Curriculum Vitae
Kevin A. Gary, Ph.D.

Current Affiliation:
Associate Professor
Computing, Informatics, and Decision Systems Engineering (CIDSE)
The Ira A. Fulton Schools of Engineering
Arizona State University (ASU)
E-mail: kgary@asu.edu,
Website: http://dcs.asu.edu/faculty/KevinGary

Education:
Ph.D. Computer Science, Arizona State University, Tempe, AZ, January 1999.
Dissertation: "Open Process Components" – A distributed component framework for interoperability and reuse of automated software and business processes.
Degree Program Areas of Emphasis: Software Engineering, Artificial Intelligence.

M.S. Computer Science, Arizona State University, Tempe, AZ, May 1993.
Thesis: "RABIT: A spreading activation approach to real-time commonsense reasoning" – A limited reasoning agent using spreading activation and nonmonotonic logic.
Degree Program Areas of Emphasis: Artificial Intelligence, Databases, Programming Languages.

B.S. Computer Science/Applied Mathematics, SUNY Albany, May 1989. summa cum laude

Academic Appointments:
Administrative Appointments:
Associate Chair for Computing Programs, Department of Engineering, ASU, 2010 – 2011.

Tenure-track Appointments:
Associate Professor (tenured), Ira A. Fulton Schools of Engineering ASU July 2014 – present
Associate Professor (tenured), College of Technology & Innovation ASU April 2010 – June 2014

Assistant Professor (tenure-track), College of Technology & Innovation ASU 2004 – April 2010

Assistant Professor (tenure-track), Electrical Engineering and Computer Science Department, The Catholic University of America, Washington, D.C. January 1999 – June 2000

Non tenure-track Appointments:
Visiting Scientist, Children's National Medical Center, Sheik Zayed Institute for Pediatric Surgical Innovation, Bioengineering Initiative, 2011-2012. Washington D.C. (sabbatical)
- Chief Software Architect in the areas of image-guided surgery and surgical robotics.

Visiting Assistant Professor, Division of Computing Studies ASU August 2003 – May 2004 (50%)

Faculty Associate, Computer Engineering Technology Department, ASU, 2001 – 2003

Other Academic (non tenure-track) Appointments:
Senior Advisor, ISIS Center, Georgetown University, Washington, D.C., 1997 – 2010.
- Multidisciplinary applied research in software engineering with biomedical engineering
- Participant in the open source Image-Guided Surgery Toolkit (www.IGSTK.org)

Research Intern (mentor: Dr. Karl Kempf), The Intel Corporation, Chandler AZ, 1992.
- Applied research in job-shop scheduling techniques to optimize semiconductor facility.

Student Assistantships, SUNY Albany, Arizona State University, 1988-99
- RA for Navy's PCIS2 project with French MOD, authored process specification
- RA in active logics, limited reasoning agents, cognitive search algorithms
- TA for Programming, Programming Languages, AI, Discrete Math, System Administration, and Data Structures courses.
- Instructor for Programming in LISP.

Industry Positions (permanent, non-contract positions):

Senior Software Architect, UNICON, Inc. Chandler, AZ, 2000 - 2004.

- Responsible to C-level for delivery of an enterprise platform product for higher education.
- Lead Architect for the Delivery and Assessment engines of the Virtuoso platform to the Cisco Learning Institute, the largest e-learning technology platform in the world.

Software Engineer, Global Associates Ltd. Arlington, VA, 1993 - 1995

- Software Engineer on C4I systems.

Software Engineer, Image Systems Technology. Troy, NY, 1991.

- Software Engineer for raster processing and vector conversion software.

Consulting:

Software Architect, Children's National Medical Center, Washington D.C. 2011-present

- Ongoing collaborative research the BioEngineering Initiative within the Sheik Zayed Center for Pediatric Surgical Innovation.
- System domains including image-guided and micro-robotic surgery
  - Created a new design pattern for IGSTK (open source) safety
  - Designed and co-implemented a wireless (ZigBee) system for robotic Natural Orifice Transluminal Endoscopic Surgery (R-NOTES).
- Mobile applications for prediatric patients including a tablet-based home asthma monitor and a pain reporting application for teenagers with sickle cell disease.

Multiple training engagements for RocketGang, UNICON, and SEEX Phoenix AZ, 2004-2011

- Training delivery in software engineering topics, including Java, Eclipse, SOA, UML, portals, Agile methods, Requirements Engineering, Software Quality, Software Architecture, etc. to customers including UC-Irvine, Raytheon, Boeing, Honeywell, and General Dynamics.

UNICON, Inc. Chandler, AZ, August 2004-present

- Multiple successful engagements with clients including large publishing houses. Provided scalability troubleshooting, architecture and design evaluations, and requirements analysis.
- CTO-level advisor and senior technical architect practitioner focused on client solutions.

Awards and Honors:

- Nomination (by department chair), ASU CTI Excellence in teaching/instruction, 2014
- Nomination (by department chair), ASU Curriculum Innovations Award program, 2013
- ASU President's Award for Innovation, iProjects program, Spring 2012
- Featured Faculty Nominee (Student nominations for faculty, April 2006)
- Upsilon Pi Epsilon National Computer Science Honor Society.
- ARCs Foundation Scholar, 1997 - 1998.
- Graduated *summa cum laude*, State University of New York at Albany, 1989.
- Employee of the Month, Unicon, Inc. August 2003.
- Employee of the Month, Global Associates Ltd., February and April 1995.

Current Scholarly Activity

Pending Submissions and Papers in Preparation:

1. Gary, K., Molina, I., and Kagan, A. "The Impact of Navigational Design on Community Bank Website Performance".
2. Gary, K. "The Software Enterprise: A Ten-Year Retrospective".
3. Gary, K. "Concept Map Evaluation of Software Engineering Project Students".
4. Gupta, V. and Gary, K. "A Development Tool to Reduce Defect Injections Rates for Client-centric Web and Mobile Applications".

Current Funded Projects:

1. Gary K. "Improving Asthma Control through mHealth-Based Home Monitoring" NIH (R41) SBIR Phase I with Seattle Children's Hospital and Mad*Pow. $225K. Team award for $225K, ASU share $45K, starting mid-September 2014.

2. Gary K. “mHealth system for PROIS measures Pain Reporting ”, award from the Joseph E. Roberts Foundation. Collaboration with Children’s National Health System (CNHS). $30K total, ASU share $16K. Starting mid-September 2014.
3. Gary K. “Open Source Evaluation for the OS-URAVS Program”, Open Source Unmanned Remote Autonomous Vehicle Systems Program, $25K. Starting mid-September 2014.

Scholarly Evidence

Scholarly contributions organized according to the dimensions of Boyer’s model: Teaching, Discovery, Application, and Integration. https://depts.washington.edu/gs630/Spring/Boyer.pdf

Scholarship in Teaching:

Papers in Refereed Archival Journals or Book Chapters:

1. Gary, K. “The Software Enterprise: Practicing Best Practices in Software Engineering Education”, The International Journal of Engineering Education Special Issue on Trends in Software Engineering Education, Volume 24, Number 4, July 2008, pp. 705-716.
2. Gary, K., “The Software Enterprise: Preparing Industry-ready Software Engineers” *Software Engineering: Effective Teaching and Learning Approaches*, Ellis, H., Demurjian, S., and Naveda, J.F., (eds.), Idea Group Publishing. October 2008.
3. Tvedt, J., Tesoriero, R., and Gary, K., "The Software Factory: An Undergraduate Computer Science Curriculum" Journal of Computer Science Education, 12(2), 91 - 117, 2002.

Papers in Refereed Conferences, Symposia, and Workshops:

4. Gary, K. “Running an Agile Class”, Proceedings of the 2014 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, July 2014.
5. Csavina, K., Gary, K. and McKenna, A. “Scalability in an Industry Project Process”, Proceedings of the National Capstone Design Conference, Columbus OH, June 2014.
6. Mandal, S. and Gary, K. “Distributed Version Control for Curricular Content Management”, Frontiers in Education 2013 (FIE’13), Oklahoma City, October 2013.
7. Gary, K., Lindquist, T., Bansal, S., and Ghazarian, A. “A Project Spine for Software Engineering Curricular Design”, Proceedings of the 26th Conference on Software Engineering Education & Training (CSEET 2013), Co-located with ICSE 2013, San Francisco, CA, May 2013.
8. Lande, M., Ruddell, B., Morrell, D., Grondin, R., Lara, R.A., Whitehouse, R., and Gary, K. “Work in Progress: Constructing a Multidisciplinary Design Project for First-Year Engineering and Computing Students”, Proceedings of Frontiers in Education (FIE 2012), Seattle, 2012.
9. Gary, K., Verma, S., Nagappan, Y., and Branaghan, R. “Assessing Evolving Conceptual Knowledge in Software Engineering Students” Proceedings of the National Conference of the American Society for Engineering Education (ASEE 2012), San Antonio, TX, June 2012.
10. Rajendran, S., Gary, K., and Koehnemann, H. “A Tool for Teaching Risk”, Proceedings of the Information Technology: Next Generations (ITNG 2012), April 2012.
11. Doran, J., Gary, K., and Koehnemann, H. “Defect Estimation Using Capture-Recapture in Jazz”, Proceedings of the 15th Conference on Software Engineering and Applications (SEA 2011). Dallas, TX, December 2011.
12. Gary, K. “The Benefits of Transparency in Managing Software Engineering Capstone Projects”, proceedings of the National Conference of the American Society for Engineering Education (ASEE 2010), Louisville, KY, June 2010
13. Gary, K. “Contextual Requirements Experiences within the Software Enterprise”, The 4th International Workshop on Requirements Engineering Education and Training (REET ’09), Atlanta, GA, August 2009.
14. Gary, K., Razdan, A., Koehnemann, H., Sannier, A., and Kagan, A. “Work-in-Progress: Embedding Entrepreneurship in the Computing Curricula”, Frontiers in Education (FIE 2008), Saratoga Springs, NY, October 2008.

15. Gary, K., Koehnemann, H., and Gannod, B. “The Software Enterprise: Facilitating the Industry Preparedness of Software Engineers” National Conference of the American Society for Engineering Education (ASEE 2006), Chicago, IL, June 2006.
16. Gary, K., Gannod, G., Koehnemann, H., Lindquist, T., and Whitehouse, R. “Work-In-Progress: The Software Enterprise” Frontiers in Education (FIE 2005), Indianapolis, IN, October 2005.
17. Gary, K., Gannod, G., Koehnemann, H., and Blake, M.B. “Educating Future Software Professionals on Outsourced Software Development” National Conference of the American Society for Engineering Education (ASEE 2005), Portland, OR, June 2005.
18. Tvedt, J., Tesoriero, R., and Gary, K., "The Software Factory: Combining software engineering and computer science undergraduate education" Proceedings of the 23rd International Conference on Software Engineering (ICSE 2001), May 2001. *(acceptance rate 18%)*
19. Lindquist, T., Gary, K., Koehnemann, H., and Naccache, H. "Component Framework for Web-based Learning Environments" Proceedings of the Frontiers in Education Conf. (FIE'99). San Juan, Puerto Rico, November 1999.

Refereed Abstracts, Invited Talks, Posters, Tutorials, and other Presentations:
20. Gary, K., Bansal, S., and Ghazarian, A. (poster) “A project spine framework for software engineering education” ACM SIGCSE, Denver CO, March 2013.
21. Gary, K., Bansal, S., and Ghazarian, A. (tutorial) “Software Enterprise Pedagogy for Project Courses”, Presented at the 26th Conference for Software Engineering Education & Training 2013, and the 16th Conference on Software Engineering and Applications 2012.
22. Gannod, B., Koehnemann, H, and Gary, K. (poster) “Experiences Using Real Customer Projects for Academic Team Projects” National Conference for the American Society of Engineering Education (ASEE ’03) Nashville, TN, June 2003.

Past Sponsored Research (funded only, total awarded in this category $237,116):
- “The Software Enterprise: A Reinforcing Pedagogical Model for Software Engineering”, National Science Foundation Course Curriculum and Laboratory Improvement program (Phase I). Sole PI, $148,344. *2009-2012 (20% acceptance rate).*
- “Jazz Innovation Awards”, IBM. Co-PI (H. Koehnemann), $25,000, 2009.
- “Agile Methods for Entrepreneurship: The AME Project”, ASU Pathways to Entrepreneurship Grant (PEG), supported by the Kaufmann Foundation, $39,731. Primary PI. Period of Performance July 1, 2008 to June 30, 2009. *3 of 11 proposals received awards.*
- “The Software Enterprise: Preparing Industry-ready Software Engineers”. Arizona Board of Regents Learner-Centered Education Program. $24,041. Awarded April 2005, concluded January 15, 2007. *(Proposal acceptance rate: 14 out of 58)*.

Scholarship of Discovery:
Papers in Refereed Archival Journals or Book Chapters:
23. Gary, K. and Koehnemann, H. “Component-based Deployment for Web Applications: Methods and Issues” *Software Engineering for Modern Web Applications*, Brandon, D. (ed.), Idea Group Publishing. 2008.
24. Kempf, K.G., Uzsoy, R., Smith, S.F., Gary, K. “Evaluation and Comparison of Production Schedules”, Computers in Industry 42, 203-220 (2000).

Papers in Refereed Conferences, Symposia, and Workshops:
25. Gary K., Yaniv, Z., Guler, O. Cleary, K., and Enquoharie, A. “Source Code Control Workflows for Open Source Software”, Proceedings of the 13th International Conference on Software Engineering Research and Practice, Las Vegas NV, July 2014.
26. Gary, K., Kocjev, R., and Cleary, K. “Observations on the Evolving Maturity of Software and Systems Architecture Supporting Surgical Procedures”, Workshop on System of Systems of Medical Devices (SoSMD 2011). Kansas, November 2011.
27. Muffih, B. and Gary, K. “Global State Validation in a Component-base Architecture”, Proceedings of the 9th Conference on Software Engineering Research and Practice (SERP’10). Las Vegas, NV, July 2010.

28. Naccache H., Gannod G., and Gary, K. "A Self-Healing Web Server Using Differentiated Services", Proceedings of the 4th International Conference on Service Oriented Computing (ICSOC 2006), Chicago, IL, Dec. 2006. (*acceptance rate 17%*)
29. Gary, K., Kokoori, S., David, B., Otoom, M., and Cleary, K. "Architecture Validation in Open Source Software" Proceedings of ROSATEA 2007: The Role of Software Architecture for Testing and Analysis, Boston MA, July 2007.
30. Blake, M.B., Cleary, K., Ranjan, S., Ibanez, L., and Gary, K. "Use Case Driven Component Specification: A Medical Applications Perspective to Product Line Development" ACM Symposium for Applied Computing (SAC2005), Santa Fe, NM, March 2005. (*acceptance 36%*)
31. Gary, K. and Lindquist, T. "Distributed Architectures for Process Component Support". Proceedings of the 5th Intl. Conf. on Information Systems Analysis and Synthesis (ISAS'99), invited session on Process Support for Distributed Team-based Software Development (PDTSD'99). Orlando, FL, August 1999.
32. Gary, K. and Lindquist, T. "Cooperating Process Components" Proceedings of the 23rd Intl. Conf. on Computer Software and Applications (COMPSAC'99). Phoenix, AZ, October 1999.
33. Gary, K., Lindquist, T., Koehnemann, H., and Derniame, J.C. "Component-based Software Process Support" Proceedings of the 13th International Conference on Automated Software Engineering, (ASE'98), November 1998. *(acceptance rate 16%)*
34. Gary, K. and Elgot-Drapkin, J. "A Flexible Marker-Passer for Semantically Weak Search" Proc. of the 1994 ACM Symposium on Applied Computing, pp. 313-317, March 1994.

Scholarship of Application:

Papers in Refereed Archival Journals or Book Chapters:

35. Koutenaei, B Azizi and Kojcev, R and Wilson, E and Gary, KA and Navab, N and Cleary, K. "Do we really need Robots for NOTES", *International Journal of Computer-Assisted Radiology and Surgery (CARS)*, vol. 8, no. 1, pp. 201-205, Springer 2013.
    - *Journal supplement for* "Integrated and teleoperated system for wireless Robotic Natural Orifice Transluminal Endoscopic Surgery (R-NOTES)" Proceedings of the Computer Assisted Radiology and Surgery (CARS 2013), Heidleburg, Germany, June 2013.
36. Gary, K., Kokoori, S., Muffih, B., Enquobahrie, A., Cheng, P., Yaniv, Z., and Cleary, K. "Agile Methods for Safety-Critical Open Source Software", *Software: Practice and Experience*, April 2011.
37. Gary, K. and Koehnemann, H. "Component-based Deployment for Web Applications: Experiences with Duct Tape and Glue" in *Software Engineering for Modern Web Applications: Methodologies and Technologies* (Brandon, D. *ed*). Idea Group Publishing 2008.
38. Enquobahrie, A., Cheng, P., Gary, K., Ibanez L., Gobbi D., Lindseth, F., Yaniv, Z., Aylward, S., Jomier, J., and Cleary, K. "The Image-Guided Surgery Toolkit IGSTK: An Open Source C++ Software Toolkit" Journal of Digital Imaging, August 2007. *Selected as the Best Paper – Second Place for the Journal of Digital Imaging, Volume 20 (2007).*
39. Gary, K., Blake, B., Ibanez, L., Gobbi, D., Aylward, S., and Cleary, K. "IGSTK: An Open Source Software Platform for Image-Guided Surgery" *IEEE Computer* Special Issue on software engineering and application of software-based medical devices and device systems, April 2006.
40. Gary, K., Kempf, K., Smith, S., Uzsoy, R., "Measuring the Quality of Manufacturing Schedules", in *Intelligent Scheduling Systems*, Scherer, W., Brown, D. (eds.), Kluwer Academic Publishing, 129-154 (1995). *Updated version of manuscript originally as* Gary, K., Kempf, K., Smith, S., Uzsoy, R., "Assessing the Quality of Production Schedules" Proceedings of the Intelligent Scheduling Systems Symposium, San Francisco, CA, November 1992.

Papers in Refereed Conferences, Symposia, and Workshops:

41. Gary, K., Kojcev, R., and Cleary, K. "A Systems Integration Architecture for NOTE Surgery", Proceedings of the 16th Conference on Software Engineering and Applications (SEA 2012). Las Vegas, NV, November 2012.

42. Jeyachandran, M. and Gary, K. “WERCCS: A Client-side Workflow Enactment Service Using AJAX”, *(paper plus poster)* 6th Intl Conf. on Information Technology: New Generations (ITNG 2009), Las Vegas, NV, April 2009.
43. Uppalapati, S., Femiani, J.C., Razdan, A., Gary, K. “3D VQI: 3D Visual Query Interface”, 6th Intl Conf. on Information Technology: New Generations (ITNG 2009), Las Vegas, NV, April 2009.
44. Ibanez, L., Enquobahrie, A., Turek, M., Jomier, J., Avila, R., Cheng, P., Yaniv, Z., Lindseth, F. Gary, K., and Cleary, K. “IGSTK: Building High Quality Roads with Open Source Software”, Workshop on Systems and Architectures for Computer Assisted Interventions (SACAI’08) at the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI’08), New York, NY, September 2008.
45. Gary, K., Andinet Enquobahrie, Ibanez, L., Cleary, K., Cheng, P., and Yaniv, Z. “The Development of the Image-Guided Surgical Toolkit (IGSTK): An Open Source Package for Medical Interventions”, Workshop on Software and Systems for Medical Devices and Services (SDMS’07) at the Real-time Systems Symposium (RTSS’07), Tucson, AZ, December 2007.
46. Gary, K., Szabo, B., Vijayan, L., Chapman, B., Radhakrishnan, J., and Sivaraman, A. “JMaPSS: Spreading Activation for the Semantic Web”, Proceedings of the International Conference on Reuse and Integration (IRI 2007), Las Vegas, August 2007.
47. Cheng, P., Ibanez, L., Gobbi, D., Gary, K., Aylward, S., Jomier, J., Enquobahrie, A., Zhang, H., Kim, H.S., Blake, M.B., and Cleary, K. "The image-guided surgery toolkit IGSTK: an open source C++ software toolkit" Proceedings of SPIE Medical Imaging, February 2007.
48. Gary, K., Kokoori, S., David, B., Otoom, M., Blake, M.B., and Cleary, K. “An Architecture Validation Toolset for Ensuring Patient Safety in an Open Source Software Toolkit for Image-guided Surgery Applications” The Workshop on Open Source Software at the 9th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI’06), Copenhagen, Denmark, October 2006.
49. Cheng, P., Zhang, H., Kim, H., Gary, K., Blake, M.B., Gobbi, D., Aylward, S., Jomier, J., Enquobahrie, A., Avila, R., Ibanez, L., and Cleary, K. “IGSTK: Framework and Example Applications Using and Open Source Toolkit for Image Guided Surgery Applications” Proceedings of SPIE Medical Imaging 2006, San Diego, CA, February 2006.
50. Ibanez, L., Jomier, J., Gobbi, D., Avila, R., Blake, M. B., Kim, H., Gary, K., Aylward, S., and Cleary, K. “IGSTK: A State Machine Architecture for an Open Source Software Toolkit for Image-Guided Surgery Applications” The Workshop on Open Source Software at the 8th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI’05). Palm Springs, CA, October 2005.
51. Blake, M.B., Cleary, K., Kim, H.S., Ranjan, S.R., Gary, K., Jomier, J, Aylward, S., and Ibanez, L., "Component-Based Design and Development for Robust Medical Applications” High Confidence Medical Device Software and Systems Workshop, Philadelphia, PA, June 2005.
52. Cleary, K., Stoianovic, D., Glossop, N., Gary, K., Onda, S., Cody, R., Lindisch, D., Stanimir, A., Mazilu, D., Patriciu, A., Watson, V., and Levy, E., “CT-Directed Robotic Biopsy Testbed: Motivation and Concept” in S.K. Mun (ed.) Medical Imaging 2001, Proceedings of SPIE vol. 4319, pages 231-236, 2001.
53. Lindquist, T. and Gary, K. “Experience with Distributed Process Components Using Jini and JavaSpaces” Proceedings of the 6th Intl. Conf. on Information Systems Analysis and Synthesis (ISAS'2000), invited session on Process Support for Distributed Team-based Software Development (PDTSD'00). Orlando, FL, August 2000.
54. Jiang, L., Gary, K., Cleary, K., and Choi, J. “Component-based Technology Integration for Minimally Invasive Spine Procedures” Proceedings of Mathematics and Engineering Techniques in Medicine and Biological Sciences (METMBS) 2000. Las Vegas, NV, June 2000.
55. Jiang, L., Gary, K.,Yi, J., Kim, K.H., Kwon, S., Ra, J.B., Cleary, K., Zeng, J, Mun, S.K. “Spine Biopsy Simulator Incorporating Force Feedback” Proc. of Mathematics and Engineering Techniques in Medicine and Biological Sciences (METMBS) 2000. Las Vegas, NV, June 2000.
56. Choi, J., Cleary, K., Zeng, J., Gary, K., Freedman, M., Levy, E., Watson, V., Traynor, L., and Wang, Z. “I-SPINE: a Software Package for Advances in Image-guided and Minimally Invasive Spine Procedures” Proceedings of SPIE, from the 28th AIPR Workshop, Washington, DC, October 1999.

57. Gary, K., Lindquist, T., Koehnemann, H., and Sauer, L. "Automated Support for Organizational and Personal Processes" Proceedings of the International Conference on Supporting Group Work (Group'97), Phoenix, AZ, November 1997.

Refereed Abstracts, Invited Talks, Posters, Tutorials, and other Presentations

58. Bamshad A.K., Kojcev R., Wilson E., Gary K., Navab N., Cleary K. "Integrated and teleoperated system for wireless Robotic Natural Orifice Transluminal Endoscopic Surgery (R-NOTES)" The 2013 National Image-Guided Therapy Workshop, Washington D.C., June 2013.

Past Sponsored Research (funded only, total in this category $288,355):

- "mHealth Tablet Applicaton Development", contract to Children's National Medical Center to support phone/tablet application to collect pain burden and pain score data for patients with sickle cell anemia, $6000, November 15, 2013 – June 1, 2014.
- "Aspira Home Asthma Monitoring", iProject, $9600, Spring 2013. Project with Children's National Medical Center to produce a system integrating air quality monitors, spirometers, and tablet-based games to enhance data collection in children with asthma.
- (internal, competitive) "Health Engineering Applications Laboratory (HEAL)" ASU CTI SSE internal seed program funds. $10,000, Spring 2013. Project is to start an engineering lab focused on health applications in robotics, human factors, and software engineering.
- (competitive) "Continued Development for the Image-guided Surgical Toolkit (IGSTK)" NIH program PAR05-057 "Continued Development and Maintenance of Software". PI: Kevin Cleary, Ph.D. ISIS Center, Georgetown University Medical Center. *ASU tasked under "State Machine Validation" (subcontract PI K. Gary) $146,852 for 3 years. Review panel score 129 (top 2.5% of reviewed proposals) (NIH's old scoring, range 100-500, lower scores better).*
- (competitive) Crossover Resolution over Complex Images and Development of Corpus", National Geospatial-Intelligence Agency ATP program. Principal Investigator: Anshuman Razdan, Director, I3DEA Lab. *Total Amount $150,000, 20% Co-PI ($30,000).*
- (non-competitive) "Workflow Automation through Open Source Enterprise portals", Unicon Inc. $13,467. August-December 2007.
- (competitive) "Image-Guided Surgery Toolkit". Georgetown University Medical Center (subcontract from NIH STTR), $72,436. Awarded January 2005, concluded December 2006.

Scholarship of Integration in a Research Context:

Papers in Refereed Archival Journals or Book Chapters:

59. Acharya, R., Kagan, A., Lingam, S.R., and Gary, K "Impact of Website Usability on Performance: A Heuristic Evaluation of Community Bank Homepage", Journal of Computer Information Systems, December 2008.

Papers in Refereed Conferences, Symposia, and Workshops:

60. Gary, K., Koehnemann, H., Blakley, J., Goar, C., Mann, H., and Kagan, A. "A Case Study: Open Source Community and the Commercial Enterprise", The IEEE 6th International Conference on Information Technology: New Generations (ITNG 2009), Las Vegas, NV, April 2009.

Refereed Abstracts, Invited Talks, Posters, Tutorials, and other Presentations:

61. Acharya, R., Kagan, A., Gary, K., and Subramanian, P. (abstract and presentation) "Webpage Design Metrics and Competition in Retail Banking" Annual Meeting of the Decision Sciences Institute, (DSI 2009), New Orleans, LA, November 2009.
62. Acharya, R., Kagan, A., Gary, K., and Subramanian, P. (abstract and presentation) "Web Usability and Consumer Selection of Community Banks", Annual Meeting of the Decision Sciences Institute (DSI 2008), Baltimore, MD, November 2008.

Other Scholarly Contributions:

Non-refereed Publications:

1. Gary, K. "State Machine Validation", chapter in *The Image-guided Surgery Toolkit (IGSTK) 2nd ed.* Cleary, K. (ed.), published by the ISIS Center, Georgetown University, June 2009.
2. Gary, K. and Dandhibotla, J. "Scene Graph Visualization", section in book chapter "IGSTK Coordinate Systems" in *The Image-guided Surgery Toolkit (IGSTK)*. Cleary, K. (ed.), published by the ISIS Center, Georgetown University, June 2009 (2nd ed.).
3. Gary, K. "Software Development Process", book chapter in *The Image-guided Surgery Toolkit (IGSTK)*. Cleary, K. (ed.), published by the ISIS Center, Georgetown University, February 2007 (1st ed) and June 2009 (2nd ed., updated chapter).
4. Blake, M.B. and Gary, K. "Requirements", book chapter in *The Image-guided Surgery Toolkit (IGSTK)*. Cleary, K. (ed.), published by the ISIS Center, Georgetown University, February 2007 (1st ed) and June 2009 (2nd ed., updated chapter).
5. Gary, K., Blake, B., Aylward, S., Jomier, J., Gobbi, D., Kim, H., Avila, Rick., Ibanez, L., and Cleary, K. "IGSTK: Development Process and Project Management Best Practices for an Open Source Software Toolkit for Image-Guided Surgery Applications" The Insight Journal (non-refereed), available online at http://www.insight-journal.org. October 2005.
6. "Cleary, K., Lathan, C., Platenberg, R.C. Gary, K., Traynor, L., and Wade, F; "Developing a PC-based spine biopsy simulator", Second Phantom Users Group Meeting, Dedham, MA, pp. 19-22, October 1997.

Abstracts, Invited Talks, Posters, Tutorials, and other Presentations (non-refereed):

1. "Software Engineering for Medical Technologies: Emerging Trends", Innovation Rounds, Children's National Medical Center, July 2013.
2. "The Software Enterprise: A reinforcing Pedagogical Model for Software Engineering Education", National Science Foundation Annual Conference for the Transforming Undergraduate Education in STEM (TUES/CCLI). Washington D.C. January 2011.Applying Jazz Processes for Implementing the Software Enterprise" (with Harry Koehnemann) the 2009 International Conference on Software Engineering (ICSE ' 09) reception for IBM Jazz Innovation Awards, Vancouver, Canada, May 2009.
4. "Models for Open Source Applications in Healthcare" presentation at Open Source Solutions for Multi-Center Information Management (MCIM 2007), St. Louis, MO, April 2007.
5. "Open Source Software Development Processes" tutorial at Open Source Solutions for Multi-Center Information Management (MCIM 2007), St. Louis, MO, April 2007.
6. "Open Source Platforms" Infusion Software Tech Days, Gilbert, AZ, March 2007.
7. "The Other Kids on the Block: Commercial Providers Grow Up in the eLearning Space" *Interview in Syllabus magazine,* July 1, 2004.
8. Cleary, K., Mun, S.K., Freedman, M., Zeng, J., Choi, J., Lindisch, D., Hum, B., Watson, V., and Gary, K. "Image-Guided, Minimally Invasive Spine Procedures: Intraoperative Imaging, 3D Visualization, and Robotics" American Telemedicine Association Conf (Abstract), April 2000.
9. Cleary, K., Watson, V., Choi, J., Freedman, M., Zeng, J., Lindisch, D., Gary, K., Traynor, L., Mun, S.K., and Devey, G. "Minimally Invasive Spine Procedures: Mobile CT and 3D Visualization for Percutaneous Vertebroplasty". Presentation at the SMIT meeting, Boston, MA, September 1999.
10. Zeng, J., Traynor, L., Gary, K., Cleary, K., Levy, E., Kim, K.J., Yi, J.Y., Kim, K.H., Ra, J.B., and Mun, S.K.. "A Three-dimensional Training System for Spine Needle Biopsy" (Abstract Presentation) 85th Scientific Assembly and Annual Meeting of the Radiology Society of North America. Chicago, IL, November 1999.
11. Gary, K. (on behalf of the PCIS2 team) "Software Engineering Environments for Naval Fires Control System" ONR Program Review, 1999.
12. Lindquist, T. (ed.) "PCIS2 Architecture Specification 1.0" US-France Technology Research and Development Project on Software Tools (*co-author of process services specification*), SPAWAR Systems Center, San Diego, CA, January 1998.
13. Gary, K. "Open Process Components" Presentation to internal team at NIST, August 1998.

Technical Reports:

1. Gary, K. and Koehnemann, H. "The Software Enterprise: A multi-year, multi-semester, and multi-project approach to software project coursework" TR-dcst-2005-103, Division of Computing Studies, Arizona State University. September 2005.Gary, K., Vijayan, L., Szabo, B., and Chapman, B. "JMaPSS: Relevance-based Search for the Semantic Web" TR-dcst-2007-108, Division of Computing Studies, Arizona State University. January 2007.
3. Jeyachandran, M. and Gary, K. "WERCCS: A Client-side Component Workflow Framework Using AJAX" TR-dcst-2007-107, Division of Computing Studies, Arizona State University. January 2007.
4. Gary, K. and Koehnemann, H. "Component-based Deployment vs. Development: Experiences with Duct Tape and Glue" TR-dcst-2005-102, Division of Computing Studies, Arizona State University. September 2005.
5. Gary, K. "Open Process Components Specification History" TR-97-033, Computer Science and Engineering Department, Arizona State University. November 1997.
6. Koehnemann, H., Gary, K., and Lindquist, T. "Software Components with CORBA, Java, and the Internet" TR-97-032, Computer Science, Arizona State University. 1997.
7. Lindquist, T., Gary, K., and Koehnemann, H. "Representation of Component-based Workflow" TR-97-028, Computer Science and Engineering, Arizona State University. 1997.
8. Lindquist, T., Gary, K., and Koehnemann, H. "PCTE and its Implementations: Portos and Transtar" TR-97-027, Computer Science and Engineering, Arizona State University. 1997.
9. Gary, K., Koehnemann, H., and Lindquist, T. "Review of WfMC WAPI Specifications" TR-97-026, Computer Science and Engineering Department, Arizona State University. May 1997.
10. Sauer, L., Lindquist, T., Koehnemann, H., and Gary, K. "Towards Interoperable and Reusable Calendaring Components" TR-97-024, Computer Science and Engineering, Arizona State University. May 1997.
11. Gary, K., Lindquist, T., and Koehnemann, H. "Component-based Process Modeling" TR-97-022, Computer Science and Engineering, Arizona State University. May 1997.
12. Gary, K., Lindquist, T, and Koehnemann, H "Applying Open Process Components to the Software Process" TR-97-021, Computer Science & Engineering, Arizona State University. May 1997.
13. Gary, K. and Elgot-Drapkin, J. "A General Technique for Marker-Passing Using Feedback Control" TR-97-020, Computer Science and Engineering, Arizona State University. 1997.
14. Elgot-Drapkin, J., and Gary, K. RABIT: "Bridging Formal and Implementational Approaches to Commonsense Reasoning" TR-96-010, Computer Science and Engineering, Arizona State University. November 1996.
15. Gary, K., and Elgot-Drapkin, J. "Adaptive Control in Marker-Passing" TR-95-024, Computer Science and Engineering, Arizona State University. December 1995.
16. Gary, K., and Elgot-Drapkin, J. "RABIT: A Spreading Activation Approach to Commonsense Reasoning" TR-92-028, Computer Science and Engineering, Arizona State University. 1992.
17. Gary, K., and Elgot-Drapkin, J. "Ongoing Work on a Memory Model for Real-time Commonsense Reasoning" TR-92-006, Computer Science and Engineering, Arizona State University. 1992.

Other Sponsored Research:

<u>At the Catholic University of America:</u>

- (non-competitive) "Software Engineering Services for the Naval Fires Control Systems Project". SPAWAR San Diego, $34,232. Awarded May 1999.
- (non-competitive) "Open Process Components". The Catholic University of America Grant-in-Aid Program, $3,000. Awarded December 1999.

Teaching and Mentoring Activities

Course Development:

[*] indicates graduate level or inclusion of a graduate section
[+] indicates new course development (no prior syllabus).
[#] indicates existing course in which entirely new content was developed.
Last instances taught and total times taught through Fall 2013 in parentheses:

At Arizona State University:

SER421[#]: Web Applications and Mobile Systems (first offering Fall 2014)
SER422[+]: Web Application Programming (first offered Spring 2014)
CST315[#]: Software Enterprise I: Tools and Process. (Fall 2014, 3)
CST316[+]: Software Enterprise II: Construction and Transition. (Spring 2014, 9)
CST415[*+]: Software Enterprise III: Inception and Elaboration. (Fall 2011, 7)
CST416[*+]: Software Enterprise IV: Process and Project Management. (Spring 2011, 6)
CST425[*#]: Server Software Programming. (Spring 2013, 3)
CST427[*#]: Distributed Object Systems. (Spring 2010, 1)
CST433[*#]: Database Technology. (Fall 2006, 7)
CST481[#]: Information Systems Security (Fall 13, 1)
CST533[*+]: Database-centric Enterprise Application Development. (Spring 2009, 3)
CET200[#]: Object-oriented Software Development II. (Spring 2005, 1)
CET400[#]: Software Engineering Technology. (Spring 2001, 1)

At the Catholic University of America

CSC113[#]: Introduction to Programming I (in C++). (2)
CSC124[+]: Computer Science II (in Java). (1)
CSC641[*+]: Database Management Systems. (1)
CSC636[*+]: Distributed Computing. (1)

Evaluations available on request

Student Advising:

Master's Degree Advising at Arizona State
Thesis students*:*

1. Gupta, V. "Analyzing Design Dependencies in the HTML5, Javascript, and CSS3 Technology Stack", May 2014.
2. Kokoori, S. "Architecture Validation Tools for Technology-assisted Surgical Applications", May 2008.
3. Muffih, B. "Validation of Global State in a Component-based Surgical Toolkit", August 2008.
4. Sivaraman, A. "A Weighted Spreading Activation-based Search for the Semantic Web", January 2009.

Graduate Applied Project Students (culminating experience for M.S. students)
Graduated Students:

1. (*expected December 2014*) Nguyen, T. "NoSQL Approaches for Air Quality Data".
2. (*current, expected May 2015*) Rao, S. "mHealth applications for Asthma Monitoring".
3. (current, expected May 2015) Angappan, A. "Systems Design for a Hyperlocal Air Quality Notification System".
4. Menthe, E. (December 2013) "E-portfolio Course Outcomes Implementation"
5. Mandal, S. (Fall 2011) "Distributed Version Control for Curriculum Creation and Evolution"
6. Verma, S. (Spring 2011) "Automated Analysis of Concept Maps"
7. Golapakrishnan, A. (Fall 2010) Area: e-portfolio applications
8. Rajendran, S. (Spring 2010) "Software Tools for Software Engineering Pedagogy"
9. Will, A. (Spring 2010) "GuitarFrets: Teaching Introductory Music on the Android Platform"
10. Das, S. (Spring 2010) "A Web Interface for Aggregating Multiple Assessment Results"

11. Nagappan, Y. (Spring 2010) “Industry-preparedness of Software Enterprise Alumni”
12. Doran, J. (Spring 2010) “Implementing Capture-Recapture in IBM Jazz”
13. Subramanian, P. (Spring 2009) “Web Usability Evaluation for Community Banking”
14. Verma, M. (Fall 2009) “Eye Tracking Flight Training Model”
15. Jeyachandran, J. (Fall 2008) “An Assessment Tool for MMET"
16. Dandibhotla, J. (Fall 2008) “Scene Graph Visualization for IGSTK”
17. Kottekatt, N. (Spring 2008) “Updating GATE for the Semantic Web”
18. Heidenreich, J. (2007) “An Architectural Investigation of the Open Source IGSTK Project”
19. Yazzie, R. (Summer 2007) “NHibernate Tutorial Using Object-Relational Concepts”
20. Baquar, S. (Spring 2007) “Quality Management Dashboard”
21. Janjua, T. (Spring 2007) “Arizona Yardsale Online”
22. Keswani, S. (Spring 2007) “Quality Management Dashboard”
23. Patil, S. (Spring 2007) “Quality Management Dashboard”
24. Radhakrishnan, J. (Spring 2007) “JMaPSS Visualization”
25. Sogani, A. (Spring 2007) “Quality Management Dashboard”
26. Bhootada, Y. (Fall 2006) “Quality Management Dashboard System”.
27. Konda, K. (Fall 2006) “Quality Management Dashboard”.
28. Lingham, R. (Fall 2006) “User Interface Impacts on Community Bank Website Usability”.
29. David, B. (Spring 2006) “Enterprise Integration using BPEL and Portals”.
30. Jeyachandran, M. (Spring 2006) “Inter-portlet Communication on the Client with AJAX”.
31. Vijayan, L. (Spring 2006) “Matching Ontology Descriptions for the Semantic Web”.
32. Krovi, K. (Spring 2006) “Web-based Personalized Search Using Web Services and Portlets”.
33. Addicam, V. (Fall 2005) “Inter-portlet Communication Using AOP and JNDI”.
34. Allen, C. (Fall 2005) “Data Warehousing and Analysis of NCAA Data”.
35. Joshi, K. (Fall 2005) “Development of a Database Layer for Process Definition Persistence”.
36. Vadlapatla, B. (Fall 2005) “Online Affinity Process Reporting”.
37. Akkunoor, P. (Fall 2004) “Enhancing Portfolio Management through CMS Integration”.
38. Li, X. (Spring 2004) “Web-based Online Student Loans Information System”.
39. Boddapati, S. (Spring 2004) “Investigating Integration Technologies for Portals”.
40. Noronha, S. (Spring 2004) “Development of a Web-based Production Management System”.
41. Alurkar, S. (Spring 2004) “Developing Asynchronous and Web Services Application Based on Existing Message-oriented Middleware Technology”.
42. Sandilya, N. (Spring 2004) “Programming Tool for Advanced Semiconductor Facility Design”.
43. Aluri, R. (Spring 2004) “Technical Report Management System”.
44. Albert, S. (Spring 2004) “PDA-driven Warehouse Inventory Management”.
45. Govindarajan, R. (Fall 2003) “Supplier Evaluation Using Data Envelopment Analysis”.

Independent Study Advising at Arizona State:

1. Angappan, A. “Data Management System Design for Air Quality Data” (current).
2. Miller, R. “A Continuous Integration Plug-in for a Scrumboard Platform” (current).
3. Soiya, P. “Automatic State Pattern Code Generation for Safety-by-Design” (current).
4. Tran, N. “Mobile Air Quality Monitoring on the Android Platform” (Spring 2014).
5. Menthe, E. “Drupal Module Development for Virtual Learning Worlds” (Fall 2012).
6. Gopalakrishnan, A. “ePortfolio and CMS integration with Mahara and Moodle” (Spring 2010).
7. Nagappan, Y. “Feasibility Study of the Software Enterprise Model in Jazz” (Fall 2009).
8. Will, A. “Tutorial Development in Groovy/Grails” (Summer 2009).
9. Ford, D. “Practicing Agile Best Practices” (Summer 2008).
10. Moayyednia, M. “An Assessment Tool for MMET” (Spring 2008).
11. Subramanian, P. “Investigation into Web Usability for Community Banking” (Fall 2007)
12. Sherman, J. “Practice Management Workflow” (Fall 2006).
13. Keswani, S. and Gollapudi, A. “XML Data Viewer” (Fall 2006).
14. Tekmundi, L. “Technical Report System” (Summer 2006).
15. McEntire, J., and Bradham, K. “Workflow and uPortal Integration” (Summer 2005).
16. Addicam, V. “Database Design & Implementation for CRM” (Spring 2005).
17. Szabo, B. and Chapman, B. “Java Marker-Passing Search System (JMAPSS)” (Summer 2004).

Additional Student Advising Activities:

- Faculty Mentor, eProject with General Motors, Academic Year 2014-15.
- Faculty Mentor, iProject with the Boeing Company, Academic Year 2013-14. *This team presented a poster at the National Capstone Conference, Columbus OH, June 2014.*
- Faculty Mentor, iProject Team Selection (iProject with 4 graduate students), Spring 2013.
- Faculty Mentor for many student internships with Phoenix-area and national companies.
- M.S. Thesis Committee Member, Prasanth Ravijan (2011).
- Ph.D. Committee Member, Henri Naccache, Computer Science and Engineering Department, Arizona State University (Tempe). Chair: Gerald Gannod.
- MS Thesis Committee Member, Peter Newbauer, Division of Computing Studies, Arizona State University Polytechnic. Chair: Bruce Millard.
- MS Thesis Committee Member, Raveendranath Chinthakuntla, Division of Computing Studies, Arizona State University Polytechnic. Chair: Harry Koehnemann.
- Advised two Masters students at the Catholic University of America.
- Reader on one Doctoral Dissertation at the Catholic University of America.

Service and Outreach Activities

Professional Service Activities:

- Reviewer, IEEE Transactions on Education, 2014-present.
- Reviewer, IEEE Software (intermittent, most recent 2014)
- SEHC 2012 (4th International Workshop on Software Engineering in Health Care), workshop at the International Conference of Software Engineering (ICSE 2012), Program Committee.
- FIE (Frontiers in Education) 2012 Workshop, Panels, and Special Session Chair.
- NSF Transforming Undergraduate Education in STEM (TUES) Type 2 & 3 proposal reviewer 2011.
- EntryPoint Expert Reviewer (Drexel University) February 2011.
- Reviewer (Journal), Scientific Research Essays, 2012.
- Reviewer (Journal), Entrepreneurship Theory and Practice 2010-present.
- Reviewer, International Journal of Engineering Education 2012-present.
- Reviewer (Journal), Software Practice and Experience 2010.
- Reviewer (Journal), IEEE Transactions on Services Computing 2008-2012.
- Reviewer (Journal), IEEE Internet Computing 2008-2010.
- Session Chair, Software Engineering Education: Community and Collaboration, Frontiers in Education (FIE'08), Saratoga NY.
- Program Committee, International Conference on Software Engineering and Applications (SEA 2007-present), Cambridge, MA.
- Reviewer, Software Engineering Constituent Committee, ASEE 2005, 2006, and 2010.
- Reviewer, Frontiers in Education Conference (Several years 2006 - present).
- Reviewer, 10th International Conference on Parallel and Distributed Systems (ICPADS 2004).
- Reviewer, IEEE Software Special Issue on Software Process Diversity (March 2000).
- Program Committee, Invited Session on Process Support for Distributed Team-based Software Development (PDTSD'99), at ISAS'99.

Service Activities, Arizona State University

- Member, Promotion and Tenure Review Committee, School of Computing, Informatics, and Decision Systems Engineering, The Ira A. Fulton Schools of Engineering (2014-16).
- Member, 2 Faculty Search Committees, Department of Engineering (2013-14).
- College of Technology & Innovation Collaboratory Council for Industry Outreach, 2012-14.
- Member, Promotion and Tenure Committee, Department of Engineering 2012-14.
- Lead, iProjects Faculty Working Group (ad hoc), Fall 2012.
- Associate Chair of Engineering, responsible for computing degree programs (2010-2011).
- Chair, Faculty Search Committee, Lecturer and Tenure-track Professor positions (2011).
- Member, Graduate Program Committee, Department of Engineering (2010-11).

- Member, ad hoc committee for first-year engineering fusion (2010-11).
- Chair, Undergraduate Committee, Department of Engineering (2010-11).
- Member, Faculty Search Committee, Department of Engineering (2010-11).
- Member, Faculty Search Committee, Department of Engineering (2009-10).
- Member, ad hoc committee to develop the B.S. in Software Engineering (2009-10).
- Member, ad hoc committee to develop Vision 2.0 for Engineering (2009-10).
- Member, ad hoc committee for the integration of computing programs within the Department of Engineering (Spring 2009-10).
- Member, Graduate Committee (2008-10).
- Member, Faculty Search Committee (2007 and 2008).
- Chair, Graduate Program Committee (2006-08).
- Member, ad hoc committee for the creation of joint undergraduate program concentrations with the Morrison School of Management and Agribusiness (2007-2008).
- Member, ad hoc committee for the creation of a joint bachelor degree program in Software Engineering with Computer Science and Engineering at ASU's Tempe Campus (2005-07).
- Graduate Student Advisor (2004-09, 2011).
- Member, Undergraduate Curriculum Committee (2004-06).
- Member, CTAS Graduate Program of Study Committee (2004-06).
- Participated in DCS self-study preparation for accreditation (2004-05).

Service Activities at the Catholic University of America, January 1999-May 2000:
- Chair, Ad Hoc Committee for the Graduate Program in Computer Science.
- Member, Ad Hoc Committee for the Undergraduate Program in Computer Science.
- Member, University Committee on Computing Needs.
- Member, Faculty Search Committee in Electrical Engineering (Fall 1999)
- Member, Faculty Search Committee in Computer Science (Spring 1999)

Special Outreach Activities:
- StartupWeekend@ASU (April 2009) – *Put on an entrepreneurship workshop with 65 participants including students, industry sponsors, and community mentors. Students worked in teams to launch a software business in one weekend.*
- Software Enterprise projects with industry sponsors – *40+ projects since 2006 in the Software Enterprise, 30+ with industry sponsors. The projects provide an avenue to interact with industry, develop relationships, and promote a strong message through our students.*
- DEAC – *the Distributed and Enterprise Applications Consortium conducted industry outreach in the area of distributed enterprise applications. DEAC enlisted over 2 dozen companies including Google, Sun Microsystems, and IBM before disbanding in 2008.*
- ART review member (http://atic.asu.edu) – *ATIC review team member, meeting with industry representatives and evaluating potential ASU opportunities through the center.*
- JACMET training in the software engineering certification program – *Developed and taught courses in Software Requirements, Architecture and Design, UML, and Agile Development Practices to large companies including Boeing, Raytheon, Honeywell, and General Dynamics*.
- Advisory Board Member, Mesa Community College Software and Quality Assurance Program

Professional Societies:
- Association for Computing Machinery (ACM)
- The Institute of Electronics and Electrical Engineers (IEEE), Computing Society
- American Society for Engineering Education (ASEE) Software Engineering Division