
Executive Director, Pervasive Technology Institute
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Adjunct Professor: Computer Science (School of
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Biographical Sketch and Career Objectives

Dr. Craig A. Stewart is a leading innovator and strategist in advanced computing and cyberinfrastructure for research and development. (Cyberinfrastructure is defined as “computing systems, data storage systems, advanced instruments and data repositories, visualization environments, and people, all linked together by software and high performance networks to improve research productivity and enable breakthroughs not otherwise possible,” a definition coined by Stewart and colleagues: hdl.handle.net/2022/21589).

Since 2005, Dr. Stewart has been the Executive Director of the Indiana University Pervasive Technology Institute (@IU_PTI on twitter). IU PTI is Indiana University’s flagship organization for research and development in cyberinfrastructure, informatics, and computer science in support of science and engineering research, artistic creativity, and cybersecurity. Stewart’s personal research focus is in advanced computing architectures, particularly the optimal use and mix of high performance computing (supercomputing) and cloud computing to address problems in data analysis and simulation. Stewart is one of the top researchers in the world on the topic of return on investment in advanced cyberinfrastructure.

Stewart has been involved in advanced computing since writing Fortran-based statistical applications while completing his Ph.D. in Biology in the 1980s. From 1996 to 2017 Stewart was responsible for all aspects of IU’s supercomputer and research software services and operations. From 2005 to 2017 Stewart was Associate Dean for Research Technologies and, as such, was responsible for all central supercomputers, data storage systems, and visualization systems. These responsibilities included supercomputers ranked among the top 25 fastest in the world and top-of-the-line Virtual Reality systems such as CAVEs and BARCO VR Theatres. Stewart’s group created the software needed to build the first-ever distributed installation of the High Performance Storage System (HPSS). Stewart oversaw the implementation of the first 1 TeraFLOPS supercomputer owned exclusively by a single university (2001) and the first 1 PetaFLOPS supercomputer similarly university-owned (2013). Stewart has been the principal investigator for or the primary writer of grant proposals bringing more than \$200M in funding to Indiana University. Stewart was the founding PI of Jetstream, the first cloud computing system funded by the National Science Foundation for production use by the general science and

engineering community of the US; it now serves thousands of researchers and students (www.jetstream-cloud.org).

In addition to his work at IU, Stewart has been a visiting faculty member in Computer Science at the Universitaet Stuttgart (where he gave the first ever class in in bioinformatics), and a Fulbright Senior Scholar at the Technische Universitaet Dresden (Germany). Stewart has also worked for the National Science Foundation, as well as on advisory committees and in leadership of a number of organizations related to advanced computing, most notably leading the creation of a series of influential reports on campus bridging while chair of an NSF-affiliated taskforce. Stewart is a past chair of the Coalition for Advanced Scientific Computation and as such testified before the House Science and Technology Committee.

Stewart’s career objective is to enable the Indiana University Pervasive Technology Institute and University Information Technology Services to deliver useful and innovative services—in support of scientific, scholarly, and artistic accomplishment; education; and economic development—to Indiana University, the State of Indiana, the United States, and other democratic countries in ways that benefit all of these constituencies and the world as a whole.

Citizenship

US

Education

Indiana University (Bloomington, IN)	Ph.D. in Ecology and Evolutionary Biology	1988
Wittenberg University (Springfield, OH)	B.A. in Mathematics and Biology, <i>magna cum laude</i>	1981

Current Appointments

2008-	Executive Director, Pervasive Technology Institute, Indiana University
2008-	Adjunct Professor, School of Informatics, Indiana University
2003-	Adjunct Professor, Department of Medical and Molecular Genetics, Indiana University School of Medicine
2003-	Adjunct Professor, Department of Biology, Indiana University

Past Appointments

2005-2017	<p>Associate Dean for Research Technologies, Office of the CIO and Vice President for Information Technology, Indiana University. As Associate Dean for Research Research Technologies, Stewart was responsible for the following key accomplishments:</p> <ul style="list-style-type: none"> • Initial principal Investigator for the Jetstream cloud system – the first production cloud system funded by the National Science Foundation and IU’s first private openstack-based cloud • Led implementation of Big Red II, the first University-owned 1 PetaFLOPS supercomputer in the US • Led design and implementation of IU’s Big Red Supercomputer, which ranked 23rd on the 2006 Top500 list of the fastest supercomputers in the world
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- Led implementation of multi-PetaBytes disk-based file systems using the Lustre file system
 - Oversaw implementation of a BARCO Virtual Reality Theatre on the Indiana University-Purdue University Indianapolis campus
 - Oversaw expansion of distributed installations of the “IQ” series of visualization systems (high resolution/immersive VR devices invented by RT Director Eric Wernert)
 - Led expansion of services in support of bioinformatics and digital humanities
 - Responsible for policy changes resulting in installation of treadmill desks in OVPIT facilities, providing a way for staff to improve their health and fitness
- 2012-2013 Expert (EE-401, part time), National Science Foundation, Division of Biological Infrastructure.
- 2005-2012 Information Architect; Co-Director, Center for Computational Cytomics; Indiana METACyt Initiative, Indiana University. Co-led Center for Computational Cytomics and organized overall cyberinfrastructure strategy for METACyt.
- April 2007 Fulbright Senior Scholar, Technische Universität Dresden, Dresden, Germany.
- 2005-2008 Chief Operating Officer, Pervasive Technology Labs. Led the successful completion of the Lilly Endowment Award to IU in support of the Pervasive Technology Labs and the transformation of the Pervasive Technology Labs to the Pervasive Technology Institute.
- Summer 2003 Visiting faculty member and researcher, High Performance Computing Center (HLRS), University of Stuttgart, Stuttgart, Germany. Taught introduction to computational biology in the Computer Science Department (the first ever offering of this topic at the University of Stuttgart). Engaged in research and development in computational biology grid projects with HLRS researchers.
- 2003-2005 Special Assistant for the Life Sciences, Office of the Vice President for Information Technology/Research, Indiana University.
- 1999-2005 Director, Indiana Genomics Initiative Information Technology Core, Indiana University.
- 1997-2005 Director for Research and Academic Computing (Computation), Indiana University. As Director of Research and Academic Computing, Stewart was responsible for:
- Establishment of the National Center for Genome Analysis Support, a national resource for bioinformatics services and consulting
 - Establishment of HIPAA-alignment as the default status of all IU advanced cyberinfrastructure (supercomputers, clusters, disk storage, tape storage)
 - Creation of the AVIDD (Analysis and Visualization of Instrument-Driven Data) cluster, the first distributed Linux cluster to achieve more than 1 TeraFLOPS on the Linpack Benchmark

- Implementation of the IU Research SP, the first university-owned 1 TeraFLOPS supercomputer in the US (Oct 2001)
 - Establishment of the first distributed installation of HPSS (High Performance Storage System) at a non-classified installation (2000)
- 1996-1997 Assistant Director for Research Computing Services, University Computing Services (UCS), Indiana University. Responsible for administration of research computing, including high performance computing, virtual reality, mass storage, general research computing, statistical and mathematical computing, Unix workstation support, and humanities computing. Also responsible for Unix and Novell servers delivering administrative computing applications.
- 1995-1996 Manager, Support Center, UCS, Indiana University. Responsible for front-line user support via telephone, e-mail, walk-in, and online help systems. Established the IU Knowledge Base (<http://kb.iu.edu/>) as the primary means of end user support for IU. Yahoo! Internet Life Magazine labelled this the best such help system in 1997.
- 1991-1995 Director, Center for Statistical and Mathematical Computing, UCS, Indiana University. Responsible for delivery and support of statistical and mathematical software on all UCS computing systems. Responsible for deployment of the Stat/Math Center and the Interdisciplinary Consortium for Statistical Applications; improved statistical and mathematical software offerings on UCS systems; aggressively site licensed stat/math software; implemented highly successful software support model.
- 1986-1991 Manager, Business Computing Facilities, School of Business, Indiana University. Completed networking of Business building; installed new microcomputers for every faculty member (the first School at IU to have a PC for every faculty member); managed maintenance of 400+ microcomputers; installed Novell LAN (4th at IU).
- 1985-1986 Applications Programmer, Bloomington Academic Computing Services, IU. Responsibilities included online help on CDC, VAX, and Prime systems; staffing help desk phone; advanced consulting on statistical software.
- 1984-1985 Computer Consultant, Bloomington Academic Computing Services, IU. Responsibilities included general computing and advanced statistical consulting.
- 1981-1984 Associate Instructor, Department of Biology, Indiana University. Taught entomology and parasitology labs, and assisted in teaching of biostatistics.

Grant Awards, Contracts, and Gifts

PI: Craig A. Stewart. Microsoft, Inc. **\$1,001,000**. *Humanware: advancing research use of the cloud*

PI: John Towns, University of Illinois Urbana Champaign; SI and local IU subcontract PI: C.A. Stewart. **NSF 1548562**. 09/01/2016-08/31/2021. *XSEDE 2.0: eXtreme Science and Engineering Discovery Environment*

PI: T.G. Doak, Co-PI: C.A. Stewart. NSF 1759906. **\$962,614**. 09/01/18-8/31/2021. *Collaborative Research: ABI Sustaining: The National Center for Genome Analysis Support*

PI: T.G. Doak, Co-PI: C.A. Stewart. NSF 1458641. **\$627,854**. 08/31/15. *Collaborative Research: ABI Sustaining: The National Center for Genome Analysis Support*

PI: C.A. Stewart. NSF ACI 1445604. **\$13,703,929**. 12/01/2014-11/30/2019. *High Performance Computing System Acquisition: Jetstream-a self-provisioned, scalable science and engineering cloud environment*

PI: Daniel Stanzione, University of Texas at Austin. SI and local subcontract PI: C.A. Stewart. NSF UTA 14-000006. **\$550,009**. 11/01/2013-10/31/2019. *Wrangler: A Transformations Data Intensive Resource for the Open Science Community*

PI: Miron Livney, University of Wisconsin. SI and local subcontract PI: C.A. Stewart. NSF 447K963. **\$804,000**. 06/01/2012-11/30/2016. *THE OPEN SCIENCE GRID: The Next Five Years: Distributed High Throughput Computing for the Nation's Scientists, Researchers, Educators, and Students*

PI: John Towns, University of Illinois, Urbana-Champaign; SI and local IU subcontract PI: C.A. Stewart. NSF PI: C.A. Stewart. **\$6,315,115**. 07/01/2011-06/23/2016. *XSEDE: eXtreme Science and Engineering Discovery Environment*

PI: C.A. Stewart. NSF DBI 1062432. **\$1,493,200**. 09/15/2011-08/31/2015. *ABI Development: National Center for Genome Analysis Support*

PI: C.A. Stewart. NSF OCI 1147606. **\$296,637**. 09/01/2011-08/31/2013. *EAGER: Best Practices for Sustainability for Robust Cyberinfrastructure Software*

PI: C.A. Stewart. NSF 41994. **\$2,224,545**. 04/01/2010-03/31/2013. *TeraGrid Extension: Bridging to XD Supplement*

PI: M.A. McRobbie, Co-PIs Craig A. Stewart, B. Plale, F. Cate, B.C. Wheeler, G.C. Fox. Lilly Endowment. **\$15,000,000**. The Indiana University Pervasive Technology Institute.

PI: T. Sterling, Co-PI: C.A. Stewart. NSF 1205518. **\$98,820**. 08/27/2008-9/30/2010. *CI-P: REFT – A Reconfigurable Execution Framework Testbed for data-driven and extreme scale computing*

PI: W.K. Barnett, Co-PI: C.A. Stewart. NSF 1040777. **\$45,783**. 08/1/2010-7/31/2011. *An InCommon Roadmap for NSF Cyberinfrastructure*

PI: C.A. Stewart. NSF OCI 0504075. **\$4,120,557**. 08/01/2005-07/31/2011. *TeraGrid Resource Partners: Indiana University*

PI: Ian Foster, University of Chicago. SI and local subcontract PI: C.A. Stewart. NSF 30085-C. **\$1,257,743**. 08/01/2005-07/31/2011. *ETF Grid Infrastructure Group: Providing System Management and Integration for the TeraGrid*

PI: C.A. Stewart. NSF OCI 1002526. **\$16,924**. 11/15/2009-10/31/2010. *Campus Bridging Taskforce Meeting*

PI: B.C. Wheeler, Co-PI: C.A. Stewart. NSF 829462. **\$131,746**. 08/27/2008. *Cyberinfrastructure Software Sustainability and Reusability Workshop*

PI: M.A. McRobbie, Co-PIs C.A. Stewart, P. Cherbas, T. Widlanski. Lilly Endowment. **\$43,000,000**. 1/1/2006-12/31/2012. *METACyt: The Indiana Metabolomics and Cytomics Initiative*.

PI: C.A. Stewart. NSF CNS 0521433. **\$1,720,000**. 10/01/2005-09/30/2008. *MRI: Acquisition of a High-Speed, High Capacity Storage System to Support Scientific Computing: The Data Capacitor*

PI: C.A. Stewart. NIH U24 AA014818. **\$549,555**. 09/30/2003-07/31/2008. *Informatics Core for the Collaborative Initiative on Fetal Alcohol Spectrum Disorders*

PI: A.R. Chaturvedi. IU local subcontract PI: C.A. Stewart. **\$150,000**. Department of Homeland Security. 03/16/2004-05/31/2007. *Center for Computational Homeland Security*

PI: C.A. Stewart. NSF OCI 0451237. **\$440,188**. 03/01/2005-02/28/2006. *SCI/ETF Early Operation*

PI: C.A. Stewart. IBM. **\$443,597**. 07/01/2003-2/31/2005. *Center of Excellence in 3-D Cell Modeling*

PI: M.A. McRobbie, Co-PI: C.A. Stewart. NSF 116050. **\$1,800,000**. 08/20/2001-8/31/2004. *MRI: Creation of the AVIDD Data Facility: A Distributed Facility for Managing, Analyzing, and Visualizing Instrument-Driven Data*

PI: D. C. Brater & O.H. Pescovitz; Co-PIs W.F. Bosron, C.J. McDonald, H.J. Edenberg, D.W. Crabb, M. Peacock, G.D. Hutchins, B.A. Molitoris, T.-K. Li, J.K. Criser, C.A. Stewart, R. Henriksen. Lilly Endowment. **\$105,000,000**. *INGEN: The Indiana Genomics Initiative*. 1/1/2000 – 12/31/2007.

Publications

PEER REVIEWED

2019

Stewart, C.A., A. Apon, D.Y. Hancock, T. Furlani, A. Sill, J. Wernert, D. Lifka, N. Berente, T. Cheatham, S.D. Slavin. 2019. Assessment of non-financial impacts of investment in cyber-infrastructure: A survey of current methods. In HARC '19: Proceedings of the PEARC '19 Workshop: Humans in the Loop: Enabling and Facilitating Research on Cloud Computing. ACM, New York, NY, USA, 8 pages. <https://doi.org/TBD>

Stewart*, C.A., D.Y. Hancock*, J. Wernert, T. Furlani, D. Lifka, A. Sill, A. Apon, R. Payne, S. D. Slavin. 2019. Assessment of financial returns on investments in cyberinfrastructure facilities: A survey of current methods. In Proceedings of PEARC '19, July 28-August 1, 2019, Chicago, IL, USA. ACM ISBN 978-1-4503-7227-5/19/07. <https://doi.org/10.1145/3332186.3332228>.

Stewart*, C.A., D.Y. Hancock*, T. Miller, J. Fischer, L. Liming, G. Turner, J.M. Lowe, S. Gregory, E. Skidmore, M. Vaughn, D. Stanzione, N. Merchant, I. Foster, J. Taylor, P. Rad, V. Brendel, E. Afgan, M. Packard, W. Snapp-Childs. 2019. Jetstream - a novel cloud system for science. Book Chapter. In: Vetter, J. (ed.). *Contemporary High Performance Computing: From Petascale toward Exascale, Volume Three*. Chapman & Hall/CRC Computational Science. ISBN 9781138487079 - CAT# K349536. Pp. 189-222.

Stewart, C.A., R. Knepper, M.R. Link, M. Pierce, E.A. Wernert, N. Wilkins-Diehr. 2019. Cyberinfrastructure, Cloud Computing, Science Gateways, Visualization, and Cyberinfrastructure Ease of Use. In M. Khosrow-Pour (Ed.), *Advanced Methodologies and Technologies in Network Architecture, Mobile Computing, and Data Analytics*. (pp. 157-170). IGI Global. <https://doi.org/10.4018/978-1-5225-7598-6.ch012>

2018

Hancock*, D.Y., C.A. Stewart*, M. Vaughn, J. Fischer, J.M. Lowe, G. Turner, T.L. Swetnam, T.K. Chafin, E. Afgan, M.E. Pierce, W. Snapp-Childs. 2018. Jetstream - Early operations performance, adoption, and impacts. *Concurrency and Computation Practice and Experience*. 2018. e4683. <https://doi.org/10.1002/cpe.4683>

Fischer, J., B.W. Beck, S. Sudarshan, G. Turner, W.Y. Snapp-Childs, C.A. Stewart, D.Y. Hancock. 2018. Methodologies and practices for adoption of a novel national research environment. *PEARC '18: Practice and Experience in Advanced Research Computing*, July 22-26, 2018, Pittsburgh, PA, USA. ACM, New York, NY, USA, Article No: 96. 8 pages. doi: 10.1145/3219104.3219115

Lowe, J. M., J. Fischer, S. Sudarshan, G. Turner, C.A. Stewart, D.Y. Hancock. 2018. High Availability on Jetstream: Practices and Lessons Learned. *Proceedings of the 9th Workshop on Scientific Cloud Computing*. Tempe, AZ, USA, June 11, <https://doi.org/10.1145/3217880.3217884>

Stewart*, C.A., D.Y. Hancock*, J. Wernert, M.R. Link, N. Wilkins-Diehr, T. Miller, K. Gaither, W. Snapp-Childs. 2018. Return on Investment for three cyberinfrastructure facilities: a local campus supercomputer; the NSF-funded Jetstream cloud system; and XSEDE (the eXtreme Science and Engineering Discovery Environment). 2018 IEEE/ACM 11th International Conference on Utility and Cloud Computing (UCC). 17-20 December, Zurich, Switzerland. DOI 10.1109/UCC.2018.00031. One of three finalists for best paper award.

Stewart, C.A. and Marion Krefeldt. 2018. Your Good Health is a Workforce Issue. *PEARC '18: Practice and Experience in Advanced Research Computing*, July 22-26, 2018, Pittsburgh, PA, USA. ACM, New York, NY, USA, Article No.: 75. doi:10.1145/3219104.3219107

2017

Chen, L., B. Peng, B. Zhang, T. Liu, Y. Zou, L. Jiang, R. Henschel, C.A. Stewart, Z. Zhang, E. McCallum, T. Zahniser, J. Omer, J. Qiu. 2017. Benchmarking Harp-DAAL: High Performance Hadoop on KNL Clusters. *Proceedings of IEEE Cloud 2017 Conference June 25-30 2017*, Honolulu, HI, USA. doi:10.1109/CLOUD.2017.19

Fulton, B., S. Gallo, R. Henschel, T. Yearke, K. Börner, R.L. DeLeon, T. Furlani, C.A. Stewart, M. R. Link. XDMoD Value Analytics: A Tool for Measuring the Financial and Intellectual ROI of Your Campus Cyberinfrastructure Facilities. *PEARC17: Proceedings of the Practice and Experience in Advanced Research Computing 2017 on Sustainability, Success and Impact*. New Orleans, LA, USA. July 09-13, 2017. doi:10.1145/3093338.3093358

Navarro, J.P. C.A. Stewart, R. Knepper, L. Liming, D. Lifka, M. Dahan. 2017. The Community Software Repository from XSEDE: A Resource for the National Research Community. In *PEARC17: Proceedings of the Practice and Experience in Advanced Research Computing 2017 on Sustainability, Success and Impact*. New Orleans, LA, USA. July 09-13, 2017. doi:10.1145/3093338.3093373

Peng, B., B. Zhang, L. Chen, M. Avram, R. Henschel, C. Stewart, S. Zhu, E. Mccallum, L. Smith, T. Zahniser, J. Omer, J. Qiu. 2017. HarpLDA+: Optimizing Latent Dirichlet Allocation for Parallel Efficiency, Proceedings for the IEEE Big Data 2017, Boston, MA, USA, December 11-14, <https://doi.org/10.1109/BigData.2017.8257932>

Stewart, C.A., R. Knepper, M.R. Link, M. Pierce, E.A. Wernert, N. Wilkins-Diehr. 2017. Cyberinfrastructure, Cloud Computing, Science Gateways, Visualization, and Cyberinfrastructure Ease of Use. Pp. 1063-1074 In M. Khosrow-Pour. *Encyclopedia of Information Science and Technology*, Fourth Edition. IGI Global, Hershey PA, USA. Available from: <http://hdl.handle.net/2022/21589>

2016

Coulter, E., J. Fischer, B. Hallock, R. Knepper, D. Lifka, J.P. Navarro, M. Pierce, C.A. Stewart. 2016. Cyberinfrastructure as a platform to facilitate effective collaboration between institutions and support collaboratories. In the SIGUCCS'16: *Proceedings of the 2016 ACM on SIGUCCS Annual Conference*. Proceedings of SIGUCCS '16, USA. doi:10.1145/2974927.2974962

Grimshaw, A., M.A. Proadhan, C.A. Stewart, R. Knepper. (2016). Campus Compute Co-operative (CCC): A Service Oriented Cloud Federation. In: *Proceedings of the IEEE 12th International Conference on eScience*. Baltimore, MD October 24-26

Stewart, C.A., Hancock, D.Y., Vaughn, M., Fischer, J., Cockerill, T., Liming, L., Merchant, N., Miller, T., Lowe, J.M., Stanzione, D.C., Taylor, J., Skidmore, E. (2016). Jetstream – performance, early experiences, and early results. In: *Proceedings of the 2016 XSEDE Conference: Diversity, Big Data & Science at Scale*, doi:10.1145/2949550.2949639. *Winner: 2016 Phil Andrews Memorial Best Technical Paper Award*

Thota, A., Fulton, B., Weakley L. M., Henschel, R., Hancock, D.Y., Allen, M., Tillotson, J., Link, M., & Stewart, C. A. (2016). A PetaFLOPS Supercomputer as a Campus Resource: Innovation, Impact, and Models for Locally-Owned High Performance Computing at Research Colleges and Universities. In: *Proceedings of SIGUCCS '16*. November 06-09, 2016, Denver, CO, USA. DOI: <http://dx.doi.org/10.1145/2974927.2974956>

2015

Fischer, J., E. Coulter, R. Knepper, C. Peck and C. A. Stewart. 2015. XCBC and XNIT - Tools for Cluster Implementation and Management in Research and Training, Proceedings for the 2015 IEEE International Conference on Cluster Computing, Chicago, IL, pp. 857-864. <https://doi.org/10.1109/CLUSTER.2015.143>

Fischer, J., Tuecke, S., Foster, I., Stewart, C.A. (2015). Jetstream: A Distributed Cloud Infrastructure for Under Resourced Higher Education Communities. In: *SCREAM '15 Proceedings of the 1st Workshop on The Science of Cyberinfrastructure: Research, Experience, Applications and Models*. Pages 53-61. ACM. doi:10.1145/2753524.2753530

Stewart, C.A., Roskies, R., Knepper, R., Moore, R.L., Whitt, J., & Cockerill, T.M. (2015) XSEDE Value Added, Cost Avoidance, and Return on Investment. In: *Proceedings of the 2015 XSEDE Conference: Scientific Advancement Enabled by Enhanced Cyberinfrastructure*, doi: <http://dx.doi.org/10.1145.2792745.2792768>. *Winner: 2015 Phil Andrews Best Technical Paper Award*

Stewart, C.A., Cockerill, T.M., Foster, I., Hancock, D.Y., Merchant, N., Skidmore, E., Stanzione, D.C., Taylor, J., Tuecke, S., Turner, G., Vaughn, M., & Gaffney, N.I. (2015). Jetstream: a self-provisioned, scalable science and engineering cloud environment. In: *Proceedings of the 2015 XSEDE Conference: Scientific Advancements Enabled by Enhanced Cyberinfrastructure*, doi: <http://dx.doi.org/10.1145.2792745.2792768>.

Stewart, C. A., Barnett, W. K., Wernert, E. A., Wernert, J. A., Welch, V., and Knepper, R. (2015). *Sustained software for cyberinfrastructure: Analyses of successful efforts with a focus on nsf-funded software*. In Proceedings of the 1st Workshop on The Science of Cyberinfrastructure: Research, Experience, Applications and Models, pages 63-72. ACM/doi>10.1145/2753524.2753533

2014

Stewart, C.A., Knepper, R. D., Link, M. R., Pierce, M., Wernert, E. A., Wilkins-Diehr, N. Cyberinfrastructure, Science Gateways, Campus Bridging, and Cloud Computing. In: *Encyclopedia of Information Science and Technology*, Third Edition. Vol. IX. 2014. Hershey. PA. <http://www.igi-global.com>. Available at <http://hdl.handle.net/2022/18608>

Fischer, J., Knepper, R., Standish, M., Stewart, C.A., Alvord, R., Lifka, D., Hallock, B., Hazlewood, V. 2014. Methods for Creating XSEDE Compatible Clusters. In: *XSEDE '14 Proceedings of the 2014 Annual Conference on Extreme Science and Engineering Discovery Environment*. Article No. 77. July 13-18, 2014, Atlanta, GA. <http://dx.doi.org/10.1145/2616498.2616578>. Also available at: <http://hdl.handle.net/2022/19209>

Hallock, B., R. Knepper, J. Ferguson, C.A. Stewart. XSEDE Campus Bridging Pilot Case Study. In: *XSEDE '14 Proceedings of the 2014 Annual Conference on Extreme Science and Engineering Discovery Environment*. Article No. 77. July 13-18, 2014, Atlanta, GA.

Hallock, B., R. Knepper, J. Ferguson, C.A. Stewart. Leveraging Your Local Resources and National Cyberinfrastructure Resources without Tears. SIGUCCS '14 In: *Proceedings of the 42nd annual ACM SIGUCCS conference on User services*. (pp. 107-110).

2013

Kluge, M., S. Simms, T. William, R. Henschel, A. Georgi, C. Meyer, M.S. Mueller, C.A. Stewart, W. Wunsch, & W.E. Nagel. "Performance and quality of service of data and video movement over a 100 Gbps testbed." *Future Generation Computer Systems*, 29(1), 230-240. 2013. <http://dx.doi.org/10.1016/j.future.2012.05.028>

2012

Henschel, R., S. Simms, D. Hancock, S. Michael, T. Johnson, N. Heald, T. William, D. Berry, M. Allen, R. Knepper, M. Davy, M.R. Link and C.A. Stewart. Demonstrating Lustre over a 100Gbps Wide Area Network of 3500km. In: *Proceedings of SC'12: Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis*. (Salt Lake City, UT, 2012). ISBN: 978-1-4673-0804-5. <http://dl.acm.org/citation.cfm?id=2388996.2389005>

Kallback-Rose, K., K. Seiffert, D. Antolovic, T. Miller, R. Ping and C. Stewart. Conducting K-12 outreach to evoke early interest in IT, science, and advanced technology. In: *Proceedings of 1st Conference of the Extreme Science and Engineering Discovery Environment: Bridging from the eXtreme to the campus and beyond*. (Chicago, Illinois, 2012). ACM.

<http://doi.acm.org/10.1145/2335755.2335853> Preprint: <http://hdl.handle.net/2022/14807>

Stewart, C.A., F. Bachmann, V. Hazlewood, R. Knepper, I. Foster, J.W. Ferguson, A. Grimshaw, D. Lifka. 2012. What is campus bridging and what is XSEDE doing about it? In: *Proceedings of 1st Conference of the Extreme Science and Engineering Discovery Environment: Bridging from the eXtreme to the campus and beyond*. (Chicago, Illinois, 2012). ACM.

<http://dx.doi.org/10.1145/2335755.2335844>

2010

Arenson, A.D., L.N. Bakhireva, C.D. Chambers, C.A. Deximo, T. Foroud, J.L. Jacobson, S.W. Jacobson, K.L. Jones, S.N. Mattson, P.A. May, E.S. Moore, K. Ogle, E.P. Riley, L.K. Robinson, J. Rogers, A.P. Streissguth, M.C. Tavares, J. Urbanski, Y. Yezerets, R. Surya, C.A. Stewart and W.K. Barnett. "Implementation of a shared data repository and common data dictionary for fetal alcohol spectrum disorders research". *Alcohol*, 44(7-8), 643-647. 2010.

<http://dx.doi.org/10.1016/j.alcohol.2009.08.007> or <http://hdl.handle.net/2022/7194>

Stewart, C.A., S. Simms, B. Plale, M. Link, D. Hancock and G. Fox. What is Cyberinfrastructure? In: *Proceedings of SIGUCCS 2010*. (Norfolk, VA, 24-27 Oct, 2010).

<http://portal.acm.org/citation.cfm?doid=1878335.1878347>

Stewart, C.A., M. Link, D.S. McCaulay, G. Rodgers, G. Turner, D. Hancock, P. Wang, F. Saied, M. Pierce, R. Aiken, M. Mueller, M. Jurenz, M. Lieber, J. Tillotson and B. Plale.

"Implementation, performance, and science results from a 30.7 TFLOPS IBM BladeCenter cluster." *Concurrency and Computation: Practice and Experience*, 22(2), 157-174. 2010.

<http://dx.doi.org/10.1002/cpe.153>

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Stewart, C.A. 1982. Age-specific changes in diet and Cesium-127 whole body concentration in turtles (*Pseudemys scripta*) inhabiting a contaminated swamp. Midwest Ecology Symposium, Michigan State University, East Lansing, MI

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Reash, R.J. and C.A. Stewart. Preliminary investigations of longitudinal distribution and fish species diversity in Rock Run, Clark County, Ohio. (Abstract). *Bios*, 52(3), 178. 1981. <http://hdl.handle.net/2022/15228>

Awards

2018	Finalist, Best Paper, IEEE/ACM Utility and Cloud Computing Conference
2016	Phil Andrews Memorial Best Technical Paper Award, XSEDE16
2015	Phil Andrews Memorial Best Technical Paper Award, XSEDE15
2007	Bandwidth Challenge Award at Supercomputing 2007 conference (http://sc07.supercomputing.org/) for a project using a wide area file system to support several data-intensive research projects, including analysis of amyloid proteins implicated in Alzheimer's disease.
2007	IEEE Bioinformatics and Bioengineering Excellence in Service Award
2006	Bandwidth Challenge honorable mention at Supercomputing 2006 conference (http://sc06.supercomputing.org/).
2003	High Performance Computing Challenge Award, at Supercomputing 2003 conference (http://www.sc-conference.org/sc2003/) Stewart led an international team that created a global grid of supercomputers spanning every continent except Antarctica to perform maximum likelihood analysis of DNA data to analyze the phylogenetic relationships of arthropods.

1981 Wittenberg University: Biology major of the year, Mathematics major final exam passed with distinction.

Presentations

2019

Stewart, C.A. 2019. My leadership journey: How I - and we - got from there to here. Presented at Information Technology Leadership Program at Bradford Woods, Martinsville, IN, 17 July 2019. <http://hdl.handle.net/2022/23345>

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Stewart, C.A. 2018. *Computing and cyberinfrastructure in support of research, scholarship, and creative activity: Forward in challenging times*. PTI Seminar – Christopher S. Peebles Memorial Lectures in Information Technology, 2 May 2018, Indiana University, Bloomington IN, 2 May 2018. Slides at <http://hdl.handle.net/2022/22192>. Presentation on video at <https://www.youtube.com/watch?v=EO0ZT1H-BpE>

2017

Stewart, C.A. 2017. *New trends in cyberinfrastructure for ecology and evolutionary biology*. IU graduate seminar in *bioinformatics*. Bloomington, IN, 29 January 2017. Retrieved from <http://hdl.handle.net/2022/21264>

Stewart, C.A. and D.Y. Hancock. 2017. *Next Generation Cyberinfrastructure for Biological Research*. Center for Genomics and Bioinformatics Seminar. Bloomington, IN, USA. 27 September 2017. Retrieved from <http://hdl.handle.net/2022/21845>

Stewart, C.A., and M. Krefeldt. 2017. *You're worth it: Putting health before work*. Presentation. IU Statewide IT Conference. Retrieved from <http://hdl.handle.net/2022/21849>

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2016

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2015

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Stewart, C.A. 2015. *Campus Bridging Update*. For XSEDE Quarterly Staff Meeting. Presentation. New Orleans, LA. March 3, 2015. <http://hdl.handle.net/2022/21677>

Stewart, C.A. 2015. *UITS Research Technologies update for Bloomington Faculty Council Technology Policy Committee*. Presentation. 20 February 2015, Bloomington, IN <http://hdl.handle.net/2022/21679>

Stewart, C.A. 2015. *Indiana University Pervasive Technology Institute – briefing for CACR*. Presentation. 21 May 2015, Bloomington, IN. <http://hdl.handle.net/2022/21680>

2014

Newby, G., A. Apon, N. Berente, R. Eigenmann, S. Fratkin, D. Lifka, C.A. Stewart. 2014. *Return on investment from academic supercomputing: SC14 Panel*. Presentation. SC14 – the international conference for high performance computing, networking, storage and analysis. 21 Nov 2014. New Orleans, LA. <http://hdl.handle.net/2022/19242>

Stewart, C.A. 2014. *Big Data, Big Red II, Data Capacitor II, Wrangler, Jetstream, and Globus Online, presented to Microsoft, Inc. visiting group*. Presentation. Indiana University, Bloomington, IN. 24 Feb 2015. <http://hdl.handle.net/2022/19685>

Stewart, C.A. 2014. *Serving national scientific communities: Genome analysis as an example. Invited keynote talk*. Presented at Zentren fuer Kommunikation ind Informationzverarbeitung e.V. ZKI-Frühjahrstagung 25 March 2014 at Humboldt-Universität zu Berlin. <http://hdl.handle.net/2022/17383>

Stewart, C.A. 2014. *High Performance Computing serving Life Science Research Needs*. Presentation. Presented at Universität zu Koeln. Koeln, Germany, 3 July 2014. <http://hdl.handle.net/2022/18507>

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Stewart, C.A. 2014. *XSEDE Value Added and Financial Economies*. Presentation. NSF Review of XSEDE, 17 September 2014, Arlington, VA. <http://hdl.handle.net/2022/21678>

2013

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1990s

Stewart, C.A. 1999. *IU's Compaq Parallel PC Cluster*. (Presentation) Compaq - Indiana University Visit (Bloomington, IN, 17 Mar 1999). <http://hdl.handle.net/2022/13898>

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1980s

Stewart, C.A. 1986. Diurnal variation in metabolic parameters of white-footed mice (*Peromyscus leucopus*). Presented at annual meeting, American Society of Mammalogists, May, 1986.

Stewart, C.A. 1982. The effects of the water soluble fraction of fuel oil on the development of the brine shrimp (*Artemia salina* Leach). Ohio Ecology Student Symposium, Miami University, Miami, OH.

Stewart, C.A. 1982. Age-specific changes in diet and Cesium-127 whole body concentration in turtles (*Pseudemys scripta*) inhabiting a contaminated swamp. Midwest Ecology Symposium, Michigan State University, East Lansing, MI

Stewart, C.A. 1981. A preliminary analysis of diet and resource partitioning in *Etheostoma caeruleum* Storer and *Etheostoma flabellare* Rafinesque in Rock Run, Clark County, OH. Presented at Ohio Academy of Science, Wooster, OH. Ohio J. Science 81 (April Program Abstracts): 17. <http://hdl.handle.net/2022/15227>

Reash, R., and C.A. Stewart. 1981. Preliminary investigations of longitudinal distribution and fish species diversity in Rock Run, Clark County, Ohio. Beta Beta Beta Annual Meeting, Bios 52: 178 (abstract). <http://hdl.handle.net/2022/15228>

Technical Skills

- Expertise in bioinformatics, especially computational phylogenetics and bioinformatics applications of high-performance computers
- Broad experience in Information Technology, including hands-on responsibility for support, systems administration, administrative applications, and networking
- Quality assessment, business process improvement, delivery of online information, and customer service
- High-performance computing architectures, online help systems, statistical and mathematical software, and Unix system administration

Language Skills

German. Goethe Institut B2 Zertifikat in Deutsch

Professional Association Memberships & Activities

American Association for the Advancement of Science (AAAS)

Association for Computing Machinery (ACM)

Coalition for Academic Scientific Computing (CASC)

- 2018- Secretary
- 2009-2010 Executive Committee

- 2007-2008 Chair
- 2005-2006 Vice Chair

Institute of Electrical and Electronics Engineers (IEEE)

Professional Service

STEERING, ADVISORY, & PROGRAM COMMITTEES

- | | |
|--------------|---|
| 2018 | Scientific Advisory Board, JARA (Jülich Aachen Research Alliance) Center for Simulation and Data Science |
| 2017-present | Program committee member, VHPC'17 (12th Workshop on Virtualization in High-Performance Cloud Computing). |
| 2016-present | Volunteer reviewer, Global Innovation through Science and Technology, Technology Idea (GIST Tech-I) Competition |
| 2015-2020 | Science Advisory Board, SPPEXA (German Priority Programme 1648 Software for Exascale Computing) |
| 2015-2018 | Hathi Trust Research Center Science Advisory Board |
| 2013-present | Program Committee of CSEDU 2014 (http://www.csedu.org/) |
| 2013 | General Chair, IEEE Cluster 13 Conference (https://pti.iu.edu/ieecluster-2013/index.php) |
| 2012 | General Chair, XSEDE 12 Conference |
| 2010-2013 | NEESit Advisory Committee (http://nees.org/about/neescomm/cyberinfrastructure)
University of Buffalo TeraGrid XD Technology Analysis Science Advisory Committee |
| 2009-2011 | Member, NSF Advisory Committee for Cyberinfrastructure
Chair, NSF Advisory Committee for Cyberinfrastructure Task Force on Campus Bridging |
| 2009 | Member, Kentucky Cyberinfrastructure Steering Committee, 2009 |
| 2008 | Reviewer, Aspirations in Computing Award, National Center for Women & IT (NCWIT), 2008 |

Community Service

Stewart was the founding treasurer of the Funeral Consumer's Alliance chapter of Bloomington, IN. FCA provides public education and referral to resources regarding end-of-life and after-death care, including information about local options and regulations, and communication with family and service providers.

He is also a Certified Lay Speaker/Certified Lay Servant in the United Methodist Church, and leads an ecumenical Chronic Disease support group.

Other Information

USA Track & Field Member Number 1405795723

American Trail Runner's Association Member Number U2017-00021

His application to become an honorary carbon-based adjunct member of the Order of the Binary Singularity (https://theinfosphere.org/Order_of_the_Binary_Singularity) is currently pending.