

# Sandra Payette

## Curriculum Vitae

### Summary

**Leadership:** I am a recognized leader in the international digital library community, the founding CEO of the DuraSpace non-profit organization, and a scholar/practitioner who bridges diverse communities that are building knowledge infrastructures.

**Research:** I am interested in the social impact of technology and the complexities of how infrastructure, policy and technical design interact. As a woman in computing, I am interested in issues of power and how this can be understood through the lens of discourse. My dissertation examined the underrepresentation of women in computing and how discourse is constitutive of processes of social change in tech.

**Technology:** My work integrates interdisciplinary research in information science, communication, and STS with practical applications of new and emerging technologies supporting scholarship and science. Also, I am the original technical architect of the Fedora project that provides open source software for digital repositories.

**Strategy:** I understand the strategic needs of a wide range of organizations and the need to balance technical vision with organizational constraints. I have served as an advisor and consultant to libraries, corporations, standards initiatives, and research projects to develop long-term technology strategy and implementation plans.

**Collaboration:** I organize and participate in international and cross-organizational collaborations. I am experienced in leading initiatives that combine participants representing a variety of perspectives and expertise.

**Communication:** I am able to translate complex technology and systems architecture concepts in a manner that makes them accessible to diverse audiences. I am the author of numerous publications and speaker at many conferences and events that demonstrate my orientation to interdisciplinary research and practice.

### Education

<b>PhD, Communication with minor field Science &amp; Technology Studies (STS)</b> <b>Cornell University, Ithaca, NY</b> <b>Dissertation:</b> Culture Not Numbers: Dilemmas and Discourses of the Underrepresentation of Women in Computing, <a href="#">available online</a> <b>Committee:</b> Tarleton Gillespie, Lee Humphreys, Steve Jackson, Ronald Kline	2018
<b>Master of Science, Communication</b> <b>Cornell University, Ithaca, NY</b>	2015
<b>Master of Business Administration (MBA)</b> <b>Binghamton University, State University of New York</b>	1986
<b>Bachelor of Science, Information Systems, minor in Philosophy</b> Magna Cum Laude; SUNY Foundation Award Academic Excellence <b>Binghamton University, State University of New York</b>	1985

## **Professional Experience**

### **Visiting Lecturer, Cornell Information Science Cornell University, Ithaca, NY**

2020-present

I am designing and teaching a new InfoSci course on Knowledge Infrastructures. As a visiting lecturer I am able to share my 25 years of leadership and technical experience at the intersections of technology and knowledge organizations. Also, with the completion my doctoral degree at Cornell in 2018, I also bring historical and theoretical scholarly perspectives to my thinking about institutions and technology.

### **Director of IT for Research and Scholarship Cornell University Library, Ithaca, NY**

2016-2019

I provided vision and strategy for moving the Cornell University Library (CUL) toward integrated systems and practice for the purpose of enabling digital access, sharing, preservation, and archiving of digital content. This work was especially focused on scholarly and scientific publications, research data, and digital collections. I held this position concurrent with my doctoral research and the completion of my PhD focused at the intersections of three disciplines: Communication, Science and Technology Studies, and Information Science.

As a Director of IT for Research and Scholarship, I provided expertise on emerging infrastructure by embracing a socio-technical systems paradigm for supporting research and scholarship. This work included approaching digital technology and software systems as a form of emerging knowledge infrastructure. I led a team of CUL librarians and IT directors through a strategic analysis and mapping of the Cornell Library "Digital Ecosystem." The key outcome was an analysis that highlighted tension and opportunity points around policy, storage, security, technical debt, standards, preservation, and more. Another output was a graphic tool that mapped connections between all systems and applications and systems including institutional repositories, subject area repositories, research data repositories, digital asset management, scholarly publication systems, and external systems like Internet Archive and HathiTrust.

I also served as interim Associate University Librarian during a time of significant transition and change for the Library. In this role I supervised the directors of Library IT and the directors of Digital Scholarship and Preservation Services. I was also a strategic and technology advisor for [arXiv.org](https://arxiv.org), the premier open access platform for major disciplines in the sciences. As advisor to the arXiv.org leadership team, I served as the interim supervisor of the development team, guiding them through a critical stage of pivoting towards a Next Generation arXiv system (i.e., arXiv-NG). Key outcomes included a new development approach to modularize and modernize arXiv's legacy codebase while maintaining uninterrupted service through an active, evolving process of technological renewal. As advisor to the Director of arXiv.org, I also focused on issues of governance and sustainability which became essential to the planning and implementing the transition of arXiv at Cornell Library to a new home-base at Cornell Computing and Information Science, bringing the team closer to the faculty and research community.

**Research Investigator, School of Information & ICPSR** 2013 – 2015  
**University of Michigan, Ann Arbor, MI**

As researcher in information science and STS, I served as program manager for the NSF Datanet project, the Sustainable Environment Actionable Data initiative ([SEAD](#)). I made unique contributions grounded in my technical and leadership background. During the final phase of the project, I advised the PIs of three partner universities (U Michigan, U Indiana, U Illinois) on the technical process for developing and demonstrating a full lifecycle infrastructure for publishing research data. I worked with the technology leads of each institution on issues of interoperability of systems and integration of system components to achieve the outcome of demonstrating an end-to-end data management and publication infrastructure. I was able to provide leadership on technical issues around the publication of data sets, seamless preservation and archiving, and discovery capabilities for research data. I held this position at Michigan while working remotely on my Cornell University PhD dissertation.

**Chief Executive Officer (CEO)** 2007 – 2011  
**DuraSpace, Ithaca, NY**

As founding CEO of [DuraSpace](#), I successfully built a new organization from the ground up, beginning with securing startup funding (\$4.9 million grant from the Moore Foundation). I created the vision for the new 501(c)(3) not-for-profit and led the startup years. I directed all aspects of the organization and was responsible for its fiscal management and strategic business plan. I designed the organizational structure, convened a Board of Directors, and set up all essential business functions including finance, human resources, software development, community outreach, communication, and corporate relations.

As Executive Director of Fedora Commons Inc. (DBA DuraSpace), I established a collaboration with the former DSpace Foundation, seeing the prospect of joining two “friendly competitors” (i.e., [Fedora](#) and [DSpace](#)) to better serve the communities. In bringing these organizations together and rebranding as DuraSpace, I led the development of an expanded mission to serve a broader constituency. I established and directed an international “virtual organization” with staff and collaborators spread globally. The DuraSpace communities were able to share open source practices, use shared infrastructure, engage in community building, and share business functions.

DuraSpace continues today under new leadership and remains a community hub for libraries and memory institutions interested in open technologies. It is home to multiple open source projects and cloud services including Fedora, DSpace, DuraCloud, ArchivesDirect, VIVO, and others. DuraSpace serves global knowledge management communities concerned with scalable and reliable technologies that address social, legal, and policy aspects of providing long-term access to digital content.

**Project Director and Researcher** 2001 – 2007  
**Cornell University, Computing and Information Science, Ithaca, NY**

At [Cornell Computing and Information Science \(CIS\)](#), I directed the Fedora Project based on my original computer science research and the future potential of the architecture of the Fedora research software. In collaboration with the University of Virginia I led the process of design and developed the open source software that became [Fedora versions 1.0 through 3.0](#) that was used by libraries, archives, and research institutions internationally. As an information science researcher, I continued

ongoing research on interoperability to support scholarly communication and digital preservation. At the end of this period, was the PI for the successfully \$4.9 million grant from the Moore Foundation to sustain and expand the reach of the Fedora open source work.

**Researcher and Software Developer,** 1997-2001  
**Digital Library Research Group**  
**Cornell University, Computer Science Department, Ithaca, NY**

I was the original designer and developer of the [Flexible Extensible Digital Object Repository Architecture](#) (FEDORA). During this period, I also collaborated with the Corporation for National Research Initiatives ([CNRI](#)) on interoperability experiments to demonstrate two distinct repository implementations using a shared API and integrating with the Handle System. Authored grant proposals and directed the development of Fedora research software into a new open source software phase with the goal of enabling this innovative technology to be widely deployed in universities, research libraries, and information management organizations.

**Senior Software Engineer** 1994-1997  
**Cornell University, Albert R. Mann Library, Ithaca, NY**

Systems architect, software developer and project manager for Cornell's first digital library effort, launched at Mann Library. This early digital library provided access to collections of information resources including digitized texts, scanned images, bibliographic databases, and statistical datasets. Chaired the Cornell University Library working group on developing best practices for delivering electronic texts. Designed and conducted extensive user studies on building flexible systems for scholars, the results of which were published in peer-reviewed library science journals. Developed key modules for the Mann Library Gateway one of the first Web-based applications providing search and access to a full range of electronic library resources.

**Project Manager and Senior Systems Analyst** 1990-1994  
**Corning Incorporated, Systems Engineering, Corning, NY**

Designer and developer of software applications for decision support systems and executive information systems to support strategic business analysis at [Corning Inc.](#) Led the effort to introduce methods of "Rapid Application Development" (RAD) to the systems engineering team. Received Corning's Computer Utility Quality Award for accurately projecting database growth and performance requirements that justified a major upgrade of corporate VAX systems. Received Corning Marketing Achievement Award for leading development of new system to support the Corning Corporate Image Campaign. This program resulted in successful technology partnerships between Corning and other Fortune 500 companies. Programmed on mini and microcomputers using 3GL and 4GL languages, along with relational database design and performance tuning.

**Programmer and Systems Analyst** 1986-1990  
**Corning Incorporated, Technical Products, Corning, NY**

Designed and developed software applications supporting business analysis and sales forecasting for Corning's industrial, technical products and consumer divisions. Developed a systems that reduced manual effort while supporting decision-making capabilities. Extensive use of 3GL and 4GL programming languages with RDBMS.

## Recent Publications

**Payette, S.** Culture Not Numbers: Dilemmas and Discourses of the Underrepresentation of Women in Computing (Doctoral dissertation). Available at ProQuest Dissertations and Theses database (Pub#: 10846885). Online at: <https://doi.org/10.7298/X4VD6WP5>

**Payette, S.**, "Hopper and Dijkstra: Crisis, Revolution, and the Future of Programming," *IEEE Annals of the History of Computing*, vol. 36, no. 4, December 2014, <http://ieeexplore.ieee.org/document/6982140/>

Jackson, S.J., Gillespie, T., **Payette, S.**, "The Policy Knot: Re-integrating Policy, Practice, and Design in CSCW Studies of Social Computing," *Proceedings of Computer-Supported Cooperative Work (CSCW)*, Baltimore, MA, February 2014, <http://dl.acm.org/citation.cfm?id=2531674>.

Javed, M., **Payette, S.**, et. al, "VIZ-VIVO: Towards Visualizations-driven Linked Data Navigation," *Proceedings of the Second International Workshop on Visualization, Ontologies and Linked Data, International Semantic Web Conference (ISWC 2016)*, Kobe, Japan, October 2016, <http://ceur-ws.org/Vol-1704/paper7.pdf>

Meyers, J., Hedstrom, M., Ackmon, D., **Payette S.**, et al., *Towards Sustainable Curation and Preservation: The SEAD Project's Data Services Approach*, *IEEE 11th International Conference on e-Science*, 2015, <http://ieeexplore.ieee.org/document/7304332/>

## Recent Invited Talks

**Payette, S.** "Why So Few? The Underrepresentation of Women in Technology and Software Development," OCLC Distinguished Seminar Series, Dublin Ohio. May 2019, [video available here](#).

Rieger, O., Lessmeister, M., **Payette, S.** "[arXiv@25: Exploring Future Directions and Strategies](#)," CNI Fall 2016 Member Meeting. Washington DC, December 2016.

**Payette, S.** (2016) "VIVO Futures: Scholarly Infrastructure, Sustainability, and Community" VIVO Conference, 2016, Denver, CO, August 2016.

**Payette, S.** (2016) "Supporting Reproducibility with Knowledge Infrastructure", Reproducibility Seminar Series, National Institute of Standards and Technology (NIST), Gaithersburg, MD, July 2016.

**Payette, S.**, Hedstrom M., Plale, B., "SEAD: Infrastructure for Managing Research Data in the Long Tail," *Grace Hopper Conference for Women in Computing (GHC15)*, Houston, TX, October 2015.

## **Recent Invited Workshops and Panels**

NSF Review Panel, Big Data Regional Innovation Hubs ([BDHubs program](#)), National Science Foundation, Washington DC, January 2019

NSF and AAU/APLU Workshop, [Accelerating Public Access to Research Data](#), October 29-30, 2018.

Executive Roundtable, "Challenges of Our Itinerant Researchers," Coalition for Network Information (CNI) Fall 2018 Meeting, Washington DC, Dec. 10, 2018

Moderator, arXiv Technical Infrastructure Workshop, Cornell University, Ithaca, NY, April, 28, 2016.

NSF Workshop, "[Knowledge Infrastructures](#): Intellectual Frameworks and Research Challenges." University of Michigan, Ann Arbor, Michigan, May 2012.

## **Grants**

Principal Investigator, Fedora Commons, Inc., 2007-2011, startup funding for the not-for-profit organization that evolved to become DuraSpace.org, funded by the Gordon and Betty Moore Foundation, \$4.9 million  
(see: <http://www.duraspace.org/sites/duraspace.org/files/fedora/moore.pdf>)

Principal Investigator, DuraSpace (Fedora Commons Inc.), 2009-2011, The DuraCloud Pilot Partner Program, funded by the Library of Congress National Digital Information Infrastructure and Preservation Program (NDIIPP), \$300,000

Co-PI, DuraSpace (Fedora Commons Inc.), 2011-2012, DuraCloud: Direct to Researcher, funded by the Alfred P. Sloan Foundation, \$497,000

Co-PI, Fedora Commons, Inc., 2009-2012, The Data Conservancy, a subcontract with Johns Hopkins University, funded by the National Science Foundation, Office of Cyberinfrastructure (Datanet), \$400,000

Co-PI, Cornell Information Science, 2007-2010, The Fedora Service Framework: Blueprint for Next-Generation Scholarly Communication Systems, funded by the Andrew W. Mellon Foundation, \$589,000

Co-author/senior personnel, Cornell Information Science, 2004-2008, Pathways: a project to investigation of next-generation scholarly communication systems, funded by the National Science Foundation, \$1.2 million

Co-author/senior personnel, Cornell Information Science, 2004-2006, The Fedora Project (Phase II), funded by the Andrew W. Mellon Foundation, \$1.1 million

Co-author/senior personnel, Cornell Information Science, 2001-2004, The Fedora Project (Phase I): The Open-Source FEDORA Repository Development Project, funded by the Andrew W. Mellon Foundation, \$1 million

## **Earlier Publications and Papers (by Topic Area)**

### *Fedora Open Source Software for Digital Repositories*

**Payette, S.** and Lagoze, C., "Flexible and Extensible Digital Object and Repository Architecture (FEDORA)", European Conference on Research and Advanced Technology for Digital Libraries, Heraklion, Crete, published in LNCS, Springer, 1998, [https://link.springer.com/chapter/10.1007/3-540-49653-X\\_4](https://link.springer.com/chapter/10.1007/3-540-49653-X_4), preprint at <https://arxiv.org/abs/1312.1258>

**Payette, S.** and Lagoze, C., "Policy-Carrying, Policy-Enforcing Digital Objects," European Conference on Research and Advanced Technology for Digital Libraries, Lisbon, Portugal, published in LNCS, Springer, 2000, pre-print at <http://arxiv.org/abs/1312.1260>

**Payette, S.** and Staples, T., "The Mellon Fedora Project: Digital Library Architecture Meets XML and Web Services," European Conference on Research and Advanced Technology for Digital Libraries, Rome, Italy, published in LNCS, Springer, September 2003, pre-print at <http://arxiv.org/abs/1312.1385>

Staples, T., Wayland, R., and **Payette, S.**, "The Fedora Project: An Open-Source Digital Object Repository System," D-Lib Magazine, April 2003, <http://www.dlib.org/dlib/april03/staples/04staples.html>

### *Digital Library, Knowledge Infrastructure, and Digital Preservation*

**Payette, S.**, "The State of Technology for Digital Archiving," whitepaper presented to the Windsor Study Group on Digital Archiving, Charlottesville, Virginia, 2008, <http://arxiv.org/abs/1403.7748>

Lagoze, C., **Payette, S.**, Shin, E., and Wilper, C., "Fedora: An Architecture for Complex Objects and their Relationships," International Journal on Digital Libraries, Special Issue on Complex Objects, Springer, 2005, pre-print at <http://arxiv.org/abs/cs/0501012>

**Payette, S.** and Lagoze, C., "Value Added Surrogates for Distributed Content: Establishing a Virtual Control Zone," D-Lib Magazine, June 2000, <http://www.dlib.org/dlib/june00/payette/06payette.html>

**Payette, S.** and Lagoze, C., "Metadata: Principles, Practices, and Challenges, in Moving Theory into Practice," in Digital Imaging for Libraries and Archives, Research Libraries Group, Spring 2000.

**Payette, S.**, Blanchi, C., Lagoze, C. and Overly, E., "Interoperability for Digital Objects and Repositories: The Cornell/CNRI Experiments," D-Lib Magazine, May 1999. <http://www.dlib.org/dlib/may99/payette/05payette.html>

Lagoze, C. and **Payette, S.**, "An Infrastructure for Open Architecture Digital Libraries," Cornell Computer Science Technical Reports, TR98-1690, June 1998, <http://ncstrl.cs.cornell.edu:80/Dienst/UI/1.0/Display/ncstrl.cornell/TR98-1690>.

Daniel R., Lagoze, C., and **Payette, S.**, "A Metadata Architecture for Digital Libraries," Proceedings of the IEEE Forum on Research and Technology Advances in Digital Libraries, 1998, Santa Barbara, California, April 1998

Lagoze, C., Fielding, D., and **Payette, S.**, "Making Global Digital Libraries Work: Collection Services, Connectivity Regions, and Collection Views," ACM Digital Libraries '98, June 1998

### *Scholarly Communication*

Warner, S., Bekaert, J., Lagoze, C., Liu, X., **Payette, S.**, and Van de Sompel, H. "Pathways: Augmenting Interoperability Across Scholarly Repositories," International Journal on Digital Libraries, Special Issue on Digital Libraries and eScience 7, 1, 2007, 32-52, pre-print at <http://arxiv.org/abs/cs/0610031>

Van de Sompel, H., **Payette, S.**, Erickson, J., Lagoze, C., and Warner, S., "Rethinking Scholarly Communication: Building the System that Scholars Deserve," D-Lib Magazine, Sept. 2004, <http://www.dlib.org/dlib/september04/vandesompel/09vandesompel.html>

**Payette, S.** and Rieger, O., "Supporting Scholarly Inquiry: Incorporating Users in the Design of the Digital Library," Journal of Academic Librarianship, March 1998

**Payette, S.** and Rieger, O., "Z39.50: The User's Perspective," D-Lib Magazine, April 1997, <http://www.dlib.org/dlib/april97/cornell/04payette.html>

**Payette, S.**, "Moving Towards Optimal: Planning Delivery of Full-Text," Library Hi Tech, Volume 4, 1996

### **Earlier Keynote Addresses and Invited Talks**

"Repositories and Cloud Services for Data Cyberinfrastructure," International Association for Social Science Information Services and Technology (IASSIST), Cornell University, Ithaca, NY, June 2, 2010

"Building Scholarly and Scientific Information Infrastructure: Open Source, The Cloud, and the Role of High-Tech Non-Profit Organizations," IST Graduate Symposium, Penn State University, <http://gradsymp.ist.psu.edu/2009/>, February 2009

"A Service-Oriented Approach to E-research, E-scholarship and Advanced Scholarly Publication," VALA: Libraries, Technology, and the Future, Melbourne, Australia, <http://www.vala.org.au/conf2006.htm>, February 2006

"Beyond Storage: Rethinking the Role of Digital Repositories in Scholarly Communication," DELOS Network of Excellence Workshop on Digital Repositories, FORTH, Crete, Greece, May 2005

## **Earlier Invited Workshops and Tutorials**

Managing Data in Difficult Times, Joint Meeting of JISC and the Coalition for Networked Information (CNI), Edinburgh, Scotland , June 2010.

International Digital Library Research and Development, sponsored by Council for Library and Information Services (CLIR) and Stanford University, November 29-December 1, 2009.

Open Source Community Development Panel, Grace Hopper Celebration of Women in Computer Science, September 2009.

"Semantic Digital Libraries," World Wide Web Conference (WWW 2007), Banff, Canada, May 2007

"Semantic Digital Libraries," European Semantic Web Conference (ESWC 2007), Innsbruck, Austria, June 2007

"Digital Libraries for the Digital Librarian: Making the Journey from Traditional to Digital Libraries," DELOS Summer School Faculty, Florence, Italy, May 2007

"Complex Objects, Information Networks, and the Challenges of Digital Preservation," International Conference on Preservation of Digital Objects (iPRES), Ithaca, New York, October 2006

"Introduction to Fedora and Advanced Topics," Joint Conference on Digital Libraries (JC DL), Chapel Hill, North Carolina, June 2006

"The Fedora Repository and Service Framework," European Conference on Research and Advanced Technology for Digital Libraries (ECDL), Alicante, Spain, September, 2006

"Digital Imaging for Libraries and Archives," Instructor for Workshop Series, Cornell University Library, Ithaca, New York, 1998-2000

Augmenting Interoperability Across Scholarly Repositories, A workshop sponsored by Mellon, CNI, DLF, and JISC, April 2006.

Service-Oriented Architecture and Fedora for E-Research, workshop for the eSciDoc Project of the Max Planck Society and FIZ Karlsruhe, Munich, Germany, May 2006

Open-Source Policy and Licensing Summit, Indianapolis, October 2006

Seminar on Building Digital Libraries with XML and Web Services, invited presentation, "Fedora: A Repository Architecture Built with XML and Web Services," Technical University of Denmark, Copenhagen, Denmark, August 2004

Ibero American Science and Technology Consortium (ISTEC) Symposium, invited presentation on the Fedora Project, Campinas, Brazil, South America, March 2003

Los Alamos National Laboratory, invited workshop and technical review of the Fedora Project, August 26, 2002, Santa Fe, New Mexico

Digitization Workshop at Goettingen University Library, invited presentation  
"Fedora and Interoperability for Digital Objects," Germany, October 5, 1

Digital Imaging of South Africa (DISA) Workshop, invited presentation and  
consulting, "Metadata and Architectural Considerations for Digital Libraries,"  
Witts University, Johannesburg, South Africa, September 1997

National Institute of Standards and Technology (NIST), invited presentation,  
"Modularization and Interoperability: Dublin Core and the Warwick  
Framework," 2nd Meeting of the Learning Objects Metadata Group,  
Gaithersburg, MD, November 1997

National Library of Norway, invited workshop presentation and consulting, "Digital  
Library Architecture: A Service-Based Approach," Norway, November 1998

National Archives of Sweden, invited workshop presentation and consulting,  
"Effective Delivery of Archival Materials in Digital Libraries: Key Issues and  
Requirements," Stockholm, Sweden, May 1997

### **Earlier Professional Activities**

Chairperson, Steering Committee, Open Repositories Conference, 2010-2011

Steering Committee, Open Repositories Conference, 2007-2010

Program Committee, Open Repositories Conference 2007-2010 Member,

Preservation and Archiving Special Interest Group (PASIG), 2007-2009

Member, Windsor Study Group on Sustainable Digital Archiving of Scholarly  
Journals: Architecture for Collective Action, 2008

Co-Chair for Tutorials, Joint Conference on Digital Libraries (JCDL), 2008 Program

Program Committee, VALA: Libraries / Changing Spaces; Virtual Places, 2008 Member,

ORE Advisory Council, OAI Object Reuse and Exchange, 2007-2008

Review Panel, National Science Foundation, Digital Archiving (DIGARCH), 2004

Advisor to Harris Corporation for the U.S. National Archives Electronic  
Records Archives (ERA) prototype system, 2003-2004.

Member, Advisory Group, NSF/Library of Congress, National Digital  
Information Infrastructure and Preservation Program (NDIIPP), 2003

### **References**

Available on request, for both scholarly and professional activities.