

# CURRICULUM VITAE

CLINTON LEWIS JEFFERY

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## *Personal Data*

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## *Academic Training*

Ph.D. in Computer Science, The University of Arizona, August 1993

M.S. in Computer Science, The University of Arizona, May 1989

B.S. in Computer Science, University of Washington, June 1987; graduated *cum laude* with college honors

## *Professional Experience*

Associate Professor, Department of Computer Science, University of Idaho, Moscow, 1/2007 to present. Courses include programming languages, software engineering, compilers, graphics, games and virtual environments, program monitoring and visualization.

Visiting Scientist, Research Program in Medical Informatics, Lister Hill National Center for Biomedical Communication, National Library of Medicine, NIH, 1/2017-8/2017.

Visiting Academic Researcher, Research Computing Centre, University of Queensland, Brisbane Australia, 8/2016-12/2016.

Assistant Professor, Department of Computer Science, New Mexico State University, Las Cruces, 8/2001 to 12/2006. Courses included many of the above, plus social implications of computing.

Visiting Faculty Fellow, Cognitive Science Branch, Lister Hill National Center for Biomedical Communication, National Library of Medicine, NIH, 6/2001-8/2001.

Assistant Professor, Department of Computer Science, The University of Nevada, Las Vegas, 8/1999 to 6/2001. Courses included many of the above, plus system administration.

Assistant Professor, Division of Computer Science, The University of Texas at San Antonio, 8/1993 to 8/1999. Courses included many of the above, plus user interface programming.

Research Associate, Department of Computer Science, The University of Arizona, Tucson Arizona, 1990–1993. Researching program execution monitoring and program visualization as a member of the Icon Project.

Consultant, Tucson Arizona, 1988-1992. Dbase III and Foxbase programming, DOS and UNIX Sys V release 3 system administration.

Teaching Assistant, Department of Computer Science, The University of Arizona, Tucson, Arizona, 1988–1990. Assisted with Introduction to Computer Science and with Software Tools (senior/grad level C and UNIX) courses.

Research Assistant, Department of Computer Science, The University of Arizona, Tucson, Arizona, 1987–1988.

### *Refereed Journal Articles*

Asterisks indicate student co-authors.

HANI BANI-SALAMEH, JAFAR AL-GHARAIBEH, CLINTON JEFFERY, and ZIAD AL-SHARIF (2017). “Collaborative Education in a Virtual Learning Environment”, in *International Journal of Business Information Systems*, vol 25(4), pp. 474-489, Inderscience, 2017.

HANI BANI-SALAMEH AND CLINTON JEFFERY (2014). “Collaborative and Social Development Environments – a Literature Review”, in *International Journal of Computer Applications in Technology*, vol. 49(2), pp. 89-103, Inderscience, 2014.

HANI BANI-SALAMEH and CLINTON JEFFERY and MAEN HAMMAD (2013). “Developers’ Social Networks – Tools Analysis Based on the 3Cs Model”, in *International Journal of Networking and Virtual Organizations*, vol 13(2), pp. 159-175, Inderscience, March 2013.

\*ZIAD A. AL-SHARIF AND CLINTON L. JEFFERY (2009). “UDB: An Agent-Oriented Source Level Debugger”, in *International Journal of Software Engineering*. vol. 2(3), pp. 113-134, December 2009.

CLINTON L. JEFFERY (2003). “Generating LR Syntax Error Messages from Examples”, in *ACM Transactions on Programming Languages and Systems*. vol. 25(5), pp. 631-640, September 2003.

K. A. ROBBINS and C. JEFFERY and S. ROBBINS (2000). “Visualization of Splitting and Merging Processes”, in *Journal of Visual Languages and Computing*. vol. 11(6), pp. 593-614, December 2000.

CLINTON L. JEFFERY and RALPH E. GRISWOLD and GREGG M. TOWNSEND (1995). “Adding Graphics to a High-level Programming Language”, in *Software: Practice and Experience*. vol. 25(6), pp. 637-655, June 1995.

CLINTON L. JEFFERY and RALPH E. GRISWOLD (1994). “A Framework for Execution Monitoring in Icon”, in *Software: Practice and Experience*, vol. 24(11), pp. 1025-1049, November 1994.

## *Books*

- CLINTON L. JEFFERY and JAFAR AL-GHARAIBEH (2015). “Writing Virtual Environments for Software Visualization”, Springer, 155p.
- CLINTON L. JEFFERY, SHAMIM MOHAMED, JAFAR AL GHARAIBEH, RAY PEREDA and ROBERT PARLETT (1999-2015). “Programming with Unicon”, 2nd edition, available under the GNU Open Document License at <http://unicon.org/book/ub.pdf>, 504pp.
- CLINTON L . JEFFERY (1999). “Program Monitoring and Visualization: an Exploratory Approach”, Springer Verlag, 209pp.
- RALPH E. GRISWOLD and CLINTON L . JEFFERY and GREGG M. TOWNSEND (1998). “Graphics Programming in Icon”, Peer-to-Peer Communications, 512pp.

## *Book Chapters*

- ZIAD AL-SHARIF, CLINTON JEFFERY, and MAHMOUD SAID (2017). “The Use of Dynamic Temporal Assertions for Debugging”, in “Embedded Software Verification and Debugging”, Markus Winterholer and Djones Lettnin, eds., Springer, 2017, pp. 47-66.
- HANI BANI-SALAMEH\* and CLINTON JEFFERY (2011). “Teaching and Learning in a Social Software Development Tool”, in *Social Media Tools and Platforms in Learning Environments: Present and Future*, Springer, 2011, pp. 17-36.
- CLINTON L. JEFFERY (1998). “A Menagerie of Program Visualization Techniques”, in *Software Visualization: Programming as a Multimedia Experience*, pp. 73-79. MIT Press, Cambridge Massachusetts.

## *Refereed Papers in Conference Proceedings*

Asterisks indicate student co-authors.

- MINH NGOC DINH, CHAO JIN, DAVID ABRAMSON and CLINTON L. JEFFERY (2016). “Runtime Verification of Scientific Computing: Towards an Extreme Scale”, in 5th Workshop on Extreme-Scale Programming Tools at SC16 supercomputing conference, Salt Lake City, Nov 13.
- PETER MILLS\* and CLINTON JEFFERY (2016). “Embedding Concurrent Generators”, 21st International Workshop on High-Level Parallel Programming Models and Supportive Environments, IEEE, Chicago, May 23-27.
- PETER MILLS\* and CLINTON JEFFERY (2016). “Embedding Goal-Directed Evaluation through Transformation”, ACM Symposium on Applied Computing Object-Oriented Programming Systems track, SAC 2016, Pisa, Italy, April 4-8.
- CLINTON JEFFERY, PHILLIP THOMAS, SUDARSHAN GAIKAIWARI\*, and JOHN GOETTSCHHE\* (2016). “Integrating Regular Expressions and SNOBOL Patterns into String Scanning: a Unifying Approach”, ACM Symposium on Applied Computing Programming Languages Track, SAC 2016, Pisa, Italy, April 4-8.

- HANI BANI-SALAMEH and CLINTON JEFFERY (2015). “Evaluating the Effect of 3D World Integration within a Social Software Environment”, in the 12th International Conference on Information Technology: New Generations (ITNG 2015), Las Vegas, April 13-15, 2015.
- ZIAD A. AL-SHARIF and CLINTON L. JEFFERY and MAHMOUD H. SAID (2014). “Debugging with Dynamic Temporal Assertions”, in the 5th IEEE International Workshop on Program Debugging (IWPD 2014), Naples, November 3-6, 2014.
- HANI BANI-SALAMEH and CLINTON JEFFERY (2014). “Notifications Management in Distributed Development Environments: a Case Study”, in the 2014 International Conference on Collaboration Technologies and Systems (CTS 2014).
- JAFAR AL GHARAIBEH\* and CLINTON JEFFERY and Kostas Oikonomou (2012). “An Hybrid Model for Very High Level Threads”, in ACM Workshop on Programming Models and Applications for Multicores and Manycores (PMAM 2012), New Orleans, February 25-29, 2012.
- \*JAFAR AL-GHARAIBEH and CLINTON JEFFERY and \*HANI BANI-SALAMEH (2011). “Building a Collaborative Virtual Environment: a Programming Language Codesign Approach”, in 2011 International Conference on Cyberworlds, IEEE, Banff, October 2011.
- \*JAFAR AL-GHARAIBEH and CLINTON JEFFERY (2010). “PNQ: Portable Non-Player Characters with Quests”, 2010 International Conference on Cyberworlds, IEEE, Singapore, October 2010. Acceptance rate = 38%.
- \*HANI BANI-SALAMEH and CLINTON L. JEFFERY and \*JAFAR AL-GHARAIBEH (2010). “A Social Collaborative Virtual Environment for Software Development”, in the 2010 International Symposium on Collaborative Technologies and Systems, IEEE, Chicago, May 2010.
- \*HANI BANI SALAMEH, CLINTON JEFFERY, AND \*JAFAR AL GHARAIBEH. “SCI: Towards a Collaborative Integrated Development Environment”, in the Workshop on Social Computing in Education, WSCE09, Vancouver, BC, August 2009, pp.915-920. Acceptance rate = 14%.
- \*ZIAD AL SHARIF AND CLINTON JEFFERY. “Language Support for Event-based Debugging”, Proceedings of the Software Engineering Knowledge Engineering Conference, SEKE 2009, Boston, MA, July 2009, pp.392-399. Acceptance rate = 38%.
- \*ZIAD AL SHARIF AND CLINTON JEFFERY. “A Multi-agent Debugging Extension Architecture”, Proceedings of the Software Engineering Knowledge Engineering Conference, SEKE 2009, Boston, MA, July 2009, pp.194-199.
- \*ZIAD AL SHARIF AND CLINTON JEFFERY. “An Agent-Oriented Source-Level Debugger on Top of a Monitoring Framework”, Proceedings of the IEEE Information Technology: New Generations 2009 Conference, Las Vegas, NV, April 2009, pp.241-247. Acceptance rate = 29%.
- \*HANI BANI SALAMEH, CLINTON L. JEFFERY, \*ZIAD AL SHARIF, \*IYAD ABU DOUSH “Integrating Collaborative Program Development and Debugging within a Virtual Environment”, Proceedings of the 14th Collaboration Researchers International Workshop on Groupware, CRIWG 2008, Omaha, Nebraska, pp.107-120.

- \*MICHAEL WILDER AND CLINTON JEFFERY. “Towards Fast Incremental Hashing of Large Bit Vectors”, in the Proceedings of the 41st Hawaii International Conference on System Sciences, HICSS-41, January 2008 track on Algorithmic Challenges in Emerging Applications on Computing (10 pp.). Acceptance rate = 50%.
- RICHARD T. SAUNDERS, CLINTON L. JEFFERY and DEREK T. JONES (2007). “A Portable Framework for High-Speed Parallel Producer/Consumers on Real CMP, SMT, and SMP Architectures”, in the 2nd IPDPS Workshop on Performance Optimization for High-Level Languages and Libraries, Long Beach CA, March 2007 (8 pp.).
- \*ZIAD AL SHARIF and CLINTON L. JEFFERY (2006). “Adding High Level VoIP Facilities to the Unicon Language”, in the Third International Conference on Information Technology: New Generations, ITNG 2006, Las Vegas, April 2006, pp.524-529. Acceptance rate  $109/200+ = 55\%$ .
- \*GUSTAV VERHULSDONCK and CLINTON L. JEFFERY (2006). “Remembrance of Things Past: Using Maps and Routes to Navigate through Virtual Environment Experiences”, in the Proceedings of the 39th Hawaii International Conference on System Sciences, HICSS-39, January 2006, 10pp. Acceptance rate:  $10/22 = 45\%$ .
- CLINTON L. JEFFERY, \*AKSHAY DABHOLKAR, \*KOSTA TACHTEVRENIDIS and \*YO SEP KIM. “A Framework for Prototyping Collaborative Virtual Environments”, in Proceedings of the 11th International Workshop on Groupware, CRIWG 2005, Recife Brazil, pp 17-32. Acceptance rate  $16/67 = 24\%$ .
- CLINTON L. JEFFERY, \*NAOMI MARTINEZ and \*OMAR EL-KHATIB (2005). “Programming Language Support for Collaborative Virtual Environments”, Proceedings of the 18th International Conference on Computer Animation and Social Agents, CASA 2005, Hong Kong, 6 pp.
- MIKHAIL AUGUSTON and CLINTON JEFFERY and \*SCOTT UNDERWOOD (2003). “A Monitoring Language for Run Time and Post-Mortem Behavior Analysis and Visualization”, in Proceedings of the 5th International Workshop on Automated and Algorithmic Debugging, AADEBUG’03, Ghent Belgium, September 2003, pp.232-243.
- MIKHAIL AUGUSTON and CLINTON JEFFERY and \*SCOTT UNDERWOOD (2002). “A Framework for Automatic Debugging”, Proceedings of the IEEE 17th International Conference on Automated Software Engineering, ASE’02, Edinburgh Scotland, September 2002, pp. 217-222.
- \*S.G. DYKES and C.L. JEFFERY and K.A. ROBBINS (2000). “An Empirical Evaluation of Client-Side Server Selection Algorithms”, proceedings of IEEE INFOCOM 2000, Vol. 3, March, 2000, pp. 1361-1371.
- \*S.G. DYKES, and C.L. JEFFERY and S. DAS (1999). “Taxonomy and Design Analysis for Distributed Web Caching”, Proceedings of the 32nd Hawaii International Conference on Systems Sciences, HICSS’99, Maui, Hawaii, Jan. 1999.
- \*KEVIN S. TEMPLER and CLINTON L. JEFFERY (1998). “A Configurable Automatic Instrumentation Tool for ANSI C”, Proceedings of the IEEE 13th International Conference on Automated Software Engineering, ASE’98, Honolulu Hawaii, October 1998. Acceptance rate: 14%

- CLINTON JEFFERY (1998). “Tight Spiral Projects for Communicating Software Engineering Concepts”, Proceedings of the ACM SIGCSE Third Australasian Conference on Computer Science Education (ACSE '98), Brisbane, Australia, July 1998. Acceptance rate: 47%
- CLINTON JEFFERY AND \*WENYI ZHOU AND \*KEVIN TEMPLER AND \*MICHAEL BRAZELL (1998). “A Lightweight Architecture for Program Execution Monitoring”, Proceedings of the ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering (PASTE '98), Montreal, Canada, June 1998. Acceptance rate: 35%. Published in SIGPLAN Notices vol. 33 no. 7, July 1998.
- CLINTON L. JEFFERY AND \*SANDRA G. DYKES AND XIAODONG ZHANG AND \*GUILLERMO H. GONZALEZ AND \*JASON L. PEACOCK (1997). “Nova Visualization for Optimization of Data-Parallel Programs in the \*Graph Environment”, Europar 97 European Conference on Parallel Processing, Springer Lecture Notes in Computer Science no. 1300, pp. 89-93, August, 1997.
- C. L. JEFFERY AND SAMIR R. DAS AND \*GARRY S. BERNAL (1996). “Proxy-Sharing Proxy Servers”, in Proceedings of the IEEE etaCOM '96 Conference, Portland, OR, May 1996.
- \*S. G. DYKES AND X. ZHANG AND \*Y. SHEN AND C. L. JEFFERY AND \*D. W. DEAN (1995). “\*Graph: A Tool for Visualizing Communication and Optimizing Layout in Data-Parallel Programs”, Proceedings of the 24th International Conference on Parallel Processing, August 1995.
- CLINTON L. JEFFERY, RALPH E. GRISWOLD, AND GREGG M. TOWNSEND (1994). “Graphics Programming in Icon Version 9”, Proceedings of the USENIX Symposium on Very High Level Languages, October 1994, pp. 157-168.
- RALPH E. GRISWOLD AND CLINTON L. JEFFERY (1994). “Nova: Low-Cost Data Animation Using a Radar-Sweep Metaphor”, ACM User-Interface Software Technology (UIST '94), pp. 131-132.
- RALPH E. GRISWOLD and CLINTON L. JEFFERY (1992). “Visualizing Program Execution in Icon”, in *Proceedings of the Sixth International Conference on Symbolic and Logical Computing*.
- D. TERENCE LANGENDOEN, CLINTON L. JEFFERY and \*JON LIPP (1992). “TWINCLE: The WINDOWing Computational Linguistics Environment”, in *Proceedings of the Sixth International Conference on Symbolic and Logical Computing*.
- CLINTON L. JEFFERY and RALPH E. GRISWOLD (1991). “X-Icon: An Icon Windows Interface”, in *Proceedings of the Fifth International Conference on Symbolic and Logical Computing*.

### *Books and refereed papers submitted or in preparation*

- AHMAD AL-JARRAH, ENRICO PONTELLI, and CLINTON JEFFERY (2017). “The Collaborative Virtual Affinity Group Model: Principles and Design”, submitted to Technology, Pedagogy and Education, Taylor & Francis.

CLINTON L. JEFFERY, EDITOR. “The Implementation of Icon and Unicon: a Compendium”, book in preparation, preliminary complete draft available on the web at [unicon.org/book/ib.pdf](http://unicon.org/book/ib.pdf), 432pp.

### *Refereed Poster Presentations*

\*JAFAR AL-GHARAIBEH, CLINTON JEFFERY, AND KOSTAS OIKONOMOU. “Grafting Concurrency onto a Goal-Directed Language”, at the 24th International Workshop on Languages and Compilers for Parallel Computing (LCPC 2011), Fort Collins, 9/2011.

\*JAFAR AL-GHARAIBEH AND CLINTON JEFFERY. “Portable Non-Player Character Tutors with Quest Activities”, at IEEE VR 2010 Conference.

\*MICHAEL WILDER AND CLINTON JEFFERY. “The Uniconc Optimizing Unicon Compiler”, OOPSLA 2006, Portland Oregon.

\*ZIAD AL SHARIF AND CLINTON JEFFERY. “An Extensible Source-Level Debugger”, poster + 2 page abstract in Proceedings of the ACM Symposium on Applied Computing, SAC 2009, Honolulu, HI.

### *Invited Talks*

CLINTON JEFFERY (2016). “Debugging Agents and Dynamic Assertions in UDB”, Oracle Labs Australia, Brisbane, December 2016.

CLINTON JEFFERY (2016). “Recent Developments in Unicon”, SAPLING16, the Sydney Area Programming Languages Interest Group, Canberra, November 2016.

CLINTON JEFFERY (2010). “Implementing a Network Analysis Tool Using a Very High Level Language”, cookie talk, AT&T Research, Florham Park, NJ, January 2010.

CLINTON JEFFERY (2003). “Teaching Software Engineering with UML and RAD”, Keynote Speaker, 12th Annual Rocky Mountain Conference of the Consortium of Computing Sciences in Colleges, on *Curriculum Issues: Extreme Programming, Rapid Application Development, the .NET environment, Java, etc.*, Silver City NM, October 2003.

C. L. JEFFERY (1999). “The Alamo Execution Monitor Architecture”, Workshop on Logic Programming Environments, ICLP’99, Las Cruces, NM, November, 1999. Published in *Electronic Notes in Theoretical Computer Science*, vol. 30 no. 4.

CLINTON L. JEFFERY (1995). “Dragging Icon and APL Kicking and Screaming into the 21st Century”, invited half-hour presentation, ACM SIGAPL ’95 Conference.

CLINTON L. JEFFERY (1994). “The Icon Programming Language”, invited one-hour overview talk, USENIX Symposium on Very High Level Languages.

### *Non-refereed Conference Presentations and Articles*

CLINTON JEFFERY (2013). “Visualizing Software Ecosystems as Living Cities”, in the Fifth International Conference on Virtual, Augmented, and Mixed Realities, Las Vegas, Nevada, July 2013. Anonymously Refereed, but reviews inadequate to consider it peer review.

- RICHARD SAUNDERS and CLINTON JEFFERY (2013). “Dynamic, Recursive, Heterogeneous Types in Statically-Typed Languages”, in C++ Now 2013, Aspen, Colorado, May 2013. Anonymously refereed, but reviews inadequate to consider it peer review.
- JAFAR AL-GHARAIBEH and CLINTON JEFFERY (2011). “High Level 3D Object Selection for the Unicon Language”, in the Proceedings of the International Conference on Information & Communication Systems, Irbid, Jordan, May 2011, pp. 107-112. Anonymously refereed, but reviews inadequate to consider it peer review.
- HANI BANI-SALAMEH, CLINTON JEFFERY AND IYAD ABU DOUSH (2011). “Introducing Social Development Environments”, in the Proceedings of the International Conference on Information & Communication Systems, Irbid, Jordan, May 2011, pp. 95-100. Anonymously referred, but reviews inadequate to consider it peer review.
- WOLFGANG BEIN AND CLINTON JEFFERY (2010). “Towards an Openness Rating System for Open Source Software”, in the Proceedings of the 43rd Hawaii International Conference on System Sciences, HICSS-43, January 2010. Anonymously refereed, but only by one referee.
- SUSAN JEFFERY, CLINTON JEFFERY, AND PHILLIP THOMAS (2010). “Lessons from the Development of SSEUS: a System for Entry and Management of Peer-reviewed Data”, the Proceedings of the 43rd Hawaii International Conference on System Sciences, HICSS-43, January 2010, pp. 1-8. Anonymously refereed, but only by one referee.
- KAREN VILLAVERDE, CLINT JEFFERY, AND INNA PIVKINA (2009). “Cheshire: Towards an Alice Based Game Development Tool”, in Proceedings of Computer Games and Allied Technology, CGAT’09, Singapore, pp. 321-328. Anonymously refereed; inadequate to consider it peer review.
- CLINTON JEFFERY (2008). “Using Non-Player Characters as Tutors in Virtual Environments”, in Proceedings of Researching Learning in Virtual Environments, ReLIVE08, Milton Keynes, England, November 2008. Anonymous review based on an extended abstract, but inadequate to consider it peer review.
- CLINTON JEFFERY (2007). “Building your Virtual CS Department”, Tutorial at the 9th Annual Northwest Conference of the Consortium of Computing Sciences in Colleges, McMinnville OR, October 2007. Accepted based on an abstract proposal.
- CLINTON JEFFERY AND MIKHAIL AUGUSTON (2003). “Some Axioms and Issues in the UFO Dynamic Analysis Framework”, 1st Workshop on Dynamic Analysis, WODA 2003, at the International Conference on Software Engineering (ICSE), Portland OR, May 2003. Accepted with inadequate peer review.
- CLINTON JEFFERY AND MIKHAIL AUGUSTON AND SCOTT UNDERWOOD (2002). “Towards Fully Automatic Execution Monitoring”, in *Radical Innovations of Software and Systems Engineering in the Future*, Proceedings of the 9th Monterey Software Engineering Workshop, Sep. 2002, in Springer Lecture Notes in Computer Science no. 2941, 2004. Accepted based on a submitted abstract.
- CLINTON L. JEFFERY (2001). “Goal-directed Object-oriented Programming in Unicon”, Proceedings of the ACM Symposium on Applied Computing, SAC 2001. Accepted with inadequate peer review.



- CLINTON JEFFERY AND SHAMIM MOHAMED (1998). “A Glimpse of Icon: A Language For the Rest of Us”, Linux Journal no. 51, July 1998. An accompanying on-line article describing Unicon, a new POSIX interface for Icon, appeared in Linux Gazette, no. 27, April, 1998, [www.linuxgazette.com](http://www.linuxgazette.com). Acceptance was an editorial decision.
- C. L. JEFFERY (1997). “Designing a Proxy-Sharing Proxy Server”, NLANR Web Cache Workshop, Boulder, CO, June, 1997. Accepted based on an abstract.
- C. L. JEFFERY (1997). “The Computer Science Scholars and Mentors Program at UTSA: Year 1”, INFRASTRUCTURE 97 Workshop for Principal Investigators of NSF/CISE Infrastructure Awards, Lexington, KY, May 1997. Presentation expected for first-year infrastructure grant recipients.
- CLINTON L. JEFFERY (1994). “Visual Metaphors as Execution Controls”, ACM Computer-Human Interaction (CHI '94) Software Visualization Workshop. Accepted based on an abstract.

### *Honors and Awards*

- Nominee, University of Idaho Supervisor of the Year, 2008
- Who's Who of America's Teachers, 1996, 1999, 2005
- Who's Who in Sciences Higher Education, 2004
- University of Arizona Department of Computer Science David Clark Memorial Scholarship (for research performance), 1991
- University of Arizona Faculty of Science Award for Meritorious Performance in Teaching, 1990
- Phi Beta Kappa, 1987
- National Merit Scholar, 1983

### *Professional Activities, National/International*

- Program Committee, 9th International Conference on Information and Communication Systems, ICICS2018, Irbid, Jordan.
- Program Committee, Object Oriented Programming Languages and Systems Track, ACM Symposium on Applied Computing 2017-2018.
- Program Committee, International Conference on Software Engineering and Knowledge Engineering, 2008-2018.
- Reviewer, Journal of Logical and Algebraic Methods in Programming, 2017
- Reviewer, U.S. DOE SBIR proposal 2017
- Reviewer, ACM CHI 2017
- Reviewer, CCSC Northwest regional conference, 2015.

Program Committee, AMECSE, 1st-3rd Africa and Middle East Conference on Software Engineering, Cairo, 2014-2017.

Program Committee, WWW2014 Workshop on Web-based Education Technologies, WebET 2014, April 2014.

Co-Chair, Open Movements: FLOSS, Open Contents, Open Access, and Open Communities. A mini-track in the Internet and Digital Economy track of the Hawaii International Conference on Systems Sciences, 2011-2014.

Reviewer, *Scientia Iranica*, Elsevier, 2012.

Reviewer, *Journal of Virtual Reality and Broadcasting*, 2012.

Program Committee, Software Engineering Research and Applications Conference (SERA 2009 and 2010)

Reviewer, 2009-2011 Frontiers in Education Conference

Reviewer, U.S. NTIA Broadband Technology Opportunity Program, 2009

Reviewer, NDT 2009, Networked Digital Technologies conference

Co-Chair, New Application Areas in Open Source Software, a mini-track in the Software Technology track of the 2010 Hawaii International Conference on System Sciences.

Program Committee, ICSoft 2009 Conference

Reviewer, ACM CHI 2009 Student Design Competition

Reviewer, 7th International Conference on Education and Information Systems, Technologies, and Applications, EISTA 2009.

Reviewer, Algorithmic Challenges in Emerging Applications of Computing, HICSS 2009

Reviewer, *Software: Practice and Experience*, 2008.

Reviewer for “Program Interpreters” in the Encyclopedia of Computer Science and Engineering entry, Wiley, 2008.

Reviewer, ACM/SIAM Symposium on Discrete Algorithms, SODA 2008

Reviewer for Andreas Zeller’s “Why Programs Fail”, Morgan Kaufmann, 2005, 2007

Reviewer, IEEE WRECOM 2007 Conference

Reviewer, 2007 ACM CHI Conference

Reviewer, 2006 Frontiers in Education Conference

General Chair, ACM Symposium on Automated and Analysis-driven Debugging, Monterey, 2005

Program Committee, 8th International Symposium on Parallel Architectures, Algorithms, and Networks, I-SPAN 2005, Las Vegas

Program Committee, 2005 International Conference on Embedded Software and Systems (ICCESS-05), Xi'an China

Program Committee, ACM Symposium on Applied Computing 2005, Programming Languages Track, Sante Fe

NSF Panel Reviewer, 2004

Reviewer, ACM Principles and Practice of Declarative Programming 2004

Program Committee, AADEBUG2003, Automated and Algorithmic Debugging Conference, Ghent, Belgium

Reviewer, International Conference on Computational Science, ICCS 2002

Session chair, 2001 Frontiers In Education conference

Reviewer, ACM SIGPLAN PLDI '93 conference

Reviewer, *Journal of Parallel Computing*

Reviewer, CKIM workshop on New Paradigms in Visualization

Member ACM, SIGPLAN, IEEE Computer Society

Campus liaison, USENIX Association, at UTSA, UNLV, and NMSU

Editor, The Generator, an on-line journal on the Unicon and Icon programming languages

### *Professional Activities, Local/Regional*

University of Idaho College of Engineering Associate Dean Search Committee, 2017.

University of Idaho Computer Science Chair Review Committee, 2017.

University of Idaho Faculty Senate, 2014-2016, 2017-

Chair, University of Idaho Parking Committee, 2017-

Faculty Advisor, Vandal TeSPA (collegiate gaming) club, 2015-.

University of Idaho College of Engineering Associate Dean for Research and Economic Development Search Committee, 2015.

University of Idaho Virtual Technology and Design Search Committee, 2015.

University of Idaho Computer Science Chair Search Committee, 2014-2015.

University of Idaho Campus Planning Advisory Committee, 2014-2015.

University of Idaho Department of Computer Science Graduate Committee, 2014-2015

University of Idaho College of Engineering Promotion and Tenure Committee, 2014-2016.  
Committee chair 2015.

Promotion External Reviewer, New Mexico State University, 2012

University of Idaho Committee on General Education, 2011-2013.

University of Idaho College of Engineering Financial Reorganization Steering Committee, 2011.

Chair, University of Idaho Computer Science Data Architect Faculty Search Committee, 2011-2012.

University of Idaho College of Engineering Elections Committee, 2011.

Reviewer, University of Idaho Seed Grant Program, 2011.

University of Idaho College of Engineering Bylaws Committee, 2010-2011.

Chair, University of Idaho Computer Science Hardware Software Committee, 2010-2012.

Chair, University of Idaho Computer Science Information Assurance Faculty Search Committee, 2010-2011.

University of Idaho Computer Science Chair Search Committee, 2010.

Judge, ACM International Collegiate Programming Competition, Northwest Region (WA/OR/BC/ID/HI/NoCal), 2009

University of Idaho Department of Computer Science Chair 3-year Review Committee, 2008.

University of Idaho College of Engineering Dean Search Committee, 2008.

University of Idaho College of Engineering Awards Committee, 2007-08.

University of Idaho Information Technology Committee, 2007-11.

Registrar, Consortium for Computing Science in Colleges, Northwest Region, 2008-2011.

Promotion and Tenure External Reviewer, University of Texas at El Paso, 2004

NMSU College of Arts and Sciences Faculty Technology Committee, 2002-2006

Coach, UNLV ACM programming team, 1999-2001

Co-director, UTSA Computer Science Scholars and Mentors Program (an NSF Minority Institution Infrastructure program)

UTSA Department of Computer Science Graduate Steering, and Academic Policy and Curricula Committees

UTSA Division of Computer Science Technical Reports Coordinator

UTSA and NMSU Computer Science webmaster

UTSA College of Science and Engineering Academic Policy and Curricula Committee

UTSA Extended Education Committee

## *Research Support*

- PI, National Library of Medicine contracts, 2008-2018, \$514,000
- co-PI, Wind River MILS SKPP Verification Project, 2008-2011, \$797,000, (PI James Alves-Foss and two other co-PI's)
- PI, AT&T Research collaboration, 2008-2011, \$77,000
- PI, Chief Architect software donation, 2007, software valued at \$2,200
- PI, NMSU-UIdaho ATE Virtual Environments Subaward, 2007-9, \$148,000.
- PI, National Library of Medicine research participation awards, (administered through ORISE) 1998-2008, \$229,000
- co-PI, NSF Computing Research Infrastructure (CRI) Award, 2006-2008, (with PI Amiya Bhattacharya and co-PIs Jonathan Cook, Derek Bailey, and Debra Peters), \$498,000.
- PI, Rincon Research Corp. contracts, 2004-2005, \$44,000
- co-PI, NSF Advanced Technological Education (ATE) Award, 2004-2007, \$840,000 (with PI Carmen Gonzales and co-PI Enrico Pontelli). I was the primary author of this grant, which was done in collaboration with Vice Provost of Distance Education Gonzales. I was the only investigator supported on the grant and was responsible for its implementation.
- co-PI\*, NSF Minority Institution Infrastructure (MII) Award, 2002-2007, \$1.5 million (with PI Roger Hartley and 10 faculty participants). \* NSF lists only the first 5 co-PI's in their records.
- PI, UT Health Science Center Biomedical Image Analysis Division contract, 1998, \$5,031
- co-PI, NSF CRI Award, 1997, \$99,664 (with Robert Hiromoto and David Jaffe)
- co-PI, NSF Minority Institution Infrastructure (MII) Award, 1996-2001, \$1.27 million (with co-director Robert Hiromoto and 5 faculty participants). I was a primary author on this grant, which was done in collaboration with my department head. As co-director I bore responsibility for the initial implementation of its programs.
- PI, NSF Research Experience for Undergraduates (REU) Supplemental Award, 1996, \$10,000
- co-PI, UTSA Faculty Research Award, 1995-6, \$5,000 (with Samir R. Das)
- PI, NSF Research Initiation Award, 1995, \$59,990
- PI, Sun Microsystems hardware donation, 1994, equipment value \$9,588 (list price was \$15,980)
- PI, UTSA Faculty Research Award, 1993-4, \$4,900

## *Theses Supervised*

- Anthony Jones, “Optimizing the Icon Compiler”, B.S. honors, 1996
- David Miller, “An Object-Oriented Framework for Parsing SGML”, M.S., 1996
- Wenyi Zhou, “Implementation of the Alamo Monitor Executive”, M.S., 1996
- Thanawat Lertpradist, “Sitemap: A World Wide Web Analysis Tool”, M.S., 1997
- Kevin Templer, “Implementation of a Configurable C Instrumentation Tool”, M.S., 1998
- Sandra Dykes, “Cooperative Web Caching: A Viability Study and Design Analysis”, Ph.D., 2000 (co-advised with Kay Robbins)
- Ziad Al Sharif, “A High Level Audio Communications API for the Unicon Language”, M.S. 2005
- Sudarshan Gaikawai, “Adapting SNOBOL-style Patterns to the Unicon Language”, M.S. 2005. Software engineer at Yelp.
- Michael Wilder, “Uniconc: A Unicon Compiler”, M.S. 2006. clinical assistant professor, University of Idaho.
- Ziad Al Sharif, “An Extensible Hybrid Debugging Architecture”, Ph.D. 2009; assistant professor at Department of Software Engineering, Jordan University of Science and Technology.
- Keith Jeffery, “The Design and Implementation a Production-Quality Ray Tracer”, M.S. 2011, senior software engineer at Dreamworks Animation Ltd. Glendale CA.
- Hani Bani Salameh, “A Social Collaborative Integrated Development Environment”, Ph.D. 2011; assistant professor at Department of Software Engineering, Hashemite University, Jordan.
- Jafar Al Gharaibeh, “Language Support and Software Architecture for Portable Extensible Non-Player Characters with Quests”, Ph.D. 2012; senior scientist at Architecture Technology Corporation, Minneapolis.
- Faye Mathijssen, “A DirectX Implementation of Unicon’s 3D Facilities”, M.S. 2015; devops engineer at ING.
- John Goettsche, “Integrating Pattern Matching Within String Scanning”, M.S. 2015. Visiting assistant professor at Willamette University.
- Peter Mills, “Transformational Interpretation of an Iterator Calculus for Goal-Directed Evaluation”, Ph.D. 2016. Computational scientist, HPC team lead at Washington State University.

## *M.S. Projects Supervised*

These students implemented substantial pieces of software and wrote extensive technical reports, but did not elect to do the M.S. thesis option at their institution. I have been the major advisor for two-semester projects and theses for 23 M.S. students in toto.

Steven Lumos, "Messaging Language Extensions for Unicon", M.S. 2000

David Price, "Porting Unicon to Windows Mobile 2003", M.S. 2005

Mais Nijim, "Generating a Virtual Environment from a 2D Floor Plan", M.S. 2005

Wynn Winkler, "A Prototype Collaborative Virtual Environment in Unicon", M.S. 2005

Jayanthi Elumalai, "A Proxy Server for the Collaborative Virtual Environment", M.S. 2005

Yosep Kim, "Avatars and A\*Maker for Unicon", M.S. 2005

Shyam Bukka, "Representing 3D Objects in a Collaborative Virtual Environment", M.S. 2005

Anil Teella, "Adding Audio Support to a Virtual Environment", M.S. 2006

Udaykumar Batchu, "An Improved C Calling Interface for Unicon Language", M.S. 2006

Qutaiba Mahmoud, "A Multi-Platform Pseudo Terminal API", M.S. 2006

Luis Alvidres, "Syntax Coloring and Incremental Parsing for the Unicon Language", M.S. 2006

Rashmi Ramagiri, "Integrating the Moodle Course Management System into a Collaborative Virtual Environment", M.S. 2006

Hani Bani-Salameh, "Developing a Multilanguage IDE for the VIEW Virtual Environment", M.S. 2006

## *References*

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Additional references are available upon request.