer programs, systems, and services.
System Administration

- Work closely with departmental system administrators to develop, implement, and carry out procedures for both immediate and long-term administration and support of all new information technology computer programs, systems, and services this position is responsible for creating and implementing.

At a minimum this includes:

- Work as the primary system administrator for Mac OS X servers and maintain all server software and hardware for each implementation including software upgrades.
- Training other departmental system administrators on newly implemented technologies.
- Working closely with departmental server administrators to continually maintain and improve the stability, availability (up time), performance, and security of implemented computer programs, systems, and services.
- Working closely with departmental backup server administrators to perform disaster planning that ensures all data for implemented computer programs, systems, and services is backed up and fully recoverable in the event of catastrophic system failure.
- Troubleshooting any problems that may occur and developing and implementing solutions and procedures designed to minimize the chance of their recurrence in the future.

Collaboration

- Collaborate with department members, faculty librarians, and other library staff on assigned information technology development projects.

At a minimum this includes:

- Attend and contribute to project-related meetings.
- Ensure that assigned tasks are completed on time and within budget in order to ensure the projects and departmental needs are met successfully.
- Work with others to solve project-related problems in a timely and effective manner.
- Document and share procedures with other department members to ensure long-term sustainability of library systems.
- Consult with supervisor and department members to identify and recommend optimal technologies, techniques, and strategies for successful project completion.
- Consult with end users, other library programmers and technologists, OIT technologists, and UTK Libraries' faculty and staff concerning user needs, usability requirements, campus computer security requirements, and integration of new programs and services with existing library and university computer systems and services.
- Participate with other members of the department on regular on call rotations.

Make recommendations for future information technology development projects.

D. DECISIONS:
What types of decisions does this position make?

Performs daily work tasks with minimal supervision.

Determines and recommends the best computer programming languages, practices and techniques, computer hardware and software, and other technology as needed to meet the needs of specific assigned tasks and projects.

What types of decisions are referred to others?

Decisions to change project goals and priorities.

Decisions involving additional funding for projects and technology beyond what has already been approved.

How are decisions implemented?

By the application of education, knowledge, experience, and professional judgment.

E. SUPERVISION:
What types of supervisory responsibility does this position exercise?

- Hiring, disciplining, supervising, granting increases (Explain)*
- Effective recommendations in hiring, etc. (Explain)*
- Providing work direction to a group of employees (Explain)*
- Assisting others by providing guidance (Explain)*
- Little or no supervisory responsibility

*Explanation:

This position will provide technical expertise in software development that will influence all aspects of any development project they are a part of including specific technologies used, software development strategies and techniques, timelines, and costs.

As the expert on the computer programs, systems, and services they will be responsible for implementing, the person in this position will provide guidance to others in the proper use of the computer programs, systems and services within the parameters of their inherent capabilities.

Number or employees/students that this position supervises:

___ Exempt employees ___ Students
___ Non-exempt employees ___ Others (Explain)*

*Explanation:

This position will not serve in a direct supervisory capacity.
F. MINIMUM QUALIFICATIONS:
What are the minimum qualifications in terms of education, experience, job skills, and physical requirements of the job which would be required?

Education:
Bachelor’s degree in Computer Science or closely related field.

Experience:
5-6 years computer programming experience with several years working in a networked or Web-based environment.
Mastery of at least two programming languages (For example: PHP, JAVA, Python, Objective-C).
1-2 years experience working in an enterprise server environment.
Experience or knowledge of media streaming (For example: Quicktime streaming from an Apple Xserv server).
Experience or knowledge of electronic media formats (For example: Quicktime, MPEG-4, AAC).
Experience or knowledge of mobile device application development (For example: iPhone App development).
Experience or knowledge of SQL or other database environments.
Experience or knowledge of Web applications and services.

Job Skills:
Ability to work on unique, one-of-a-kind projects.
Excellent oral and written communication skills.
Ability to work collaboratively with others from diverse personal and professional backgrounds.
Ability to work independently or collaboratively in group settings.
Ability to quickly learn new programming languages and technologies.
Ability to think creatively and problem solve.
Highly flexible.

Physical Requirements: (Please complete attached chart)
G. ADDITIONAL INFORMATION:
Please provide any additional information you believe will assist in understanding this position:

This position will work side-by-side on a daily basis with other programmers and system administrators as they develop and implement new and emerging information technologies in a library environment. The individual in this position will routinely engage in deeply complex technical planning, problem solving, and decision making concerning computer programs, systems, and services which students and faculty teachers and researchers in our university community will depend upon.

The key to success for the individual selected for this position is the ability to quickly learn and smoothly transition to new programming languages/technologies as specific projects demand. Unlike many programmer positions that are focused on a specific core set of technologies, this position will be much more diverse and require great technical agility.

*Attach the Departmental Organizational Chart prepared by your department with names and titles (include to whom this position reports, others who report to the same individual, and who reports to this position).

H. APPROVAL:
This Position Description Questionnaire (PDQ) has been reviewed by the individuals whose signatures appear below, indicating that the PDQ accurately reflects the job content of the position:

_________________________  ___________  ______________________  ___________
Employee Signature        Date        Supervisor’s Signature    Date

_________________________  ___________
Dean, Director, or Dept Head        Date
THE UNIVERSITY OF TENNESSEE, KNOXVILLE LIBRARIES

FACULTY POSITION DESCRIPTION

POSITION TITLE: Systems Development Librarian
DEPARTMENT: Digital Initiatives
NAME: 

1. GENERAL FUNCTION

The Systems Development Librarian reports to the Head of Digital Initiatives. This position supervises three exempt level staff members and works in conjunction with them to deliver high-quality digital collections and answer programming needs in UT Libraries’ digital library program.

This position also has specific responsibilities in the area of discovery and works with members of Discovery and Technical Services to support, develop, and advance the libraries’ discovery platform.

Finally, this position works collaboratively with members of Digital Initiatives and other library departments in the area of emerging technologies to explore, develop, test, and implement ideas for new systems and services using emerging technologies in support of teaching, learning, and the Libraries’ strategic goals. These duties include working with faculty and staff throughout the library to implement open source and proprietary web applications and administering the Database of the Smokies.

The position works closely with computer hardware / software vendors, campus computing (OIT), and other external technology groups as appropriate.

2. SPECIFIC DUTIES

Provide technical leadership for digital collections, programming, web-applications, and other online library services and initiatives including the Libraries’ discovery interface. Anticipate and track changes in each of these areas and implement system changes and updates as appropriate.

Anticipate and track technology trends. Investigate and test new information technologies and share with colleagues throughout the library. Collaborate with library colleagues to identify ways new technologies, or old technologies used in new ways, can solve problems, meet needs, and create new services. Develop and implement new systems and services based on new technologies as appropriate.

Participate in the management of the Digital Initiatives including supervision of 3
exempt staff with responsibility for delivering digital collections, systems administration, and programming.

Creative scholarly work including research, publication, and presentations.

Participate in committees, working groups, and task forces, especially at the national level.

FISCAL RESPONSIBILITY

Recommend the purchase of library technology within a prescribed budget and participate in the writing of bid specs for complex, multi-vendor systems as appropriate.

TEACHING

Supervise SIS Practicum students.

QUALIFICATIONS

Required:
ALA-accredited master’s degree in library or information science. Relevant professional-level technology experience (academic library preferred). Understanding of network standards and protocols. Supervisory experience. Knowledge of developments and trends in information systems, particularly emerging technologies in libraries and higher education. Understanding of Blackboard or similar course management systems. Extensive knowledge of core Web technologies and programming environments including HTML, CSS, and Javascript. Experience with XML, XSLT, and other digital library technologies. Understanding of video streaming technologies. Familiarity with one or more scripting languages such as PHP, Python, Perl, or Ruby. Knowledge of best practices for Web design and usability. Willingness to learn Drupal and work with it on a daily basis. Evidence of excellent written and oral communication skills and ability to work collegially. Demonstrated experience managing complex technical projects. Strong commitment to making technology work for people.

Preferred:
Project management experience. Demonstrated experience with web analytics platforms such as Google Analytics, KISSmetrics, Open Web Analytics, or Piwik. Experience with content management systems and frameworks such as WordPress, Django, Rails, or Drupal.
## University of Virginia Position

### Employee Details
- **Employee Last Name:** Richeson
- **Employee First Name:** Susan
- **Employee Number:** 206373
- **Employee Type:**

### Title Details
- **Generic:** Yes
- **UVA Job Title:** Software Engineer IV-1ITSWEN4K
- **UVA Job Title Code:** 1ITSWEN4K

### College and University Personnel Association (CUPA)
- **Select the CUPA Survey Job code that best reflects the primary purpose of the UVA job.**
  - CM - [5501] Programmer Analyst

### Western Management Group's EduComp (WE)
- **Select the EduComp Survey Job code that best reflects the primary purpose of the UVA job.**
  - WE - 18817 APPLICATIONS PROGRAMMER/ANALYST 2

### Watson Wyatt (WW)
- **Select the WW Survey Job code that best reflects the primary purpose of the UVA job.**
  - WW - 1950 General Programmer/Analyst
- **WW Level Indicator:** 3
- **Select the level.**

### Additional Surveys
- **Select additional Survey Job code that best reflects the primary purpose of the UVA job.**

### Market Matches and Range Builder Notes
- **Market Range - Lower Reference:** $58,116
- **Market Range - Upper Reference:** $107,515
- **FLSA Exemption Status:** Exempt
- **Type of Application:** Staff Application
- **EEO Category:** Technicians

---

150 · Representative Documents: Job Descriptions of OSS Contributors
Produce and maintain department applications to accomplish business needs. Perform engineering and development work on moderate- to large-scale or complex projects. Perform advanced software analysis, design, and implementation.

Incumbent will address complex problems and will use experience and judgment in creating solutions. Incumbent seeks assistance when significant deviations are proposed, or when unprecedented problems arise. Incumbent develops approaches to problem-solving and anticipates/mitigates potential issues. Incumbent must be able to quickly modify behavior to align with change; work effectively in ambiguous situations; collaborate internally and externally to create solutions to long-standing problems; consider a variety of quantitative and qualitative factors in decision-making; question current state and make suggestions for improvements; design processes and procedures to ensure quality; and analyze and determine relationships among complex problems and issues.

Impact is felt within the team/department for which the incumbent works and within multiple, coordinating departments. Work quality, decision-making and long-term project management can affect the productivity of students, faculty and/or staff. Impact of errors is substantial and usually university-wide though mostly short-lived.

Interactions are with fellow team members and coordinating team members, but the incumbent will also have interactions with assigned student, faculty, or staff clients. Incumbent works with and may manage external vendors and service providers. Incumbent should possess superior verbal and written communication skills to convey technical guidance and information to users and to provide excellent customer service. Incumbent will train and provide guidance to more junior staff members and provide management with input into performance evaluations.

Incumbent may provide guidance to management on critical technology issues. Incumbent is recognized as an technical authority within the University. Incumbent must be able to take actions that respect diversity; follow decisions through to implementation; and act in alignment with University’s values.

May be required to perform other duties as assigned. May be required to assist the agency or state government generally in the event of an emergency declaration by the Governor.

Produce and maintain department applications to
UNIVERSITY OF VIRGINIA
Software Engineer IV

Posting Summary: accomplish business needs. Perform engineering and development work on moderate- to large-scale or complex projects. Perform advanced software analysis, design, and implementation.

Employment Conditions:

ECU/AA Statement for Your Organization:

Thank you for your interest in this position. Our screening and selection process is currently underway and will continue until a successful candidate is chosen. Should our review of your qualifications result in a decision to pursue your candidacy, we will contact you in the near future.

Pass message:

Thank you for your interest in this position. Your response to the application questions suggests that you do not meet the minimum qualifications for this position. We are pleased with your interest and encourage you to visit our job posting site on a regular basis. We wish you success in your future career.

Fail message:

For Thomas Jefferson, learning was an integral part of life. The “academical village” was created around the assumption that learning is a lifelong and shared process, and that interaction between scholars and students enlivens the pursuit of knowledge.

University Leadership Characteristics: University Human Resources strives to identify applicants who will contribute as high potential employees, leaders and managers. We employ individuals who foster and promote the University mission and purpose. Successful candidates exemplify uncommon integrity; they are honest, trusted, team-oriented and live the core values of the University. These candidates display great judgment, by practicing evidence-based decision-making. They are strategically focused by contributing to and achieving department goals and vision. They set high performance standards and hold themselves accountable by aggressively executing these standards. These employees also develop a deep passion for the University and the impact it has on students, faculty, alumni and community. Successful candidates identify their personal career goals and development opportunities, and as supervisors, help their staff do the same. They contribute to team success by leading talent, through their individual efforts and by leading and developing their teams.

General Position Information

Organization: 31080 LB-Info Technology
School/Unit: University Library
Primary senior developer/engineer for open source software that is used by institutions across the U.S. and beyond. Stems expertise, skills in Ruby on Rails and other emerging technologies that enable UVA Library to not only maintain its role with peers but to become a respected leader in leading edge software development.

The senior software engineer will address complex problems and will use experience and judgment in creating solutions. She/he seeks assistance when significant deviations are proposed, or when unprecedented problems arise. She/he develops approaches to problemsolving and anticipates/mitigates potential issues. She/he must be able to quickly modify behavior to align with change; work effectively in ambiguous situations; collaborate internally and externally to create solutions to long-standing problems; consider a variety of quantitative and qualitative factors in decision-making; question current state and make suggestions for improvements; design processes and procedures to ensure quality; and analyze and determine relationships among complex problems and issues.

Impact is felt within the team/department for which the senior software engineer works and within multiple, coordinating departments. Work quality, decision-making and long-term project management can affect the productivity of students, faculty and/or staff. Impact of errors is substantial and usually university-wide though mostly short-lived.

Interactions are with fellow team members and coordinating team members, but the senior software engineer will also have interactions with assigned student, faculty, or staff clients. She/he works with and may manage external vendors and service providers. She/he should possess superior verbal and written communication skills to convey technical guidance and information to users and to provide excellent customer service. She/he will train and provide guidance to more junior staff members and provide management with input into performance evaluations. She/he may provide guidance to management on critical technology issues. She/he is recognized as an technical authority within the University. She/he must be able to take actions that respect diversity; follow decisions through to implementation; and act in alignment with University’s values.

Cite specific examples of decisions made with supervisory guidance AND specific examples of decisions made without supervisory guidance.

Performs long-term and non-routine assignments with only general supervisory intervention.
UNIVERSITY OF VIRGINIA
Software Engineer IV

Working Title: SENIOR SOFTWARE ENGINEER
Agency Code: 207 UVA
Integrated System (Oracle) Purchasing Responsibility Assigned? No
Conflict of Interest Statement Required: No

POSITION IDENTIFICATION
US Position Number: 00403
Position Number: C3832
Position Type: University Managerial and Professional Staff
Job Group: 5J
Job Group Name: TECHNICAL/PARAPROFESSIONAL - COMPUTER RELATED
Underutilization Class - Female: Yes
Female Availability Rate (%): 36.71
Underutilization Class - Minority: No
Minority Availability Rate (%): 0

POSITION SUPERVISION
Name: Lubinsky, Raymond
Position Number: C5407
Employee Number: 131218
Role Title: Lead Technologist
Employee User: 
Recruiter Name: 

Responsibilities and Duties/Position Information
Percent of Duty Total: 100

<table>
<thead>
<tr>
<th>Responsibility Statement</th>
<th>All Duties supporting the statement</th>
<th>Percentage of Time</th>
<th>Level of Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide Advanced Software</td>
<td>Demonstrate advanced software development techniques in the production of software for various projects and services, assigned or self determined. May mentor or lead others in software development strategies and deployment. Gather or refine requirements (user, development, security, etc) where necessary, acting as a technical lead in support of project efforts as assigned. Define project deliverables based on project requirements. Determine and communicate estimated time lines, assumptions and constraints. Develop, document and support</td>
<td>95</td>
<td>High</td>
</tr>
</tbody>
</table>
UNIVERSITY OF VIRGINIA
Software Engineer IV

Development

software development projects as assigned or self determined. Participate in the development and/or selection and adoption of methodology and tools to manage and deploy software developed. Software development support for tools and utilities to enhance the delivery of Library materials and scholarly work to the students, staff and patrons.

(E)

Professional Development

Stay abreast of trends and developments that pertain to Software Development, data management and application development tools. Attend relevant courses and conferences. Update and maintain personal development plan, and learning plans. (on-going). Execute and implement personal development and learning plans in a timely fashion. (on-going) (A)

Qualifications (for Staff Positions)

Preferred knowledge, skills and abilities for an individual performing this position:

Special Licenses, Registration, or Certification:

Education or Training (cite major area or study):

Level and Type of Experience:

Required and Preferred Qualifications

Required Education

What is the minimum level of formal education required to successfully perform the duties and responsibilities of the position? Choose one.

Bachelor’s Degree or Equivalent

Degree Requirements Analysis

Bachelor’s degree or equivalent experience in Computer Science, MIS, Computer Engineering or related disciplines.

Degree Requirements Analysis

Required Experience

Considerable - 4 to 7 years

If any experience is required, please specify kind of experience:

Demonstrated project management skills. Experience developing large or complex software systems.

Required License or Certification:

No

If yes, what is the required License or Certification.

No

Is Health Care License Required?

Advanced knowledge about the requirements and best practices for developing large or complex software systems.

Expert knowledge of established programming procedures and programming language; computer flow-charts and of programming logic and codes; current technological developments/trends in area of expertise; and customer
Required Knowledge, Skills and Abilities:

- Service standards and procedures.
- Must be able to create specifications, generate acceptance test requirements, and partition large projects into individual components.
- Ability to identify computer problems and coordinate hardware and/or software solutions; implement and troubleshoot programming changes and modifications;
- Write complex technical instructions in the use of programs and/or program modifications; communicate with and interpret the operational requirements of end-users;
- Investigate and analyze information and draw conclusions;
- And process computer data and format and generate reports; and analyze complex business requirements and technical requests.

Required Computer Applications:

Preferred Education:
Master’s Degree

If degree or equivalent experience preferred, please specify:
(Master's degree in Computer Science, MIS, Computer Engineering or related discipline.)

Preferred Experience:
Extensive - 7 years plus

Demonstrated experience in developing and documenting complex Perl, Ruby and/or shell scripts. Demonstrated experience in developing and documenting C, C++, or Java programs. Demonstrated experience in Unix systems use and general shell programming. Demonstrated experience in Java web application development and support (such as Tomcat or JBoss).

Preferred License or Certification:

If yes, what is the preferred License or Certification?

Preferred Knowledge, Skills and Abilities:

Preferred Computer Applications:

Level of Independent Activity (for Staff Positions)

In terms of overall job responsibilities, to what degree does an incumbent determine own work priorities? Choose one.

Determines priorities more than 50% of time

Regular and recurring requirement

If yes, please explain, include what policies, formal guidelines or government regulations are involved:

To what degree does this position require decision-making or problem solving skills, as a primary function of the position? (This normally involves analyzing and synthesizing complex
information or recommendations from several sources). Choose one.

Does this position have budgetary responsibilities (Normally, would not include single function duties such as data entry or data collection)?

No

If yes, please describe the extent of these responsibilities to include number and dollar value of accounts and/or grants. For grants positions, designate pre and/or post award.

Contacts of Position (for Staff Positions)

3 Records

<table>
<thead>
<tr>
<th>Offices or Organizations</th>
<th>Purpose of Contact</th>
<th>Level of Contact</th>
<th>Frequency of Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>UVA faculty, students, staff</td>
<td>Communication regarding project support</td>
<td>Inside UVA</td>
<td>Weekly</td>
</tr>
<tr>
<td>Colleagues at similar Institutions or in related industry</td>
<td>Communication regarding tools, techniques, or applications</td>
<td>Outside UVA</td>
<td>As Needed</td>
</tr>
<tr>
<td>Software Engineer team within Library</td>
<td>Serves as a resource to other software engineers on complex problems. Will often train lower level software engineers on work processes and policies and assist management with developing their technical skills.</td>
<td>Inside UVA</td>
<td>As Needed</td>
</tr>
</tbody>
</table>

Reporting Relationships (for Staff Positions)

No Records Found

Working Conditions and Physical Requirements (for Staff Positions)

Environment

Check the appropriate box(es) that best describes the environment in which the primary function of the position is performed.

Office Environment

If you have indicated “Other Environment”, if work tasks involve one or more of the above, or if further explanation is necessary, please use the space provided:

Working Conditions & Exposures

Please describe, in more detail, any of the conditions answered with “Yes”

Physical Requirements

Describe any of the conditions selected above that are in excess of 26% time

Sitting at a desk, working at a computer.
## University of Virginia Position

### Employee Details
- **Employee Last Name:** Durbin
- **Employee First Name:** Michael
- **Employee Number:** 201315
- **Employee Type:**

### Title Details
- **Generic:** Yes
- **UVA Job Title:** Systems Engineer V
- **UVA Job Title Code:** 1ITSYEN5K

### College and University Personnel Association (CUPA)
- **CM - [5505] Systems Programmer, Senior**

### Western Management Group's EduComp (WE)
- **No Response**

### Watson Wyatt (WW)
- **No Response**

### Additional Surveys
- **No Response**

### Market Matches and Range Builder Notes
- **Market Range - Lower Reference:** $70,203
- **Market Range - Upper Reference:** $140,405
- **FLSA Exemption Status:** Exempt
- **Type of Application:** Staff Application
- **EEO Category:** Technicians
Function as a senior engineer/architect; assess technology trends, issues and define technical solutions to meet University technology needs. Ensure the stability, integrity, and efficient operation of the in-house information systems that support core university functions. This is achieved by developing, monitoring, maintaining, supporting, and optimizing software and associated hardware and operating systems. Provide functional and empirical analysis related to the design, development, and implementation of systems, including hardware utility software, development software, and diagnostic software. Provide system integration and security plans and implementation.

Incumbent will address complex problems and will use experience and judgment in creating solutions. Incumbent seeks assistance when significant deviations are proposed, or when unprecedented problems arise. Incumbent develops approaches to problem-solving and anticipates/mitigates potential issues.

Impact is felt within the team/department for which the incumbent works and within multiple, coordinating departments. Work quality, decision-making and long-term project management can affect the productivity of students, faculty and/or staff. Impact of errors is substantial and usually university-wide though mostly short-lived.

Interactions are with fellow team members and coordinating team members, but the incumbent will also have interactions with assigned student, faculty, or staff clients. Incumbent works with and may manage external vendors and service providers. Incumbent should possess superior verbal and written communication skills to convey technical guidance and information to users and to provide excellent customer service. Incumbent will train and provide guidance to more junior staff members and provide management with input into performance evaluations. Incumbent may provide guidance to management on critical technology issues. Incumbent is recognized as an technical authority within the University.

May be required to perform other duties as assigned. May be required to assist the agency or state government generally in the event of an emergency declaration by the Governor.

Function as a senior engineer/architect; assess technology trends, issues and define technical solutions to meet University technology needs. Ensure the stability, integrity, and efficient operation of the in-house information systems that support core university functions. This is achieved by developing, monitoring, maintaining, supporting, and
optimizing software and associated hardware and operating systems. Provide functional and empirical analysis related to the design, development, and implementation of systems, including hardware utility software, development software, and diagnostic software. Provide system integration and security plans and implementation.

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Interactions are with fellow team members and coordinating team members, but the incumbent will also have interactions with assigned student, faculty, or staff clients. Incumbent works with and may manage external vendors and service providers. Incumbent should possess superior verbal and written communication skills to convey technical guidance and information to users and to provide excellent customer service. Incumbent will train and provide guidance to more junior staff members and provide management with input into performance evaluations. Incumbent may provide guidance to management on critical technology issues. Incumbent is recognized as an technical authority within the University.

Employment Conditions:

EO/AA Statement for Your Organization:

You may use this mandatory UVA EO/AA statement.
EO/AA encourages you to develop a broader EO/AA statement for your School/Department. Your statement must be approved by EOP in advance.

The University of Virginia is an affirmative action/equal opportunity employer committed to diversity, equity, and inclusiveness.

Pass message:

Thank you for your interest in this position. Our screening and selection process is currently underway and will continue until a successful candidate is chosen. Should our review of your qualifications result in a decision to pursue your candidacy, we will contact you in the near future.

Fail message:

Thank you for your interest in this position. Your response to the application questions suggests that you do not meet the minimum qualifications for this position. We are pleased with your interest and encourage you to visit our job posting site on a regular basis. We wish you success in your future career.
For Thomas Jefferson, learning was an integral part of life. The “academical village” was created around the assumption that learning is a lifelong and shared process, and that interaction between scholars and students enlivens the pursuit of knowledge.

University Human Resources strives to identify applicants who will contribute as high potential employees, leaders and managers. We employ individuals who foster and promote the University mission and purpose. Successful candidates exemplify uncommon integrity; they are honest, trusted, team-oriented and live the core values of the University. These candidates display great judgment, by practicing evidence-based decision-making. They are strategically focused by contributing to and achieving department goals and vision. They set high performance standards and hold themselves accountable by aggressively executing these standards. These employees also develop a deep passion for the University and the impact it has on students, faculty, alumni and community. Successful candidates identify their personal career goals and development opportunities, and as supervisors, help their staff do the same. They contribute to team success by leading talent, through their individual efforts and by leading and developing their teams.

General Position Information

Organization 31080 LB-Info Technology
School/Unit University Library
Are there formal guidelines, government regulations, policies that must be followed by the position (Exclude UVA & Commonwealth Human Resource Policies that cover all employees)?

No

Function as a senior engineer/architect; assess technology trends, issues and define technical solutions to meet University technology needs. Ensure the stability, integrity, and efficient operation of the in-house information systems that support core university functions. This is achieved by developing, monitoring, maintaining, supporting, and optimizing software and associated hardware and operating systems. Provide functional and empirical analysis related to the design, development, and implementation of systems, including hardware utility software, development software, and diagnostic software. Provide system integration and security plans and implementation.

Incumbent will address complex problems and will use experience and judgment in creating solutions. Incumbent seeks assistance when significant deviations are proposed, or when unprecedented problems arise. Incumbent develops approaches to problem-solving and anticipates/mitigates potential issues.

The employee and supervisor agree on strategic direction,
Cite specific examples of decisions made with supervisory guidance AND specific examples of decisions made without supervisory guidance.

Working Title: Sr Software & Systems Engineer
Agency Code: 207 UVA
Integrated System (Oracle) Purchasing Responsibility Assigned?: No
Conflict of Interest Statement Required: No

**POSITION IDENTIFICATION**

<table>
<thead>
<tr>
<th>US Position Number:</th>
<th>08884</th>
</tr>
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<tbody>
<tr>
<td>Position Number</td>
<td>C5702</td>
</tr>
<tr>
<td>Position Type:</td>
<td>University Managerial and Professional Staff</td>
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<tr>
<td>Job Group</td>
<td>SJ</td>
</tr>
<tr>
<td>Job Group Name</td>
<td>TECHNICAL/PARAPROFESSIONAL - COMPUTER RELATED</td>
</tr>
<tr>
<td>Underutilization Class - Female</td>
<td>Yes</td>
</tr>
<tr>
<td>Female Availability Rate (%)</td>
<td>38.71</td>
</tr>
<tr>
<td>Underutilization Class - Minority</td>
<td>No</td>
</tr>
<tr>
<td>Minority Availability Rate (%)</td>
<td></td>
</tr>
</tbody>
</table>

**POSITION SUPERVISION**

Name: Lubinsky, Raymond
Position Number: C5407
Employee Number: 131218
Role Title: Director, Online Library Environment
Employee User
Recruiter Name:

**Responsibilities and Duties/Position Information**
Percent of Duty Total: **100**
4 Records
<table>
<thead>
<tr>
<th>Responsibility Statement</th>
<th>All Duties supporting the statement</th>
<th>Percentage of Time</th>
<th>Level of Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and System Design and Development</td>
<td>1. Act as lead developer, working both independently and as part of larger teams to manage medium to large complexity development projects from start to finish. (E) 2. Responsible for research, planning, analysis, and design, as well as the engineering and development work needed to implement applications and systems in support of UVa Library's business needs. (E) 3. Develop test plans and implement them for systems and software developed. (E) 4. Provide research in the area of primary responsibility. (E) 5. Participates in the system architecture efforts by (a) adhering to Institution and departmental enterprise architecture (b) review and evaluation of existing systems (c) making recommendations for any needed changes (d) assisting in the implementation of necessary changes. (E) 6. Routinely coordinate and/or participate in multiple projects, managing time effectively. (E) 1. Monitor performance and functioning of UVa Library services and systems for which the employee has primary or secondary responsibility. (E) 2. Provide accurate diagnosis and solutions for routine problems and with the help of other staff diagnose and fix more complex problems. (E) 3. Participate in on-call rotation which provides 24x7 coverage of all UVa Library systems and services. (E) 4. Provide assistance to the on-call staff with response and repair. (E)</td>
<td>75</td>
<td>High</td>
</tr>
<tr>
<td>Service Monitoring, Diagnosis and Repair</td>
<td>5. Respond to routine requests for information within one working day. (E) 6. Respond to urgent or emergency requests within 2 hours. (E) 7. Correct interruptions to critical services within 24 hours. (E) 8. Notify all affected users and staff as soon as is possible during and after any service interruption (and at least 48 hours before any planned service interruption.) (E)</td>
<td>15</td>
<td>High</td>
</tr>
<tr>
<td>Consulting &amp; Technical Support</td>
<td>1. Provide technical assistance and information to staff, collaborative partners and users in a courteous and timely manner. (E) 2. Respond to requests for information from internal or external customers or partners within one working day. (E) 3. Provide accurate and timely consultation with representatives of vendor companies to facilitate problem resolution. (E) 4. Act as a mentor for staff and collaborating partners. (A)</td>
<td>5</td>
<td>Average</td>
</tr>
</tbody>
</table>
### University of Virginia

#### Systems Engineer V

**Professional Development**

| 5. Train appropriate staff as needed. (E) |  | Average |
| 1. Complete suggested training within specified time and bring knowledge acquired back to share with others in the group or use in daily activities. (E) |  |  |
| 2. Take responsibility for seeking out training opportunities with others. (E) |  |  |

**Qualifications (for Staff Positions)**

*Preferred knowledge, skills and abilities for an individual performing this position:*

- Special Licenses, Registration, or Certification:
- Education or Training (cite major area or study):
- Level and Type of Experience:

**Required and Preferred Qualifications**

**Required Education**

What is the minimum level of formal education required to successfully perform the duties and responsibilities of the position? Choose one.

- Bachelor’s Degree or Equivalent

**Degree Requirements Analysis**

- Bachelor’s degree or equivalent experience in Computer Science, MIS, Computer Engineering or related discipline.

**Required Experience**

- Extensive - 7 years plus

Minimum 7 years of experience in design, development deployment and maintenance of Enterprise class software and systems.

**Required License or Certification:**

- No

**If yes, what is the required License or Certification:**

**Required Knowledge, Skills and Abilities:**

- *Working knowledge of several programming languages.
- *Working knowledge of software design methodologies including object oriented design.
- *Experience in design and development of enterprise class applications.
- *Ability to develop solutions with version control, logging, monitoring, testing and deployment mechanisms.
- *Ability to perform enterprise scale application performance tuning.
- *Knowledge of UNIX operating systems, including Linux.
- *Experience developing enterprise class software in Java.
Required Computer Applications:

Preferred Education

What level of education is preferred to successfully perform the duties and responsibilities of the position? Choose one.

If degree or equivalent experience is preferred, please specify:

(Entries to the right will appear in the posting for this position.)

Preferred Experience

If any experience is preferred, please specify kind of experience:

Preferred License or Certification:

If yes, what is the preferred license or certification?

Preferred Knowledge, Skills and Abilities:

* Working knowledge of encryption methods.
* Working knowledge of designing and developing systems to leverage external authentication methods.
* Working knowledge of MySQL design and implementation.
* Working knowledge of Rails systems design methodology.
* Working knowledge of the Ruby programming language.
* Working knowledge of metadata standards.
* Working knowledge of digital repositories such as Fedora.

Preferred Computer Applications:

Level of Independent Activity (for Staff Positions)

In terms of overall job responsibilities, to what degree does an incumbent determine own work priorities? Choose one.

If yes, please explain, include what policies, formal guidelines or government regulations are involved:

To what degree does this position require decision-making or problem solving skills, as a primary function of the position? (This normally involves analyzing and synthesizing complex information or recommendations from several sources.) Choose one.

Does this position have budgetary responsibilities (normally, would not include single function duties such as data entry or data collection)?

If yes, please describe the extent of these responsibilities to include number and dollar value of accounts and/or grants. For grants positions,
designate pre and/or post award.

Contacts of Position (for Staff Positions)

<table>
<thead>
<tr>
<th>Offices or Organizations</th>
<th>Purpose of Contact</th>
<th>Level of Contact</th>
<th>Frequency of Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>UVA Faculty</td>
<td>Provide technical advice, answer questions.</td>
<td>Inside UVA</td>
<td>As Needed</td>
</tr>
<tr>
<td>UVA Staff</td>
<td>Provide technical advice, answer questions.</td>
<td>Inside UVA</td>
<td>Daily</td>
</tr>
<tr>
<td>Open Source Communities</td>
<td>Exchange of information, ideas and collaborative development.</td>
<td>Outside UVA</td>
<td>As Needed</td>
</tr>
<tr>
<td>Vendors and Consultants</td>
<td>Product evaluation, problem reporting and tracking.</td>
<td>Outside UVA</td>
<td>As Needed</td>
</tr>
<tr>
<td>Other Institutions</td>
<td>Exchange of information, ideas and collaboration.</td>
<td>Outside UVA</td>
<td>As Needed</td>
</tr>
</tbody>
</table>

Reporting Relationships (for Staff Positions)

No Records Found

Working Conditions and Physical Requirements (for Staff Positions)

Environment

Check the appropriate box(es) that best describes the environment in which the primary function of the position is performed.

- Office Environment

If you have indicated "Other Environment", if work tasks involve one or more of the above, or if further explanation is necessary, please use the space provided:

Working Conditions & Exposures

Please describe, in more detail, any of the conditions answered with "Yes".

Physical Requirements

- This position requires sitting at a desk for long periods (sitting for sustained periods of time) and typing on a keyboard (repetitive motion, use both hands, and fine finger manipulation).

Committee Comments

Comments:

Date

Signature of Employee