

Curriculum Vitae
James Patton Jones

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Recognized as a multidisciplinary technologist and serial entrepreneur, Mr. Jones is an expert in HPC workload management, Grid Computing, and software development. He has contributed chapters to four textbooks, authored six computer manuals, written 25+ technical articles/papers, and published several non-technical books. He served as co-architect of NASA's Metacenter (prototype Computational Grid) and co-architect of the Department of Defense MetaQueueing Grid, and subsequently assisted with the technical implementation of both projects. Mr. Jones managed the business aspects of the Portable Batch System (PBS) team from 1997 thru 2000. (PBS is a flexible workload management, batch queuing, and job scheduling software system for clusters and supercomputers.) Mr. Jones created the Veridian PBS Products Dept in 2000, and in 2003 spun-out the profitable business unit, co-founding Altair Grid Technologies. He then served in worldwide technical business development roles, growing the global PBS business. In late 2005 Mr. Jones founded his third company, JRAC, Inc., focusing on high-end web application development and HPC / Grid consulting. He has since co-founded multiple early-stage technology start-up companies.

With over 20 years in the computer industry (nine of which at NASA's largest supercomputing facility), Mr. Jones is experienced in technology communication and training, technical sales and marketing, supercomputer administration, systems analysis and management, project design, management, and implementation, and is an accomplished computer programmer and web application developer.

TECHNOLOGY AREAS:

Supercomputing, HPC, Grid Computing, Parallel Systems and Clusters, Workload Management, Distributed Resource Management, Software Engineering, Web Application Development, LAMP, WAMP.

COMPUTING SKILLS:

Computer Languages: C, Bourne & C Shell, AWK, SED, HTML, XHTML/CSS, PHP, JavaScript
Software Experience: Dreamweaver, Photoshop, FrameMaker, PBS, make, CVS, Apache, IIS, MS Office Suite
Database Experience: MySQL, PostgreSQL
Systems: *Unix* on: Cray 2, Y-MP, C-90, J-90, T3E; TMC CM-200, CM-5; Intel iPSC/860, XP/S Paragon; IBM SP2, 590; SGI 4D, O2K, Altix; Sun SPARC-2, -2000; *BSD* on Symmetric 375, *Linux* on Intel-x86; *Mac OS/X*.

SECURITY CLEARANCES:

Previously held: Secret, Top Secret, SSBI, SCI; *All clearances inactive or expired.*

LANGUAGE SKILLS:

Excellent verbal and written communication skills (American English & International Standard English).

EDUCATION:

UND Center for Aerospace Studies: graduate courses, 1/99 – 6/99
Santa Clara University: BS Anthropology, 9/93-12/95
De Anza College. Major: Computer Science, 8/91-6/93
North Carolina State. Major: Computer Science, 1/91-5/91

AWARDS:

- *Finalist* in the Georgia Research Alliance / Technology Association of Georgia's *Business Launch Competition* for entry "Forecasting Grid Systems" (May 2007)
- Veridian Leadership Award Nomination for *Creating PBS Products Business* (December 2000).
- MRJ Award for *Commercialization of the Portable Batch System Software* (December 1999).
- MRJ Award for *Outstanding Contributions to NASA Metacenter Project* (May 1997).
- MRJ Award for *Outstanding Contributions to NASA Parallel Systems Group* (May 1996).

MEMBERSHIPS:

- Technology Association of Georgia (TAG)
- Association of Computing Machinery (ACM)
- American Association for the Advancement of Science (AAAS)
- International Council on Systems Engineering (ICSE)
- Habitat Partners Council, Habitat for Humanity

PERSONAL INFORMATION:

Citizenship: United States of America

Date of Birth: July 1972

Place of Birth: Alabama, USA

PROFESSIONAL EXPERIENCE:

Founder, President and CEO

JRAC, Inc. – 8/05 to present

Founded *Jones Research and Consulting* (GA: *JRAC, Inc.*) with a focus on HPC / Grid consulting services and high-end Web-application development. Resources included:

- Internationally known HPC, Grid-computing, and Workload Management experts
- Individuals with Master's level CFD, Mathematics, and Physics training
- HPC and UNIX/Linux cluster system administrators
- Experts in high-end database-driven web application design and development
- Experts in custom computer software design and development

Co-founder

Forecasting Grid Systems, Inc. – 5/07 to present

Co-founded *Forecasting Grid Systems* with another HPC/Grid expert and a financial programmer, as a Georgia-based start-up business focused on developing computer software and associated services to leverage grid computing within the trading segment of the financial industry. (The financial industry meltdown occurred before full funding was secured.)

PBS Evangelist / Account Manager, Southeast USA

Altair Engineering – 1/05 to 12/05

Having completed the knowledge transfer and training of Altair Engineering's International offices, assumed responsibility for the US Southeast Region. Responsible for:

- Maintaining existing customer accounts.
- Assisting and supporting resellers and other business partners.
- Locating new customers and managing direct sales.

PBS Evangelist / International Business Development

Altair Grid Technologies – 1/03 to 1/05

- Responsible for training of partner's international offices (both sales and technical staff).
- Responsible for producing all PBS technical documentation and training material.
- Succeeded in spinning up PBS technical and sales experience in all Altair international offices.

Co-Founder, Altair Grid Technologies, LLC.

Altair Grid Technologies – 1/03

- Co-founded AGT via spin-out of Veridian's PBS Products business into separate company.
- Co-authored PBS 5-year business plan and financial projections.
- With co-founder, selected strategic investment and world-wide sales/marketing partner.
- With co-founder, periodically updated and modified strategic business plans.

Business Director, PBS Products Dept.

Veridian – 3/00 to 1/03

- Proposed, acquired funding, created and staffed the *Veridian PBS Products* business unit.
- Co-authored PBS 3-year business plan and financial projections.
- Responsible for PBS product marketing, sales, distribution, and vendor/partner relationships.
- Conducted market research; managed development of PBS marketing collateral and new website.
- Assisted with specifications of new PBS Pro product.
- Rewrote new edition of PBS Pro *Administrator Guide*; authored PBS Pro *User Guide*.
- Assisted with quality assurance of new PBS Pro product.
- Assisted with PBS Pro product and services sales.
- Developed content and materials for all PBS Pro training courses; taught a dozen PBS Pro classes.
- Gave invited talks on workload management, job scheduling, and PBS Pro.

**PBS Software Technical Director
PBS Product Manager**

Veridian Information Solutions, Inc. – 8/98 to 3/00
(Formerly MRJ Technology Solutions, Inc.)

- Successfully petitioned NASA to transfer all rights to PBS software to MRJ.
- Proposed and received funding to create the *PBS Software and Services* group within MRJ.
- Managed transition of all PBS distribution and development from NASA to MRJ.
- Designed layout and drafted content for new PBS website, online product registration, internet-based download of PBS, online support services and problem reporting mechanism.
- Increased registered sites from 70 (total distribution over four years by NASA) to more than 1500 in two years. Registration rate rose to 130 new sites per month.

NASA Liaison for Metacomputing

Veridian Information Solutions – 1/99 to 3/00

U.S. Army Corps of Engineers, DOD/ERDC, Vicksburg, MS

Numerical Aerospace Simulation (NAS) Facility at **NASA Ames Research Center**

- Co-designed DoD proto-type Grid environment based on NASA Metacenter and PBS; coordinated implementation, interfacing with a multi-site, multi-agency, multi-contractor distributed team.
- Trained local contractor staff on using and managing PBS software.
- Ported PBS to the local Cray T3e supercomputer.

Systems Engineer, Parallel Systems Group
NAS Facility, **NASA Ames Research Center**

Veridian Information Solutions - 10/95 to 1/99

- Transitioned NAS Parallel Systems from various queuing systems to the Portable Batch System (PBS).
- Supported PBS on all NAS Parallel Systems; optimized batch job scheduling on each system
- Conducted research in resource management, parallel job scheduling, gang-scheduling, and agency-wide job scheduling. Presented research at international peer-reviewed conferences.
- Co-designed NASA's first proto-type Grid environment, the NASA Metacenter, using PBS as an enabling technology. Lead associated bi-coastal software engineering team.

Associate Member Technical Staff, Parallel Systems Group
NAS Facility, **NASA Ames Research Center**

CSC - 12/93 to 10/95

- Provided support to the NAS parallel supercomputer user community.
- Performed system administration, programming and development on the NAS parallel supercomputer resources (included: six 64-processor, one 256-processor, and one 512-processor SGI O2K; 160-node IBM SP2; 128-node Intel IPSC/860 HyperCube, 208-node Intel XP/S Paragon, 128-node TMC CM5).

Control-Room Analyst, Systems Support Group
Operations/Analyst, Systems Support Group
NAS Facility, **NASA Ames Research Center**

Sterling Software - 4/93 to 12/93

CSC - 7/91 to 4/93

- Provided support to supercomputer users, local and nationwide, via the User Services help-desk.
- Performed daily monitoring and administration of the computers in the NAS Processing System Network (including vector and parallel supercomputers, support processors, and visualization workstations in a distributed heterogeneous UNIX environment).

Computer Programmer

PlantArc, Inc. - 1/90 to 5/91 & 4/92 to 4/93

- Prepared PlantArc's main software package for joint release with *Taylor's Guide Plant Books*.
- Created and maintained PlantArc's database entry program.

PUBLICATIONS:

(HPC-related only; listed in chronological order. For complete list, see: <http://www.jrac.com/publications.php>)

Saphir, William and James Patton Jones.

JSD: Parallel Job Accounting on the IBM SP2, **NAS Technical Report NAS-95-016**, NAS Facility, NASA Ames Research Center, July 1995.

Wechsler, Elisabeth and James Patton Jones.

Reconfiguration Increases davinci's CPU Utilization, **NAS News**, Vol.2 No.16, NAS Facility, NASA Ames Research Center, April 1996.

NAS Requirements Checklist for Job Queuing/Scheduling Software, **NAS Technical Report NAS-96-003**, NAS Facility, NASA Ames Research Center, April 1996.

Evaluation of Job Queuing/Scheduling Software: Phase 1 Report, **NAS Technical Report NAS-96-009**, NAS Facility, NASA Ames Research Center, July 1996.

Creating a NASA Metacenter Using HPCCP Supercomputers, **Technical Whitepaper**, High Performance Computing and Communication Program, NASA Ames Research Center, August 1996.

The NASA SP2 Metacenter, **Computational Aerosciences Workshop Proceedings**, High Performance Computing and Communication Program, NASA Ames Research Center, August 1996.

Jones, James Patton and Mary Hultquist.

Langley-Ames SP2 MetaCenter Offers Better Job Turnaround and Balanced Workload, **NAS News**, Vol.2 No.20, NAS Facility, NASA Ames Research Center, September 1996.

The NASA SP2 Metacenter, CAS Workshop summary in **Insights**, High Performance Computing and Communication Program, NASA Ames Research Center, October 1996.

Jones, James Patton and Cristy Brickell.

Second Evaluation of Job Queuing/Scheduling Software: Phase 1 Report, **NAS Technical Report NAS-97-013**, NAS Facility, NASA Ames Research Center, June 1997.

Jones, James Patton and Mary Hultquist.

Langley-Ames SP2 Metacenter Enjoys Success, Plans for New Challenges, **NAS News**, Vol.2 No.25, NAS Facility, NASA Ames Research Center, July 1997.

Implementation of the NASA Metacenter: Phase 1 Report, **NAS Technical Report NAS-97-027**, NAS Facility, NASA Ames Research Center, October 1997.

PBS Technology Transfer to Department of Defense Sites, **NASA Ames Quarterly Report**, NASA Ames Research Center, October 1997.

PBS vs. HPC/IDC-named Competition: Feature Comparison, **Technical Whitepaper**, MRJ Technology Solutions, December 1997.

Enhanced PBS Offers 24-hour Support, **NAS News**, Vol. 3 No. 1, NAS Facility, NASA Ames Research Center, January 1998.

Jones, James Patton, Mary Hultquist, and Rita Williams.

Designing a Metacenter: Recommendations to DoD MSRC ASC and CEWES, **Technology Transfer Whitepaper**, NAS Facility, NASA Ames Research Center, March 1998.

Highlights and Issues at CUG '98, **CUG Tech Report**, Cray User Group, June 1998.

Hultquist, Mary and James Patton Jones.

The Metacenter Roadmap, **Computational Aerosciences Workshop Proceedings**, High Performance Computing and Communications Program, NASA Ames Research Center, August 1998.

Traversat, Bernard, Ed Hook, and James Patton Jones.

A Dynamic-Backfilling Algorithm for Efficient Space-Sharing Scheduling on an IBM SP2, **NAS Technical Report NAS-98-101**, NAS Facility, NASA Ames Research Center, November 1998.

Metacenter PeerScheduler II Design Requirements, **Technical Whitepaper**, NAS Facility, NASA Ames Research Center, January 1999.

Jones, James Patton, and Bill Nitzberg.

Scheduling for Parallel Supercomputing: A Historical Perspective of Achievable Utilization, **Proceedings of Job Scheduling Strategies for Parallel Processing** (JSSPP 1999), Springer Lecture Notes in Computer Science Series 1659, April 1999.

Portable Batch System Aids in Common User Environment, **MSRC Resource Journal**, U.S. Army CEWES, April 1999.

Chapin, S., W. Cirne, D. Feitelson, J.P. Jones, S. Leutenegger, U. Schwiegelshohn, W. Smith, D. Talby.

Benchmarks and Standards for the Evaluation of Parallel Job Schedulers, **Proceedings of Job Scheduling Strategies for Parallel Processing** (JSSPP 1999), Springer Lecture Notes in Computer Science Series 1659, April 1999.

Jones, James Patton

PBS Pro 5.0 Administrator Guide, Veridian Systems, August 2000.

Jones, James Patton and NASA Staff.

Software System Manages Computer Workload, **Aerospace Technology Innovation**, NASA, September 2000.

Jones, James Patton and NASA Staff.

Batching System for Superior Service, **Spinoff 2001**, NASA, September 2001.

Jones, James Patton (Editor)

PBS Pro 5.1 Administrator Guide, Veridian Systems, September 2001.

Jones, James Patton, Bob Henderson, and Bill Nitzberg.

Workload Management: More Than Just Job Scheduling, **Proceedings of the 3rd IEEE International Conference on Cluster Computing** (CLUSTER'01), October 2001.

Jones, James Patton, David Lifka, Bill Nitzberg, and Todd Tannenbaum.

Cluster Workload Management, chapter 13 of **Beowulf Cluster Computing with Linux and Beowulf Cluster Computing with Windows**, MIT Press, November 2001.

PBS: Portable Batch System, chapter 16 of **Beowulf Cluster Computing with Linux and Beowulf Cluster Computing with Windows**, MIT Press, November 2001.

Jones, James Patton (Editor)

PBS Pro 5.2 Administrator Guide, and **PBS Pro 5.2 User Guide**, Veridian Systems, April 2002.

Jones, James Patton (Editor)

PBS Pro 5.3 Administrator Guide, PBS Pro 5.3 User Guide, and PBS Pro 5.3 Quick Start Guide, Altair Grid Technologies, March 2003.

Nitzberg, Bill, Jennifer M. Schopf, and James Patton Jones.

PBS Pro: Grid Computing and Scheduling Attributes, chapter 17 of **Grid Resource Management**, Kluwer Press, October 2003.

Jones, James Patton, David Lifka, Bill Nitzberg, and Todd Tannenbaum.

Cluster Workload Management, chapter 13 of **Beowulf Cluster Computing with Linux**, MIT Press, 2nd Edition, November 2003.

PBS: Portable Batch System, chapter 16 of **Beowulf Cluster Computing with Linux**, MIT Press, 2nd Edition, November 2003.

Jones, James Patton (Editor)

PBS Pro 5.4 Administrator Guide, PBS Pro 5.4 User Guide, and PBS Pro 5.4 Quick Start Guide, Altair Grid Technologies, March 2004.

Jones, James Patton (Editor)

PBS Pro 5.4 External Reference Specification, Altair Grid Technologies, May 2004.

Jones, James Patton (Editor)

PBS Pro 5.4 Source Code Guide, Altair Grid Technologies, May 2004.

Jones, James Patton (Editor)

PBS Pro 5.4 OpenPBS to PBS Pro Migration Guide, Altair Grid Technologies, August 2004.

Jones, James Patton (Editor)

e-Compute 6.2 Installation and Configuration Guide, Altair Grid Technologies, December 2004.

Jones, James Patton (Editor)

PBS Pro 5.4.2 Administrator Guide, PBS Pro 5.4.2 User Guide, and PBS Pro 5.4.2 Quick Start Guide, Altair Grid Technologies, December 2004.

Yafchak, Mary Fran (Editor), Mary Trauner (Editor), et al.

Contributing author to **The Grid Technology Cookbook**, Southeastern Universities Research Association, July 2007.