

H. James Nelson
Associate Professor
Southern Illinois University Carbondale

Mailing Address:

Southern Illinois University
College of Business
1025 Lincoln Drive
Carbondale, IL 62901

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Education

The University of Colorado,
Boulder, Colorado

Ph.D. (1999)
Information Systems
Minor in Research Methods

The University of Colorado,
Boulder, Colorado

Master of Science (1992)
Information Systems
Minor in Engineering Telecommunications

California Polytechnic State University,
San Luis Obispo, California

Bachelor of Science (1979)
Computer Science
Minor in Business and in Artificial Intelligence

Research Interests

Conceptual modeling, cognitive science, very large databases, artificial intelligence, expert systems, and text mining.

Teaching Interests

Analytics, Artificial Intelligence and Expert Systems, Database Systems, Project Management, and Systems Analysis and Design.

Award Winning Papers

Best in Track, AIS Americas Conference, 1999. "Enabling Quantum Shift Learning: A Preliminary Study in Transforming Object Oriented Learning."

Best Paper Award, PRIISM 1995. "Student Views of the Difficulties of Using Object-Oriented Techniques."

Publications

Refereed Articles

1. Shinde, U., Nelson, H. J., Shinde, J. (2018) To Be or Not to Be: A Multidimensional Spirituality in the Workplace. *Journal of Human Values*, 24 (3), 185-207.
2. Nelson, H. J., Poels, G., Genero, M., & Piattini, M. (2012). A Comprehensive Framework for Conceptual Modeling Quality. *Software Quality Journal*, 20 (1), 201-228.

3. Genero, M, Fernandez, A., **Nelson, H. J.**, Poels, G., & Piattini, M. (2011). A Systematic Literature Review on the Quality of UML Models. *Journal of Database Management* 22 (3), 46-70.
4. **Nelson, H. J.** (2011). Visible IT in Credit Unions: Strategic Advantage and Disadvantage in Two Web Eras. *Information Resources Management Journal*, 24 (1), 14-27.
5. Litecky, C., Aken, A., Ahmad, A., and **Nelson, H. J.** (2009) Mining for Computing Jobs. *IEEE Software* 27 (1), 78-85.
6. **Nelson, H. J.**, Armstrong, D. J., and Nelson, K. M. (2009). Patterns of Transition: The Shift from Traditional to Object-oriented Development. *Journal of Management Information Systems*. 25 (4) 271-298.
7. Armstrong, D. J., **Nelson, H. J.**, Nelson, K. M., and Naryanan, V. K. (2008). Building the IT Workforce of the Future: The Demand for More Complex, Abstract, and Strategic Knowledge. *Information Resources Management Journal* 21(2), 63-79.
8. **Nelson, H. J.** and Monarchi, D. E. (2007). Ensuring the Quality of Conceptual Representations. *Software Quality Journal* (15) 2.
9. **Nelson, H. J.** (2006). The Telecommunications Act of 1996: How It Failed and How It Succeeded (But Not as Expected). *Southern Illinois Law Journal*, (31) 1.
10. **Nelson, H. J.**, Poels, G., Genero, M., and Piattini, M. (2005). Quality in Conceptual Modeling: Five Examples of the State of the Art. *Data and Knowledge Engineering*, 55 (2).
11. Piattini, M., Genero M., Poels, G., and **Nelson, H. J.** (2004). Towards a Framework for Conceptual Modeling Quality. In Marcela Genero, Mario Piattini, Coral Calero (eds.), *Metrics for Software Conceptual Models*. Brussels, Imperial College Press.
12. **Nelson, H. J.**, Poels, G., Genero M., and Piattini, M. (2003) Preface to IWCMQ 2003. In Manfred A. Jeusfeld and Oscar Pastor (eds.), *Conceptual Modeling for Novel Application Domains*, Volume 2814 of *Lecture Notes in Computer Science*. Berlin, Springer.
13. **Nelson, H. J.**, Armstrong, D., and Ghods, M. (2002). Old Dogs and New Tricks, *Communications of the ACM*, 45 (10), 132-137.
14. **Nelson, H. J.**, Nelson, K. M., Lee, H., Ghods, M. (2000). Building on Structured Design Techniques in the Object Oriented Environment. In R. Gibson (ed.), *Object Oriented Technologies: Opportunities and Challenges*.
15. Sheetz, S. D., Irwin, G., Tegarden, D. P., **Nelson, H. J.**, and Monarchi, D. E. (1997). Exploring the Difficulties of Learning Object-Oriented Techniques, *Journal of Management Information Systems*, 14 (2).

16. **Nelson, H. J.**, Irwin, G., and Monarchi, D. E. (1997). Journeys up the Mountain: Different Paths to Learning Object-Oriented Programming, *Accounting, Management, and Information Technologies*, 7 (1). (Note: Journal renamed *Information and Organization* in 2001.)
17. Manns, M. L. and **Nelson, H. J.** (1996). Retraining Procedure-Oriented Developers: An Issue of Skill Transfer, *Journal of Object-Oriented Programming*, November-December. (Feature Invited Article)
18. Puhr, G. I., **Nelson, H. J.**, and Monarchi, D. E. (1995). Teaching Object-Oriented Systems Development: Challenges and Recommendations, *Object-Oriented Systems*, 2 (1).

Teaching Cases

1. Montealegre, R., Knoop, C., Applegate, L., and **Nelson, H. J.** (1996). BAE Automated Systems (A): Implementing the Denver International Airport Baggage-Handling System, *Harvard Business School Case Study* No. 9-396-311.
2. Montealegre, R., Knoop, C., Applegate, L., and **Nelson, H. J.** (1996). BAE Automated Systems (B): Implementing the Denver International Airport Baggage-Handling System, *Harvard Business School Case Study* No. 9-396-312.

Books Edited (Book Sections)

3. **Nelson, H. J.**, Poels, G., Genero, M., and Piattini, M. (eds.) (2003) Second International Workshop on Conceptual Modeling Quality, in Jeusfeld, Manfred A, Pastor, Oscar (eds.) *Conceptual Modeling for Novel Application Domains: Proceedings of the Workshops held at the 22nd International Conference on Conceptual Modeling*, Volume 2814 of *Lecture Notes in Computer Science*, Springer.
4. Poels, G., **Nelson, H. J.**, Genero, M., and Piattini, M. (eds.) (2003) First International Workshop on Conceptual Modeling Quality, in A. Olive, A., M. Yoshikawa, M., E. S. K. Yu, E.S.K. (eds.) (2003). *Advanced Conceptual Modeling Techniques. ER 2002 Workshops*, Volume 2784 of *Lecture Notes in Computer Science*, Springer.

Refereed Proceedings

1. Nelson, H. J., Clark, T., Stewart, I. (2018) Hunch Mining. *Hawaii International Conference on System Sciences*, Waikoloa, HI. (Nominated for best paper)
2. Igou, A., **Nelson, H. J.**, Nelson, K. M. (2016) Evolving Software Development Methodologies: The Search for Accounting Clarity. *American Accounting Association*, New Orleans, LA.
3. Nelson, K. M., **Nelson, H. J.**, & Wierwille, B. J.R. (2012). Agile Software Development Documentation and Maintainability. *Midwest Association for Information Systems*, Green Bay, WI.
4. Wierwille, B. J., Nelson, K. M., and **Nelson, H. J.** (2009). Revealing the Constructs and Determinants of IT Personnel Technical Competencies. *Journal of Information Technology Author's Workshop*. Phoenix, AZ.

5. **Nelson, H. J.**, Ahmad, A., Litecky, C. R., and Martin, N. L. (2007). A Comparative Study on IT/IS Job Skills Requirements. *ACM SIGMIS Computer Personnel Research Conference*. St. Louis, MO.
6. Nelson, K. M. and **Nelson, H. J.** (2003). The Need for a Strategic Ontology. *MISQ Special Issue Workshop: Standard Making, A Critical Frontier for Information Systems*. Seattle, WA.
7. **Nelson, H. J.** and Nelson, K. M. (2003). IT: What's It Good For? *Hawaii International Conference on System Sciences*, Waikoloa, HI.
8. Genero, M., **Nelson, H. J.**, Piattini, M., and Poels, G. (2002). Quality in Conceptual Modeling – New Research Directions. *International Workshop on Conceptual Modeling Quality (IWCMQ 2002)*. Tampere, Finland.
9. Armstrong, D., **Nelson, H. J.**, and Nelson, K. M. (2001). Charting the Rocky Shoals of an Object-Oriented Paradigm Shift. *Workshop on Information Technologies and Systems (WITS 2001)*. New Orleans, LA.
10. Legorreta, L., Nelson, K. M., and **Nelson, H. J.** (2001). A Framework for Measuring E-business Architecture Flexibility. *AIS Americas Conference*, Boston, MA.
11. **Nelson, H. J.**, Monarchi, D. E., Nelson, K. M. (2001). Ensuring the “Goodness” of a Conceptual Representation. *The 4th European Conference on Software Measurement and ICT Control (FESMA-DASMA 2001)*, Heidelberg, Germany.
12. **Nelson, H. J.**, Nelson, K. M. (2001). A Common Denominator for Balanced Scorecard Measurements. *The 4th European Conference on Software Measurement and ICT Control (FESMA-DASMA 2001)*, Heidelberg, Germany.
13. Nelson, K. M., Legorreta, L., and **Nelson, H. J.** (2001). Measuring E-Business Architecture Flexibility. *The 4th European Conference on Software Measurement and ICT Control (FESMA-DASMA 2001)*, Heidelberg, Germany.
14. Nelson, K. M., Buche, M., and **Nelson, H. J.** (2001). Structural Change and Change Advocacy: A Study in Becoming a Software Engineering Organization. *Hawaii International Conference on System Sciences*, Maui, HI.
15. Nelson, K. M., **Nelson, H. J.**, and Ghods, M. (2001). Understanding the Personal Competencies of IS Support Experts: Moving Toward the E-Business Future. *Hawaii International Conference on System Sciences*, Maui, HI. (Nominated for Best Paper Award, HICSS-34)
16. Armstrong, D. and **Nelson, H. J.** (2000). Knowledge Transfer Between Languages and Paradigms, *AIS Americas Conference*, Long Beach, CA.

17. **Nelson, H. J.** and Armstrong, D. (2000). Old Dogs and New Tricks: Retraining Legacy Programmers in Object Oriented Technology, *Proceedings of the Information Resources Management Association*, Anchorage, AK.
18. Nelson, K. M., **Nelson, H. J.**, and Armstrong, D. (2000). Revealed Causal Mapping as an Evocative Method for Information Systems Research. *Hawaii International Conference on System Sciences*, Maui, HI.
19. **Nelson, H. J.**, and Armstrong, D. (1999). Enabling Quantum Shift Learning: A Preliminary Study in Transforming Object Oriented Learning, *AIS Americas Conference*, Milwaukee, WI. (Best in Track, Nominated for Best Paper Award, AMCIS '99)
20. Nelson, K. M., Lee, H., **Nelson, H. J.**, and Ghods, M. (1999). Transferring Lessons Learned from Traditional Structured Methods to the Object Oriented Environment, *Proceedings of the Information Resources Management Association*, Chicago, IL.
21. **Nelson, H. J.**, Monarchi, D. E., and Nelson, K. M. (1998). Evaluating Emerging Programming Paradigms: An Artifact-Oriented Approach, *Hawaii International Conference on System Sciences*, Kohala Coast, HI.
22. Nelson, K. M., **Nelson, H. J.**, and Ghods, M. (1998). Measuring the Effectiveness of a Structured Methodology: A Comparative Analysis, *Hawaii International Conference on System Sciences*, Kohala Coast, HI.
23. Nelson, K. M., Ghods, M., and **Nelson, H. J.** (1997). Technology Flexibility: Conceptualization, Validation, and Measurement, *Hawaii International Conference on Systems Sciences*, Maui, HI. (Nominated for Best Paper Award, HICSS-30)
24. Sheetz, S. D., Puhr, G. I., **Nelson, H. J.**, Teagarden, D. P., and Monarchi, D. E. (1995). Student Views of the Difficulties of Using Object-Oriented Techniques, *Pacific Research Institute for Information Systems and Management*, Kihei, HI. (Best Paper Award, PRIISM '95)
25. Manns, M. L. and **Nelson, H. J.** (1993). An Exploration of Schema Development in Procedure-oriented Programmers Learning Object-oriented Technology, *International Conference on Information Systems*, Orlando, FL.

Presentations, Invited Panels and Colloquiums

1. **Nelson, H. J.** (2010). Supporting Management Education through the Academy's E-Media and New Collaborative Technologies. *Academy of Management*, Montreal, Canada.
2. **Nelson, H. J.** (2009). E-Media as a Core of Academic Management's Commitment to Sustainability. *Academy of Management*, Chicago, IL.
3. **Nelson, H. J.** (2008). New Dimensions of Value in Management E-media: Questions and Issues. *Academy of Management*, Anaheim, CA.

4. **Nelson, H. J.** (2006). TA96: How It Failed, and How It Succeeded (But Not As Expected). *The Telecommunications Act of 1996: A Tenth Anniversary Retrospective*” School of Law, Southern Illinois University.
5. **Nelson, H. J.** (2004). Quality in Conceptual Modeling. *Big 10 Information Systems Research Symposium*. Lansing, MI.
6. Ferrier, G. D., **Nelson, H. J.**, and Nelson, K. M. (2002). Efficiency and the Use of Information Technology Among U.S. Credit Unions. *Fall Meetings of the International Atlantic Economic Society*. Washington, DC.
7. **Nelson, H. J.** (2002). Preconscious Quantum Shift Learning. *Big 10 Information Systems Research Symposium*. Minneapolis, MN.
8. **Nelson, H. J.** (2001). Rapid Process Performance Modeling with Gaussian Belief Functions. *INFORMS*, Miami, FL.
9. **Nelson, H. J.** (2000). Capturing Process Knowledge with Belief Functions. *INFORMS*, Salt Lake City, UT.
10. Puhr, G. I., **Nelson, H. J.**, and Monarchi, D. E. (1993). Learning to Teach Objects, *OOPSLA*, Washington, D.C.
11. Borton, J. and **Nelson, H. J.** (1991). A Taxonomy for the Classification of Research in Expert Database Systems, *International Conference on Intelligent Systems*, Reno, NV.

Research and Teaching Grants

As Principal Investigator

1. “Global E-Commerce Backend Technology Integration Lab (Phase II).” Funded by the College of Business Student Technology Fee. Budget \$10,000 awarded October 2008.
2. “Global E-Commerce Backend Technology Integration Lab.” Equipment grant funded by the State Farm Companies Foundation. Budget \$20,000 awarded October 2007.
3. “Objective Quantification of IT Job Definitions Through Latent Semantic Categorization: With Use of Text Mining Software for Job Skill Categorization” Funded by the Pontikes Center, Southern Illinois University Carbondale. Budget \$2,300 awarded April 2007. (Co-PI with Chuck Litecky).
4. “Preconscious Quantum Shift Learning” Funded by the Dean’s Summer Research Fellowship. Budget \$1,500 awarded May 2004.
5. “Studies of IT Effectiveness and E-Business Performance” Funded by Boeing Commercial Aircraft. Budget \$525,000 awarded January 2001. (Co-PI with Kay Nelson)
6. “The Business Value of Information Technology.” Management of Technology Summer Grant, The University of Utah. Budget \$6,000 awarded May 2000.

7. “Object Oriented Technology Training Improvement (Phase II).” Funded by The Boeing Company. Budget \$59,500 awarded February 1998.
8. “Object Oriented Technology Training Improvement (Pilot).” Funded by The Boeing Company. Budget \$39,000 awarded May 1997.
9. “Assessing the Readability of Computer Programs.” Funded by the University of Colorado Gerald Hart Doctoral Research Fellowship. Budget \$3,000 awarded March 1993.

Awards

1. SIU College of Business Researcher of the Year
2010, 2011.
2. SIU College of Business Undergraduate Teacher of the Year
2007, 2008, 2014, 2015, 2016
3. Fisher College of Business Undergraduate Teaching Award 2003.
Distinguished teaching in major courses.
4. Finalist, Columbus Technology Council’s Top Contributor to the Advancement of
Technology (TopCAT) Award 2003. Outstanding Educator Advancing Technology.
5. Ernst and Young Faculty Mentor, 1996 (Fall and Spring) and 1999 (Spring)
6. University of Kansas School of Business Dean’s Service Excellence Award, 1997
7. Gerald Hart Doctoral Research Fellowship, University of Colorado 1993
8. Outstanding Information Systems Thesis Award, University of Colorado.
“How Natural is the Object Paradigm?” 1992

Journal, Conference, and Grant Referee

Ad-Hoc Reviewer, Journals

Communications of the ACM (CACM)
 Data and Knowledge Engineering (DKE)
 European Journal of Information Systems (EJIS)
 Information Systems Research (ISR)
 Journal of Information Technology Management (JITM)
 Journal of Software Maintenance (JSM)
 Journal of Systems and Software (JSS)
 Journal of the Association of Information Systems (JAIS)
 Management Information Systems Quarterly (MISQ)

Ad-Hoc Reviewer, Conferences

Academy of Management MOC Division
 Academy of Management OCIS Division
 Americas Conference on Information Systems (AMCIS)
 Exploring Modelling Methods for Systems Analysis and Design (EMMSAD)
 Hawaii International Conference on System Sciences (HICSS)
 Workshop on Information Technology and Systems (WITS)
 International Conference on Information Systems (ICIS)
 Information Resources Management Association (IRMA)
 Quality of Information Systems (QoIS)

Ad-Hoc Reviewer, Granting Agencies

Natural Sciences and Engineering Research Council of Canada (NSERC)
Research Council, University of Leuven

Professional Service

2009 to present: Associate Editor, OCIS Division of the Academy of Management.
2007 to present: Executive Committee OCIS Division of the Academy of Management
2007 to present: List Manager OCIS Division of the Academy of Management
2011: Co-Chair, HICSS Minitrack “IT Personnel: The IT Artifact the Field Cannot Do Without”
2008: Co-Chair, HICSS Minitrack “Game Design and Online Game Playing”.
2005-2006: Program Committee. International Workshop on the Quality of Information Systems (QoIS).
2005: Senior Editor: Special issue of *Data and Knowledge Engineering (DKE)*: “Quality in Conceptual Modeling”
2004: Program Committee, Evaluation of Modeling Methods in Systems Analysis and Design (EMMSAD’04).
2003: Associate Editor, International Conference on Information Systems.
2002-2004: North American Chair, International Workshop on Conceptual Modeling Quality
2001-2006: Co-Chair, HICSS Minitrack “Integrating IT into the Business: Contributions, Value, and Measurement”
2001: Program Committee, Workshop on Information Technology and Systems (WITS)

Institutional Service (SIU)

Department Assignments

2013 to present: Curriculum Committee (Chair)
2011-2012: Steering Committee

College Assignments

2017 to present: Director, Pontikes Center for Advanced Analytics and Artificial Intelligence
2013-2018: Undergraduate Program Committee (Chair)
2015-2018: Diversity and Inclusion Committee
2015-2016: Faculty Policy Committee
2013-2015: Technology Mentor
2013-2014: Mission Statement Task Force
2013-2014: College Assessment Committee
2009-2012: Scholarship Committee
2006-2009: Teaching Effectiveness Committee

University Assignments

2015-2018: Intellectual Property Committee
2011-2015: Project Management Association (PMI) Faculty Advisor
2011-2013: Computing Advisory Committee

Dissertation Committees

2014-2015: Amy Igou (Co-Chair)
2011-2014: Udaysinha Shinde (Chair)
2011-2012: Wierwille, Ben (Chair)
2011-2012: Jie Guan (Chair)
2009-2010: Kim, Kihwan
2009-2010: Fang, Helga
2009-2010: Ahmad, Altaf
2006-2007: Griffin, Chris
2006-2007: Clark, Leigh Ann

Professional Activities and Affiliations

IEEE, member
IEEE Computer Society, member
IEEE Engineering Management Society, member
Association for Computing Machinery (ACM), member
Academy of Management, executive committee member
IBM Academic Initiative, member

Academic Experience

Southern Illinois University, College of Business, 2005-present

Associate Professor with tenure (2011 – present).

Assistant Professor (2005 – 2011). Taught undergraduate Telecommunications, Database, Java Programming, eCommerce, and the required Computer Information Systems mega-section. Taught graduate Database, MIS Seminars, and Introduction to MIS. Distance classes: Computer Information Systems and Managing Information Systems.

The Ohio State University, Fisher College of Business, 2001-2005

Assistant Professor. Taught undergraduate and graduate Systems Analysis and Design, undergraduate Introduction to Accounting Information Systems and undergraduate Business Telecommunications Systems. Healed the rift between MIS and Computer Science. Created telecom course from scratch and received “Perfect 5s” in instructor ratings in that course. Developed innovative distance learning course for the four regional campuses.

University of Utah, Graduate School of Business, 2000-2001

Assistant Professor. Taught graduate Systems Analysis and Design and Object Oriented Technology. Taught graduate and undergraduate (combined) Hardware and Software. Created innovative undergraduate hardware / software class. Graduate and Undergraduate Database with extensive real-world projects.

Pre-PhD

University of Kansas, Graduate School of Business, 1995-2000

Lecturer. Taught graduate Database, Systems Analysis and Design, Object Oriented Analysis and Design, Object Technology, Java Programming, and the MBA core IS course. Taught undergraduate Database and Systems Analysis, Design, and Implementation.

(Note: The plan was to move to Kansas where my wife (Dr. Kay Nelson) had a job as an assistant professor, but do nothing but work on the dissertation for the fourth year of my PhD program. But this being the dot-com boom they begged me to teach the technical subjects to their overflowing MIS classes. They acknowledged that it would take me longer to finish my dissertation, so they volunteered to fly me to Colorado for monthly meetings with my advisor, pay my Colorado out of state tuition and fees, and pay me 80% of what a “real” assistant professor earned. I agreed to these terms.)

University of Colorado, Graduate School of Business, 1990-1995:

Research Assistant. Developed research projects in information systems dealing with the object-oriented programming paradigm. Studies included its cognitive aspects, learning and teaching object-oriented programming, and formal models. Tasks performed were literature reviews, data collection and analysis, and preparing articles for submission to leading journals.

Instructor. Developed and taught an advanced COBOL and data structures course (four semesters). Taught an introductory information systems recitation (two semesters, 2 classes per semester). Taught the Smalltalk/V programming lab.

Pre-SIU Academic Service

1. OSU Summer Research Opportunities Program (SROP): 2002, 2003.
This program allows minority students to work with a faculty mentor on a significant research project. Over the two years I mentored two minority students who gave very good presentations and are currently enjoying outstanding placements.
2. University of Utah Center for High Performance Computing Faculty Advisory Board
3. University of Kansas Data Management Council
4. University of Kansas School of Business Information System Project
5. Academic Ethics Review Board, University of Colorado (1990-1992)
6. The Object Paradigm Research Group, University of Colorado (1990-1993)

Technical and Management Experience

Computer and Software Enterprises, Inc., 1983 - 1990

Project Manager. Selected hardware, designed and developed software and firmware (operating system, database manager, communication protocol, and user interface) for a store-translate-and-forward electronic document system. Trained customer support personnel.

Programmer Analyst. Responsible for coding, testing, and supporting a large commercial finance loan accounting system and a college bookstore inventory system. Developed hardware drivers and internal tools, and prepared customer demonstrations.

IBM Corporation, 1979 - 1983

Senior Programmer. Maintained the VSPC operating system on the IBM 370 family of computers. Analyzed core dumps, provided immediate temporary patches, and then permanent fixes for the next release of the system. Provided on-site customer assistance as needed. Served as needed on the APL, COBOL, and FORTRAN language support teams.

Analytics

Director, Pontikes Center for Advanced Analytics and Artificial Intelligence

Analytics Research

Nelson, H. J., Clark, T., Stewart, I. (2018) Hunch Mining. *Hawaii International Conference on System Sciences*, Waikoloa, HI. (Nominated for best paper)

Analytics Programs Developed

SIU Online MBA Concentration in Analytics for Managers

SIU Graduate Certificate in Analytics for Managers

SIU Master of Science Strategic Analytics

SIU Bachelor of Science Business Analytics

Analytics Courses Taught

Data Science for Managers

Advanced Analytics and Artificial Intelligence for Managers

Advanced Analytics and Visualization for Managers

Analytics Capstone