

Jeanette M. Sperhac
Center for Computational Research
State University of New York at Buffalo
701 Ellicott Street, Buffalo, NY 14203
Office: (716) 881-7821
Fax: (716) 849-6656
jsperhac@buffalo.edu

Current Position

Scientific Programmer, Center for Computational Research, State University of New York at Buffalo.

Education

M.S., Computer Science, State University of New York at Buffalo, Buffalo, NY. May 2007.

M.S., Chemistry, University of Colorado, Boulder, CO. June 1995.

B.S. with Honors, Chemistry, University of Chicago, Chicago, IL. June 1992.

Work Experience

August 2012–present: *Scientific Programmer*, Center for Computational Research, SUNY Buffalo.

Implemented, tested, documented, and supported web applications for scientific applications.

Served as software engineer and administrator in charge of two instances of HUBzero open source implementations. Implemented and maintained platform, tested and deployed tools and resources, designed and updated templates, managed and supported faculty and student users at SUNY Buffalo and remotely. (PHP, Debian Linux, CSS, MySQL, Apache, bash, etc.)

Developed and integrated enhancements to XDMoD portal and data warehouse ETL logic. Performed extensive refactoring of charting code. Tested and debugged new and existing functionality. (PHP; ExtJS; MySQL)

Developed and implemented automated statistical analysis of annual salary data on AAHSL portal. Implemented and deployed major functionality change providing versioning of survey questions by survey year. Audited and managed yearly surveys for member libraries, 2012-2014. Tested and investigated bug reports; performed major refactoring of code and database; implemented bug fixes. (PHP; ExtJS; R; ggplot2; MySQL)

Implemented enhancements and bug fixes to WNYNWC portal. Refactored existing code. Assisted users. (PHP; ExtJS; MySQL)

Designed curriculum, created problem sets and project assignments, managed, and taught High School Summer Workshop, 2013-2015. Coordinated guest lecturers and laboratory tours (HUBzero, R). Supervised summer interns, 2013-2015.

Made eligible for PI or co-PI status on external UB CCR grants, from March 2015.

June 2007–July 2012: *Software Engineer*, Lockheed Martin, Niagara Falls, NY.

Implemented, tested, documented, and supported system software for gravity gradiometers (C, C++, Pascal). Designed and coded enhancements for gradiometer system operator's GUI (Java, XML). Provided optimization, enhancements, and fixes to analysis software and scripts (PVWave, Matlab). Implemented pattern matching techniques for gravity gradient data analysis; modeled subsurface geology (Matlab). Contributed to design for GPS data acquisition and location identification.

U.S. Government Department of Defense "Secret" security clearance, 2008-2012.

- May 2006–June 2007: *Graduate Research Assistant*, Buffalo Ctr. for Biomed. Computing, SUNY Buffalo.
 Provided data mining, clustering, and computational support for Pharmaceutical Sciences research (Oracle, PL/SQL, Fortran, UNIX, shell scripting, SYBYL).
- August 2004–May 2006: *Network Programming Intern*, SUNY Buffalo, CIT/OSS, Buffalo, NY.
 Monitored firewalls and network throughput to support network software group applications. Enhanced and patched monitoring scripts and software. (Perl, CGI, C, C++, shell scripting)
- August 2003–December 2003: *Software Engineer*, Computer Task Group, Amherst, NY.
 Provided enhancements, security remediation, and database and application support for internet and client-server banking applications (Visual Basic for Applications, ASP, XML, Visual Basic, Oracle, DB2).
- October 2000–June 2003: *Programmer/Analyst*, Citigroup Global Corporate & Investment Bank, NY, NY.
 Provided database and application design, function point analysis, and development of intranet applications (ASP, Visual Basic, .NET, Java, SQL Server, Sybase, XML). Served as DBA for development group's applications; provided data warehousing support (SQL Server, Oracle). Performed web server and database server support and maintenance.
- Worked with software developers and business managers to design, develop, and support in-house tools. Provided application support for internal business customers.
- September 1998–August 2000: *Programmer/Analyst*, WebMD/Medical Manager R&D, Alachua, FL.
 Designed and coded web-based tools to support software development process (DHTML, ASP, SQL Server, Visual Basic). Served as DBA for internal applications (Progress RDBMS, SQL Server). Planned and executed integration of home-built bug tracking system with third-party version control system (ClearCase, Perl 5).
- Collaborated with software development teams and department managers to design and develop in-house tools. Performed database and application support for internal customers.
- December 1996–August 1998: *Data Administrator*, Acxiom/May & Speh, Downers Grove, IL.
 Provided design, implementation, and maintenance of data warehouses created from legacy systems for direct marketing clients (Oracle, Solaris, HP-UX). Tuned data warehouses, developed data refresh scripts, supervised data loading, performed monthly data refresh.
- Worked with DBAs, Data Administrators, mainframe programmers, and clients to evaluate and scrub data. Coordinated with system administrators and application developers to optimally host, index, and configure databases.
- July 1995–May 1996: *Technical Writer*, Comtech Services, Denver, CO.
 Led documentation team for Hewlett-Packard UNIX-based laboratory management systems. Designed and prepared online documentation for Java software development kit. Office UNIX consultant.

Research Support

XD Metrics Service (XMS)

This renewed project of the Technology Audit Service (TAS) aims at improving the operational efficiency and management of NSF's XD network of computational resources. This includes the XDMoD tool, which provides stakeholders of XD and XSEDE with access to data about utilization, performance, and quality of service for XD resources and XSEDE-related services.

Funder: NSF 1445806

PI: T.Furlani
Dates: 07/2015 - 06/2020
Role: Software Engineer

Technology Audit Service for Teragrid Phase III

Development of an active set of tools and services to monitor the advanced TG:XD cyberinfrastructure and insure its ability to meet the research needs of the end user as well as an advanced web-based interface to present role-specific views of audit results.

Funder: NSF 1025159

PI: T. Furlani

Dates: 07/2010 - 06/2015

Role: Software Engineer

Virtual Infrastructure for Data Intensive Analysis (VIDIA)

Develop cyber-infrastructure to facilitate education and research in data intensive computing at SUNY comprehensive colleges.

Funder: SUNY

PI: S. Gallo

Dates: 06/2013 - 07/2014

Role: Software Engineer

AAHSL Annual Statistics: A Web-Based Data Collection and Analysis Portal

Ongoing development of a collaborative portal and data warehouse for the analysis and dissemination of statistical information for use by library directors.

Funder: Association of Academic Health Science Libraries

PI: S. Gallo

Dates: 04/2014 – 04/2015

Role: Software Engineer

NYS High Performance Computation Consortium (HPC2)

Economic development – working with NYS companies to leverage HPC

Funder: NYSTAR

PI: T. Furlani

Dates: 07/2014 – 07/2017

Role: Software Engineer

Talks

Sperhac JM, Greenberg J, “VIDIA – A Virtual Infrastructure for Data Intensive Analysis”, SUNY Conference on Instructional Technologies, Geneseo, NY, May 2015.

Greenberg J, **Sperhac JM**, “Teaching Big Data analysis in the Social Sciences using a HUBzero-based platform.” SUNY Wizard, Syracuse, NY, 18-20 November 2014.

Greenberg J, **Sperhac JM**, “Introducing VIDIA.” SUNY Brockport, Brockport, NY, 28 October 2014.

Greenberg J, **Sperhac JM**, “Teaching Big Data analysis in the Social Sciences using a HUBzero-based platform.” HUBhub 2014, The HUBzero Conference, Indianapolis, IN, 29 September 2014.

Lowe B, Gallo SM, **Sperhac JM**, Greenberg J, “Open SUNY Research and Innovation: Providing Undergraduates with a Virtual Infrastructure for Data Intensive Analysis”, SUNY Research Foundation Learning Tuesdays Series, 17 June 2014.

Lowe B, Gallo SM, **Sperhac JM**, Greenberg J, "Providing Undergraduates with a Virtual Infrastructure for Data Intensive Analysis", SUNY Conference on Instructional Technologies, Ithaca, NY, 30 May 2014.

Sperhac JM, Panelist, SUNY Buffalo Sit With Me celebration, Buffalo, NY, 4 March 2014.

Greenberg JB, **Sperhac JM**, "HPC Collaboration Between UB and SUNY Oneonta", SUNY Wizards, Syracuse, NY, 21 November 2013.

Sperhac JM, Gallo SM, Pitman EB, Furlani TR, Mraz CR, Steffan S, "Leveraging HUBzero to Enable STEM Education for High School Students." HUBbub 2013, The HUBzero Conference, Indianapolis, IN, 5 September 2013.

Sperhac JM, "Virtual Infrastructure for Data Intensive Analysis: An Update." HUBbub 2015, The HUBzero Conference, Indianapolis, IN, 14-15 September 2015, submitted.

Wilkerson W, **Sperhac JM**, McLennan M, Greenberg J, "A Collaborative Environment for Text Analytics in the Social Sciences." EDUCAUSE, Indianapolis, IN, 27-30 October 2015, submitted.

Publications

Gallo SM, White JP, DeLeon RL, Furlani TR, Patra AK, Jones MD, Palmer JT, Simakov N, **Sperhac JM**, Innus M, Yearke T, Rathsam R, "Analysis of XDMoD/SUPReMM Data Using Machine Learning Techniques", submitted to 2nd Workshop on Monitoring and Analysis for High Performance Computing Systems Plus Applications, 2015.

Palmer JT, Gallo SM, Furlani TR, Jones MD, DeLeon RL, White JP, Simakov N, Patra AK, **Sperhac JM**, Yearke T, Rathsam R, Innus M, Cornelius CD, Browne JC, Barth WL, Evans RT, "Open XDMoD: A Tool for the Comprehensive Management of High Performance Computing Resources", accepted by *Computing in Science and Engineering* (2015).

Sperhac JM, Weida MJ, Nesbitt DJ. "Sublimation dynamics of CO₂ thin films: A high-resolution diode laser study of quantum state-resolved sticking coefficients", *Journal of Chemical Physics* **105**, 749-766 (1996).

Weida MJ, **Sperhac JM**, Nesbitt DJ, "IR spectroscopy of Ar₂CO₂ trimer: Vibrationally averaged structures, solvent shifts, and three-body effects", *Journal of Chemical Physics* **104**, 2202-2213 (1996).

Weida MJ, **Sperhac JM**, Nesbitt DJ, "High-resolution IR diode laser spectroscopy of (CO₂)₃: Vibrationally averaged structures, resonant dipole vibrational shifts and tests of CO₂-CO₂ pair potentials", *Journal of Chemical Physics* **103**, 7685-7699 (1995).

Weida MJ, **Sperhac JM**, Nesbitt DJ, Hutson JM, "Signatures of large amplitude motion in a weakly bound complex: High resolution IR spectroscopy and quantum calculations for HeCO₂", *Journal of Chemical Physics* **101**, 8351 (1994).

Conferences Attended

- SUNY Conference on Instructional Technologies, Geneseo, NY, May 2015.
- Supercomputing 2014, New Orleans, LA, 16-21 November 2014.
- HUBzero HUBbub 2014, Indianapolis, IN, 29 September-1 October 2014.
- XSEDE 2014, Atlanta, GA, 13-18 July 2014.
- SUNY Conference on Instructional Technologies, Ithaca, NY, 30 May 2014.
- Supercomputing 2013, Denver, CO, 17-22 November 2013.
- HUBzero HUBbub 2013, Indianapolis, IN, 5-6 September 2013.

- Supercomputing 2012, Salt Lake City, UT, 10-16 November 2012.

Teaching

Primary Instructor, Eric Pitman Annual Summer Workshop in Computational Science, Center for Computational Research, Buffalo, NY, 24 June – 5 July 2013, 30 June – 11 July 2014, 29 June – 10 July 2015.

Supervised CCR summer interns, Summer 2013 – 2015.