James Arthur Kohl

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Education

Ph.D.   December 1994,   GPA: 3.96/4.00, 27 hours

Doctor of Philosophy in Electrical and Computer Engineering,
University of Iowa, Iowa City, IA, 52242.

Thesis: "Efficient Visualization and Animation of Program Behavior"

Defines a framework for fast prototyping of custom program views that reduces the specification overhead and complexity involved in building a view. Introduces two new constructs, the "Equate" and the "Replication." Equates provide efficient, high-level identification of cohesive view relationships. Replications provide a means for efficiently constructing large sets of graphical objects in regular patterns. A prototype view editing system, "IMPROV," has been developed using this framework. Experimental results show that the views have more efficient specifications and improved execution performance.

Major Professor: Dr. T. L. Casavant

M.S.E.E.   December 1989,   GPA: 5.66/6.00, 18 hours

Master of Science in Electrical Engineering,
Purdue University, West Lafayette, IN, 47907

Thesis: "PARADISE: An Animated Parallel System Debugging and Simulation Environment"

Presents a design methodology and meta-tool for animating parallel software behavior using visual models made up of discrete graphical objects. Emphasis is on application of program visualization to debugging and performance tuning parallel software.

Major Professor: Dr. T. L. Casavant

B.S.C.E.E., Summa Cum Laude   December 1988,   GPA: 5.88/6.00, 155 hours

Bachelor of Science in Computer and Electrical Engineering,
Purdue University, West Lafayette, IN, 47907

Areas of Specialization:

Large-Scale Software Architecture Organization and Design; Streaming Data Acquisition Software Design and Development; Parallel and Heterogeneous Distributed Computing; Software Component Technology; Data Movement and Visualization for Parallel Programs and Scientific Data; Parallel Coupling Technology for Multi-Physics Simulations, Including "MxN" Parallel Data Redistribution; Visualization, Computational Steering and Application-Directed Fault-Tolerance for High-Performance Scientific Simulations; Graphical User-Interface (GUI) Design; Web-Portal Design; High Performance Computer Architecture.

Professional Experience:

Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee, 37830-6485
[July 1993 to present.]

October 2021 to present.
Full-time Research Staff, Software Architect and Control System Engineer in the DAQ (Data Acquisition) Development Group, Neutron Instrument Technology (NIT) Section, Neutron Technologies Division (NTD), Neutron Sciences Directorate (NScD). Designing and developing "live" streaming data acquisition software and various beamline control system software for the experimental neutron scattering facilities at ORNL, at both the Spallation Neutron Source (SNS) and the High Flux Isotope Reactor (HFIR). Ongoing designer and developer of the full ADARA (Accelerating Data Acquisition, Reduction, and Analysis) software suite for real-time streaming data acquisition, to monitor and collect experimental data and sample environment meta-data into copy-of-record "NeXus" hierarchical HDF5 data files. Significant design/development work on the ADARA "Stream Management Service" (SMS), "Streaming Translation Service" (STS), "Process Variable Streaming Daemon" (PVSD), and "DasMon" Data Acquisition System Monitor Service. Designer and developer of the Sample Activation Calculator (SAC) EPICS IOC software for automatically capturing Sample Irradiation Exposure statistics for Sample Activation calculations.

December 2020 to September 2021.
Interim Group Leader for the DAQ (Data Acquisition) Development Group, Neutron Instrument Technology (NIT) Section, Neutron Technologies Division (NTD), Neutron Sciences Directorate (NScD), for the Spallation Neutron Source (SNS) and the High Flux Isotope Reactor (HFIR). Managing a diverse group of hardware/software engineering staff, and closely collaborating with the tandem "DAQ Integration" Group in overseeing several ongoing projects including: Remote Experiment Access to SNS and HFIR, NOMAD/BL1B Detector Upgrade, VULCAN-X/BL7 Detector Upgrade, Modular Hardware Platform Data Acquisition Electronics, SNAP/BL3 IMAGING/CG1D and VENUS Imaging Detectors/Software, Neutron Spin Echo (NSE)/BL15 EPICS Power Supply Upgrade, Sample Activation Calculator (SAC) Automation Software, and HYSPEC/BL14B Direct-Geometry Spectrometer Planning Tool Effort. Also continuing to support and extend ADARA Streaming Data Acquisition software suite (See below) and various EPICS Beamline Control Software.

September 2010 to December 2020.
Full-time Research Staff and Lead Engineer in the Instrument Data Acquisition and Controls Group (IDAC), Neutron Technologies Division (NTD), Neutron Sciences Directorate (NScD).

Designing and developing "live" streaming data acquisition software for the experimental neutron scattering facilities at ORNL, at both the Spallation Neutron Source (SNS) and the High Flux Isotope Reactor (HFIR). Co-designer and developer of the ADARA (Accelerating Data Acquisition, Reduction, and Analysis) real-time streaming data acquisition software suite, to monitor and collect experimental data including sample environment meta-data and live neutron event data, and then organizing or "translating" the data into copy-of-record "NeXus" hierarchical HDF5 data files suitable for data reduction and scientific analysis. Significant design/development work on the ADARA "Stream Management Service" (SMS), "Streaming Translation Service" (STS), "Process Variable Streaming Daemon" (PVSD), and "DasMon" Data Acquisition System Monitor Service and GUI Client. Also designed and implemented the forerunner to ADARA, the "Live Data Processing" (LDP) system for capturing live data streams from the legacy SNS data acquisition system and producing intermediate data files for live analysis during an experiment. Extended, optimized and maintained the legacy data acquisition system at SNS, including the "HistoTools" data processing software, as well as some diagnostic work on "DcomServer" and "DcomClient." Co-Developed the original "SNS Data Portal" web interface for accessing and retrieving experimental data files, as well as the "Application Manager" for staging, executing and tracking computational data analysis jobs.

July 1993 to September 2010.
Prior to 2010, worked in the Distributed Computing Group of the Distributed Intelligent Systems Section in the Computer Science and Mathematics Division at ORNL. Performed research on various aspects of parallel and heterogeneous distributed computing, component software frameworks, and visualization, computational steering and application-directed fault tolerance of parallel programs and data, for basic sciences and applied mathematics applications. Member of the original Common Component Architecture (CCA) Forum, a grassroots effort as part of U.S. Department of Energy (DOE) "DOE 2000" initiative, to define a standard specification for reusable software components in high-performance scientific computing. Became Co-Principal Investigator of the first CCA research and development project, as part of the U.S. DOE Sci-DAC (Scientific Discovery through Advanced Computing) initiative, in the "Center for Technology for Advanced Scientific Component Software" (TASCS). Collaborated on CCA efforts in Fusion Energy Simulations as part of the "SWIM" project. Was also an active participant in the second CCA SciDAC Center, "Component Technology for Terascale Simulation Software" (CCTTSS), as Lead of the "MxN" Working Group on Parallel Data Redistribution. This MxN work built on my earlier work, Co-developing the "CUMULVS" system (Collaborative, User Migration, User Library for Visualization and Steering) for interactive data and algorithm visualization, collaborative computational steering and user-directed fault tolerance of parallel scientific computer simulations. Worked with the Regional Climate Assessment project to apply CUMULVS for coupling data fields across distinct simulation models; also applied CUMULVS to computational fluid dynamics air flow simulations and finite difference seismic simulations. Worked on the "Harness" project, a next-generation pluggable adaptive distributed computing environment. Co-Developer and primary maintainer of the "Parallel Virtual Machine" (PVM) message-passing system. Developed a graphical user interface for PVM called "XPVM," which monitors and visualizes the execution of parallel and distributed PVM application programs. Designed and implemented a scalable sparse matrix viewer called "MatView," for graphically viewing, exploring and analyzing very large sparse matrices. Worked with the National HPCC (High Performance Computing and Communications) Software Exchange (NHSE) on the Parallel Tools Library (PTLIB) project, as editor of the monthly email newsletter "PT Digest,"

and have also worked on the Parallel Tools Evaluation (PTE) effort to port existing parallel tools to state-of-the-art computer architectures. Involved in the design of numerous user interfaces for Unix and X Windows applications, as well as web-based HTML forms and CGI script interfaces. Worked on the "Collaborative Management Environment" (CME) project for organizing U.S. DOE Headquarters financial information across the various field offices; developed web-based user interface for coordinating input of user financial queries and processing database accesses. Developed CGI web interface for "DIXIE," a web-based remote control system for a spectrometer in ORNL's High Flux Isotope Reactor (HFIR). Member of the "FaMOUS" team for financial management; co-developed interface to use World-Wide Web for dissemination of concise financial reports. Have explored next-generation program visualization with "IMPROV" (completion of PhD Thesis work), an environment for interactively building custom graphical views of parallel programs.

IBM Thomas J. Watson Research Center, Yorktown Heights, New York, 10598
May through September 1992.
Summer/Fall Internship appointment. Worked with Doug Kimelman on the IBM Research "PV" prototype program visualization system. Designed & implemented X Window System widgets for graphically animating large data arrays using a scalable view technique involving the use of quad-trees. Also, designed a software monitoring system for collecting information on data array accesses, using the ParaSoft Express parallel programming system, on RS/6000 clusters and the Victor 256 Node Transputer. Re-designed existing software for converting Express traces for use with the PV Prototype. Assisted in the production of a user "How To" video of the PV prototype, including operation of the video camera and the U-Matic audio/video editing system.

Argonne National Laboratory, Argonne, Illinois, 60439
1984 through 1990, 7 Summers, Regular Short-Term Appointments.
Plus 1983-4 School Year, Co-Operative Education Program, Senior Year in High School.
From 1986 through 1990 worked in Mathematics and Computer Science Division, in the Advanced Computing Research Facility (ACRF). During Summer 1990 implemented several parallel versions of global climate modeling equations for the joint "CHAMMP" project (Computer Hardware/Applied Mathematics/Model Physics) using the Strand parallel programming language. During Summer 1989 worked with Jack Dongarra on development of the "SHMAP" (SHared Memory Access Patterns) tool for graphic visualization of memory accesses in matrix calculations for shared memory multi-processor systems. During earlier summers, 1986 through 1988, developed software for analyzing the performance of software on parallel and multiprocessor computer systems including Sequent Balance 21000, Alliant FX8, Encore Multimax 20, Connection Machine (CM-2), DAP - 1024 processor, and Intel 286 Hypercube and Vectorcube. Helped implement and debug a set of parallel programming macros (which later contributed to an early version of the "Globus" grid computing infrastructure), and was sole developer of a Unix socket-based interprocess communications protocol for use with the macros. Worked on several projects involving automated theorem proving, artificial intelligence programming languages, combinational logic research, biological/genetic genome-matching software, mathematical algorithm development, and also handled system administrator duties for various periods. From 1983 through 1985 worked in Computer Services Division (now the Electronics & Computing Technologies Division) as a Research Assistant. Wrote general accounting and report generation software, debugged an extensive equipment inventory software system, and developed communications hardware control software for supercomputer batch access via telephone modem.

University of Iowa, Iowa City, Iowa, 52242
Spring 1990 to Summer 1993, Department of Electrical and Computer Engineering.
Research Assistant, worked on parallel software engineering and program visualization research.
Teaching Assistant, Spring 1991, undergraduate introductory course in computer architecture.
Teaching Assistant, Fall 1990, graduate level course in high-performance computing.

Purdue University, West Lafayette, Indiana, 47907
1988-9 School Year, School of Electrical Engineering.
Research assistant under Purdue Graduate School Fellowship, worked on program visualization of parallel and distributed systems. Teaching Assistant, Fall 1989, with split assignment, taught section of undergraduate laboratory course in advanced microprocessor design, and provided assistance for students in an electric circuit design and analysis course.

Graduate Course and Research Summary:

University of Iowa, Ph.D.:
Extensive research in the design and development of parallel software, emphasizing the design and use of program visualization systems for debugging and performance evaluation. Research also involved consideration of several human-computer interface issues. Various course work in parallel programming, parallel & distributed computing, software engineering, combinatorial optimization, complexity and computation theory. Also some course work in computer networks, digital integrated electronic design, and graph theory and algorithms.

Purdue University, M.S.E.E.:
Research focused on the design and use of sophisticated program visualization tools, and their application to parallel software development. Course work covered a variety of electrical engineering topics, including high-performance computer architecture, distributed computing systems, artificial intelligence, probability theory, control theory, communication theory, and E/M theory.

Scholarships and Awards:

- Albert Nelson Marquis Lifetime Achievement Award by Marquis Who's Who, 2018.

- Recognition Award for Student Research Mentoring in the Research Alliance in Math and Science, 2008 Summer Internship Program.

- Best Paper Award, IEEE International Parallel & Distributed Processing Symposium (IPDPS), Denver, Colorado, April 4-8, 2005.

- Significant Event Award, Visualization Facility for Computational Sciences Building, 2003.

- Significant Event Award, SciDAC Proposal Preparation Effort, Oak Ridge National Laboratory, 2001.

- Significant Event Award, CUMULVS Work for Supercomputing 1996, Oak Ridge National Laboratory, 1997.

- Silver Medal for Innovation, High-Performance Computing Challenge, Supercomputing 1996.

- Division Director's Award, Computer Science and Mathematics Division, Oak Ridge National Laboratory, 1995.

- Award for User Interface and Reliability, High-Performance Computing Challenge, Supercomputing 1995.

- Significant Event Award, FaMOUS Work, Oak Ridge National Laboratory, 1995.

- 2nd Place, Heterogeneous Computing Challenge, Supercomputing 1994.

- Most Elegant Interface, Heterogeneous Computing Challenge, Supercomputing 1993.

- University of Iowa Graduate School Dean's Fellowship, 1/90 to 6/93.

- Purdue University Graduate School Fellowship, 8/88 to 8/89.

- Fessenden-Trott Memorial Scholarship - Single Recipient, Three Years 8/85 to 8/88.

- Purdue University President's Honor Award, 1984-5.

- Mensa International Scholarship - Essay Contest, First Round Prize, 1984.

Programming Language Experience:

Extensive experience and fluent with C Language, C++, Python and Java, EPICS (Experimental Physics and Industrial Control System) and CSS (Control System Studio) GUI, Tcl/Tk, HTML, CGI (Common Gateway Interface), Pascal, Fortran, Strand, Perl, Awk, Sed, Unix, Prolog, LISP, SAS, SQL and BASIC. Experience with several parallel languages and systems, including usage and internals of Parallel Virtual Machine (PVM), the C* Parallel Programming Language Versions 5.0 and 6.0 for the Connection Machine (CM-2), Parasoft's Express Parallel Programming System, Encore Multimax Tasking and Threads Environments, Intel Hypercube messaging, and Alliant FX/8 Parallel Vector Fortran. Extensive experience with general graphical interfaces, including AVS5 module programming, the X Window System and the Sun Microsystem's Sunview Window System. Worked with and/or administered several operating systems, including Linux, BSD Unix, Unix System V, SGI Irix, IBM AIX, IBM VM/CMS, AppleII+, MacOSX, with multimedia audio/video editing software GarageBand and iMovie, and DOS, Win3, Win95, Win98, Win2K, WinXP, WinNT, and Win7/8/10, with Eclipse and Visual Studio 5 development environments. Programmed various shell environments, including Bash, C Shell, Bourne Shell and EXEC2. Network socket programming in UDP and TCP. Experience with a variety of assembly languages, including 68000, 6809, 8080/8085, 6502, and IBM System 370.

Activities and Organizations:

Program Committee, Supercomputing 2000, Dallas, Texas.
Institute of Electrical and Electronics Engineers (IEEE).
    −> IEEE Computer Society.
Association for Computing Machinery (ACM).
    −> ACM Special Interest Group Computer Architecture (SIGARCH).
    −> ACM Special Interest Group Software Engineering (SIGSOFT).

−> ACM Special Interest Group Computer-Human Interfaces (SIGCHI).
The Society for Industrial and Applied Mathematics (SIAM).
Eta Kappa Nu National Electrical Engineering Honor Society.
Tau Beta Pi National Engineering Honorary.
Phi Kappa Phi Honor Society.
Golden Key.
Phi Eta Sigma Honor Society – Vice President, 1984.
Order of the Engineer.
Mensa International.

Referee:

ORNL Seed Money Proposals, 2010.
Advancing Engineering Software (AES) 2009.
Workshop on Component-Based High Performance Computing (CBHPC) 2009.
JPDC '98 and '95 (Journal of Parallel and Distributed Computing).
Int'l Journal of Supercomputer Applications and High Performance Computing, 1998.
DOE SBIR Phase I '98 and '96 (Small Business Innovation Research).
HPCN Europe '97 (High-Performance Computing and Networking).
pAs '97 (Aizu International Symposium on Parallel Algorithm/Architecture Synthesis).
IPPS '94 - '97 (Int'l Parallel Processing Symposium).
Supercomputing '96 and '94.
HICSS-28 (Hawaii International Conference on System Sciences 1995).
ORNL Seed Money Proposals, 1994.
IEEE Computer, 1994 (selected as official reviewer for papers on software tools).
SHPCC '94 (Scalable High Performance Computing Conference).
FTCS-23 (Fault Tolerant Computing Systems).
IEEE Frontiers of Massively Parallel Computation, 1992.
IEEE COMPSAC, 1989, 1991, and 1992.

Leadership Experience and Spiritual/Musical Activities:

In Loving Service to Eckankar (www.eckankar.org), Knoxville, TN:
Board of Trustees, Tennessee Satsang Society, Inc. - 2021
"Knoxville Spiritual Experiences" Meetup Group, Founder and Moderator of
    Monthly Open Community Discussions on Spirituality - 788 Members, 2013 to Present
Member of Eckankar since 2004:
    - Trained as "Arahata" (Teacher/Facilitator) in Eckankar,
    Regularly Lead Book and Video Discussions at Local Eckankar Center
    - Presented Various Spiritual Talks and Workshops at Regional Seminars and Local Events
    - Volunteered Numerous Times as Audio/Visual Sound Engineer
    and in Meeting Support for Eckankar Worldwide Seminars, Minneapolis, MN
    - Regularly Perform Instrumental/Vocal Music, Including Some Original Compositions,
    at "Light and Sound" (Worship) Services

"The Ensemble Swing Time" Big Band Jazz Group, Knoxville, TN:
Founding Member under James Colegrove, Lead Alto and Soprano Saxophones,
    with Occasional Solo Vocals - 2008 to Present.
    - Play at Indoor/Outdoor Public Jazz Concerts
    - Summer Swing Dances on the Clayton Center Plaza at Maryville College, Maryville, TN
    - Concerts at Ben Atchley Veterans Home, Knoxville, TN

"Chestnut Ridge Ramblers," (Formerly "Superstring Vibrations"), Oak Ridge, TN:
Founding Member, Electric Bass, Vocals, Background Saxophones - 2014 to Present
    - Play American/Folk/Bluegrass Music for Outdoor Festivals
    and Holiday Luncheons at ORNL and SNS

Boy Scouts of America (BSA), Farragut, TN:
Assistant Scoutmaster, Falcon Patrol, Troop 444 - 2017 to present

Women in Neutron Sciences (WiNS), Oak Ridge, TN:
Recognition and Engagement Committee - 2018 to 2019

Oak Ridge Community Band (ORCB), Oak Ridge, TN:
Alto Saxophonist and Soloist - 2008 to 2013
President of the ORCB Band Board - 1 Year
Vice President of the ORCB Band Board, Concert Series Organizer - 3 Years

West Emory Presbyterian Church, Knoxville, TN:
Member - 1997 to 2007
Elder in The Presbyterian Church (U.S.A.)
Clerk of Session (3 years)
Served on Two Pastor Nominating Committees (2005, 2007)

Purdue University Band Department, West Lafayette, IN:
Member of Purdue University Campaign Advisory Board for the Purdue University Bands
    Capital Campaign "A Song Anew" - 1996 to 1998.

Chief of Staff, Student Officer Corps - 2 Years, 1986 to 1988.
Drum Major, All-American Marching Band - 4 Years, 1985 to 1989.
Head of Personnel Office, Rank "Colonel," Student Officer Corps - 4 Years, 1985 to 1989.
Saxophone Section Leader, American Music Review - 5 Years, 1984 to 1989.
Saxophone Section Leader, Symphony Band (1st Band) - 3 Years, 1986 to 1989.
Saxophone Section Leader, Boiler Brass Basketball Band - 2 Years, 1986 to 1988.
Saxophone Section Leader, Concert Band (2nd Band) - 1 Year, 1984.

Purdue Bands Special Activities & Performances:
- 1989 Presidential Inaugural Parade, Washington, D.C., All-American Marching Band
- President Ronald Reagan Visit, Purdue 1988, American Music Review.
- Performed on Caribbean Cruises, 4 Cruises (1984-1989), American Music Review.
- Peach Bowl, All-American Marching Band - 1984.

Naperville North High School, Naperville, IL:
Teaching Assistant, Jr. High Computer Programming Class, Dist 203 Summer School, 1983.
Teaching Assistant, IER (Institute for Educational Research) Computer Camp, 1982.
National Honor Society - 1984 (Ranked 16/520, GPA = 4.0833/4.0).
President of the Band Executive Committee - 1984.
Drum Major, Marching Band - 3 Years, 1981 to 1984.
Saxophone Section Leader, Symphonic Band - 4 Years, 1980 to 1984.
Saxophone Section Leader, Jazz Band - 4 Years, 1980 to 1984.
Saxophone Section Leader, Basketball Pep Band - 3 Years, 1981 to 1984.
Pit Orchestra, Performances of "Guys and Dolls" and "Funny Girl".
Finalist in McDonald's All-American Band - 1984.
John Philip Sousa Award - 1984.

Naperville Congregational Church, Naperville, IL:
Founder and Director of Youth Bell Choir, 1980s
Youth Member of Adult Bell Choir
Vocalist in Chancel Choir
- Various Saxophone Solos During Worship Services
- Vocal Soloist as a 3rd Grader, 1974

Jefferson Junior High School, Naperville, IL:
Richard J. Povinelli Band Award for Excellence - 1980.
Drum Major, Patriot Marching Band - 1980.
"Master Musician" Award (2nd Recipient) - 1980.
Performed Alto Saxophone Solo "Misty," with Naperville Municipal Band
    at Naperville Band Shell, for a crowd of 3000 spectators - 1980.
JJHS "Patriot" Award for Citizenship - 1978, 1979, 1980.
Numerous Academic and Vocational Awards

Musical Background Narrative:

Throughout his long technical education/career in computer and electrical engineering research and software design, Dr. James Arthur Kohl, Ph.D. has always had a deep passion for a variety of creative musical endeavors. He has always loved music, and sang from an early age. He entered into instrumental music back in 1975, with a promising big "Wind Bag" award for holding a single note on alto saxophone for 30 seconds (as a 3rd grader!), and his musical adventures have steadily crescendoed ever since.

James was raised in a household filled with music, with everyone singing or participating in some musically creative endeavor. His father, Richard C. Kohl, loved classical music, played the flute and sang, his older sister Linda M. Kohl sang, wrote songs and played guitar, and his middle sister Patricia A. (Kohl) Michalowski sang and danced ballet professionally at the Lyric Opera in Chicago. His mother, Mary E. (Betsy) Kohl, sang professionally in a variety of venues as a coloratura soprano soloist, with operatic capacity and experience (Hunter College, NY). (Such was a source of James' inherited lung power, to be heard clearly over the din of a marching band on the football field as a Drum Major in the coming years.) Among other things, Betsy was a Soloist and later the Music Director at the Naperville Congregational Church (NCC), where James also sang with members of his family in the Chancel Choir, including a "boy soprano" vocal solo at Christmas as a 3rd grader back in 1974. He was a founding player as a youth in the Adult Bell Choir at NCC, and ultimately formed and directed his own Youth Bell Choir there as an older teenager, fulfilling the memorial bell donor's dream.

The city where James grew up, Naperville, Illinois, is well-known for its astounding music program, and he had the distinct benefit of learning from excellent musical directors/instructors, including Richard C. Cherep and Ronald Keller, throughout his time in School District 203. Mr. Keller also directed the Naperville Municipal Band, leading to the amazing opportunity for James to perform a saxophone solo with them while in the 8th grade, on the song "Misty" at an outdoor summer band concert for a crowd of 3000 people. James was classically trained on saxophone by Harold Hindson in Naperville, and Nicholas Brightman (a student of Cecil Leeson) while at Purdue University, and excels on soprano, alto and baritone saxophones. Leading saxophone sections from the start, in primary school through middle school and high school in Naperville, Illinois, and then at Purdue University in West Lafayette, Indiana, he has played in classical concert and symphony bands, as well as marching bands, pep bands and several jazz ensembles.

James has played under world class musical directors including William C. "Bill" Moffit and Dr. Harry Begian. He has performed for two U.S. Presidents and on several different Caribbean cruises (with Purdue's "American Music Review"), was a Finalist in the McDonald's All-American Band, and received the John Philip Sousa Award (1984). He has also taken on many leadership positions in these various musical organizations, including being selected as a "Drum Major" field commander throughout his marching band escapades in each of middle school (JJHS 1979-1980), high school (NNHS 1981-1984), and at Purdue University (1985-1989). He was elected President of his high school band (1984), and Chief of Staff of the Purdue Bands Student Officer Corps (1987-1988), in addition to being the Head of the Personnel Office and achieving the highest rank of Colonel. He also served on the Purdue Bands "A Song Anew" Campaign Advisory Board, as a Purdue Bands Alumnus, from 1996 to 1998.

James has also taken on musical leadership roles in recent years in the Oak Ridge Community Band in Oak Ridge, Tennessee, where he served as the Vice President (3 years) in charge of organizing the extended Concert Series throughout the year, and ultimately serving as President of the Band Board (1 year). Kohl was a founding member of "The Ensemble Swing Time" big-

band jazz group with James Colegrove in Knoxville, Tennessee, and continues to play lead alto and soprano saxophones, as well as occasionally perform vocally, with this vibrant group. He was fortunate to have had excellent jazz instruction from Prof. William D. Kisinger while at Purdue, and has played with many excellent jazz/improvisational players over the years. He continues to play with and learn from Michael Palmieri, Tenor Saxophonist of Wayne Cochran and The C.C. Riders fame, by his side in The Ensemble Swing Time.

In 2008, James began playing electric bass and upright string bass under the master tutelage of Rusty Holloway at the University of Tennessee, Knoxville. He has applied his singing voice and these newfound "stringed" instrumental skills with the group "Chestnut Ridge Ramblers" (formerly "Superstring Vibrations"), consisting of several engineer and scientist friends from the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL). Together they play a variety of American Folk and Pop music, as well as some amazing Bluegrass fast-picking classics, for outdoor and holiday festivals and luncheons at SNS and ORNL. James continues to sing, accompanying himself on the bass, and write his own songs for performing informally at various spiritual/worship events, as part of his loving service to Eckankar (www.eckankar.org).

Journal / Conference Publications:

Anees Al-Najjar, Nageswara S. V. Rao, Neena Imam, Thomas Naughton, Seth Hitefield, Lawrence, Sorrillo, James A. Kohl, Wael Elwasif, Jean-Christophe Bilheux, Hassina Z. Bilheux, Swen Boehm, Jason Kincl, "Virtual Framework for Development and Testing of Federation Software Stack," 2021 IEEE 46th Conference on Local Computer Networks (LCN), October 2021, DOI: 10.1109/LCN52139.2021.9524993.

Anees Al-Najjar, Nageswara S. V. Rao, Neena Imam, Thomas Naughton, Seth Hitefield, Lawrence, Sorrillo, James A. Kohl, Wael Elwasif, Jean-Christophe Bilheux, Hassina Z. Bilheux, Swen Boehm, Jason Kincl, "VFSIE - Development and Testing Framework for Federated Science Instruments," Pre-Print, January 2021.

X. Yao, B. Avery, M. Bobrek, L. Debeer-Schmitt, X. Geng, R. Gregory, G. Guyotte, M. Harrington, S. Hartman, L. He, L. Heroux, K. Kasemir, R. Knudson, J. Kohl, C. Lionberger, K. Littrell, M. Pearson, S.V. Pingali, C. Pratt, S. Qian, M. Ruiz-Rodriguez, V. Sedov, G. Taufer, V. Urban, K. Vodopivec, "A Unified User-Friendly Instrument Control and Data Acquisition System for the ORNL SANS Instrument Suite," **Applied Sciences**, Manuscript ID: applsci-1083787, Accepted January 2021.

T. Naughton, S. Hitefield, L. Sorrillo, N. Rao, J. Kohl, W. Elwasif, J. C. Bilheux, H. Bilheux, S. Boehm, J. Kincl, S. Sen, N. Imam, "Software Framework for Federated Science Instruments," In Book: Driving Scientific and Engineering Discoveries Through the Convergence of HPC, Big Data and AI, December 2020, DOI: 10.1007/978-3-030-63393-6_13.

T. Naughton, S. Hitefield, L. Sorrillo, N. Rao, J. Kohl, W. Elwasif, J. C. Bilheux, H. Bilheux, S. Boehm, J. Kincl, S. Sen, N. Imam, "Software Framework for Federated Science Instruments," In Proc. of Smoky Mountains Conference, Springer-Verlag, December 2020.

G. Shipman, S. Campbell, D. Dillow, M. Doucet, J. Kohl, G. Granroth, R. Miller, D. Stansberry, T. Proffen, R. Taylor, "Accelerating Data Acquisition, Reduction, and Analysis at the Spallation Neutron Source," 2014 IEEE 10th International Conference on e-Science, 2014, pp. 223-230, DOI: 10.1109/eScience.2014.31. https://ieeexplore.ieee.org/document/6972268

"Neutron Stream: An Oak Ridge National Laboratory Team Builds A New Way To Follow The Bouncing Neutrons," U.S. Department of Energy, Office of Science, ASCR Discovery, Advancing Science Through Computing, Computer Science, June 2013, http://ascr-discovery.science.doe.gov/2013/06/neutron-stream/

"Neutron Science and Supercomputing Come Together at Oak Ridge National Lab," Agatha Bardoel, December 4, 2012, HPC Wire Article, https://www.hpcwire.com/2012/12/04/neutron_science_and_supercomputing_come_together_at_oak_ridge_national_lab/

Stephen D. Miller, Sudharshan S. Vazhkudai, Michael A. Reuter, James A. Kohl, Shelly Ren, Mark L. Green, "On the Orchestration of the SNS Reduction Job Workflow," NOBUGS 2010, Gatlinburg, TN, October 2011.

Stuart I. Campbell, Stephen D. Miller, Jean Bilheux, Michael A. Reuter, Peter F. Peterson, James A. Kohl, James R. Trater, Sudharshan S. Vazhkudai, V. E. Lynch, Mark L. Green, "The SNS/HFIR Web Portal System for SANS," **Journal of Physics Conference Series**

247(1):012013, November 2010, DOI: 10.1088/1742-6596/247/1/012013

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Other Presentations and Meetings:

Attended and presented talk at Common Component Architecture (CCA) working group meeting, DOE 2000 ACTS Toolkit, Oak Ridge, TN, June 1999.

Attended Strategic Simulation Initiative (SSI) Computer Science Enabling Technologies (CSET) Meeting, Argonne National Laboratory, May 1999.

Attended Common Component Architecture (CCA) working group meeting, DOE 2000 ACTS Toolkit, Santa Fe, NM, April 1999.

Attended DOE 2000 ACTS Toolkit Principle Investigators Meeting, Reston, VA, March 1999.

Presented talk for CUMULVS Field Work Proposal (FWP) at DOE 2000 ACTS Toolkit Review, Reston, VA, January 1999.

Invited Attendee to Workshop on Programming Environments, Clusters, and Computational Grids for Scientific Computing, The Inn at Blackberry Farm, Walland, TN, September 1998.

Invited Attendee to the 1998 Annual Meeting of the Parallel Tools Consortium (PTOOLS '98), National Center for Atmospheric Research (NCAR), Boulder, CO, May 4-6, 1998.

J. A. Kohl, P. M. Papadopoulos, "Interfacing Parallel Scientific Applications with Multiple Visualization Systems: The CUMULVS Approach," Mathematical, Information, and Computational Sciences (MICS) Workshop on Interoperability of DOE Visualization Centers, Lawrence Berkeley National Laboratory, Berkeley, CA, March 30 - April 1, 1998 (see `http://www.csm.ornl.gov/cs/cumulvs.html`).

Invited Attendee to Army Research Laboratory (ARL) / Naval Oceanographic Office (NAVO) Workshop on the Role of High Performance Computing in Signal and Image Processing, ARL Major Shared Resource Center (MSRC), Higher Education and Applied Technology (HEAT) Center, Aberdeen, MD, February 3-5, 1998.

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Invited Attendee to Gordon Research Conference on High-Performance Computing and National Information Infrastructure, Plymouth, NH, July 1997.

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J. A. Kohl, G. A. Geist, "XPVM: A Graphical Console and Monitor for PVM," Invited Presentation, Los Alamos National Laboratory PVM Users Meeting, December 8, 1994.

J. A. Kohl, "Parallel Programming: Just Do It," Invited Presentation, POOMA Workshop (Parallel Object-Oriented Methods and Applications), Santa Fe, NM, December 5-7, 1994.

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J. A. Kohl, Invited XPVM Tool Demonstration and Oral Presentation, University of Tennessee PVM Class, Ruth Ann Manning - Instructor, Ayres Hall, Knoxville, TN, March 22, 1994.

J. A. Kohl, Invited XPVM Tool Demonstration, Engineering Open House, University of Kentucky, Electrical Engineering Department, Lexington, KY, February 26, 1994.

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