David S. Janzen

Computer Science Department California Polytechnic State University San Luis Obispo, California http://www.csc.calpoly.edu/~djanzen/

Education

Ph.D. in Computer Science

Defended in August 2006. Will graduate with Honors in December 2006. GPA: 4.0 Dissertation Title: "An Empirical Evaluation of the Impact of Test-Driven Development on Software Quality"

Master of Science in Computer Science

Graduated with Honors. GPA: 4.0 Thesis Title: "On Using Classification and Regression Trees in Machine Learning"

Bachelor of Arts in Mathematics and Computer Science Tabor College, 1990 Graduated with Honors. GPA: 3.836 in all courses, 4.0 in Computer Science

Budapest Semesters in Mathematics

Related Work Experience

Simex LLC

Owner, Consultant, and Trainer. Developed and presented training courses to more than 400 professional software developers in Fortune 500 companies. Course topics include: object-oriented analysis, design, and programming with the UML, C++, and Java; design patterns, advanced Java topics, web application frameworks, agile methods, and test-driven development. Constructed web applications and custom software applications for automotive, retail, agricultural, and medical domains.

Bethel College, North Newton, KS

Associate Professor of Computer Science. Full-time faculty member teaching undergraduate courses including programming, software engineering, and networking. Created two new majors and a professional training institute. Supervised undergraduate research. Promoted from Assistant Professor and granted tenure March 2003. Currently on sabbatical and leave of absence.

University of Kansas, Lawrence, KS

Graduate Teaching Assistant for undergraduate computer programming and data structures courses.

Sprint Corporation, Overland Park, KS

Held increasingly responsible positions from Artificial Intelligence Analyst to Manager, Applied Development. Directed and participated in all aspects including technical, managerial, and human resources concerning a state-of-the-art, near real-time expert system for detecting calling card fraud implemented in Lisp and C/C++. Managed 3M+ annual budget supporting risk containment of over \$1M per day. Led major initiatives including international partnerships with domestic and international presentations at various levels including company executives. Co-inventor of patent and recipient of Outstanding Achievement Award.

Ruf Corporation, Olathe, KS

Constructed intelligent address matching database application in Fortran.

June 2001 to present

August 1997 to present

1991 to 1993 and 2004 to present

January 1993 through August 1997

1991 to 1992

Eötvös University, 1989

University of Kansas, 1993

University of Kansas, 2006

Skills

Software Development

Extensive and recent hands-on experience developing software in a range of languages including C++, Java, SQL, Lisp, VBA, and Fortran. Proficiency on Unix/Linux, Windows, and Lisp Machine platforms. Experience in varied application environments such as near real-time, GUI, and web applications, and application domains including telecommunications, retail, and medical. Competence with many tools and frameworks including Eclipse, Visual Studio, Rational Developer Suite (Rose/Quantify/Purify), Ant, JUnit, Spring web application framework, and Hibernate object/relational persistence and querying services.

Professional Networking

Experience recruiting respected scholars and practitioners such as Ralph Johnson (UIUC), Robert C. Martin (Object Mentor), and David Levine (Washington U.) for collaborative presentations. Established consulting and training client base including Fortune 500 companies. Consistent record of conference attendance and participation.

Entrepreneurial

Proven record of innovation and discipline including developing a patent and creating two small businesses (consulting/training, bed and breakfast). Experience addressing academic marketability including creation of two academic majors and a professional training institute.

Communication and Teaching

Extensive presentation and teaching experience with a wide range of audiences. Outstanding record of student course evaluations including overall teaching effectiveness rating of 4.84 out of 5.0 at the University of Kansas.

Research

Experience conducting research in multiple areas of computing including artificial intelligence, object-oriented design and analysis, empirical software engineering, and computer science education. Experience gaining human subjects research approval. Extensive experience supervising undergraduate research in a wide range of topics. Grant writing experience including applications to NSF and ACM special interest groups.

Research Interests

Empirical Software Engineering, Agile Methods, Test-Driven Development, Object-Oriented Systems; Computer Science, Software Engineering, and Information Systems Pedagogy

Teaching Interests

Software Engineering, Object-Oriented Technology, Web Application Development, Networking, Systems Analysis and Design, Introductory through Advanced Programming

Research

Journal Publications

- Janzen, D. and Saiedian, H. "Test-Driven Development: Concepts, Taxonomy, and Future Directions," *IEEE Computer*, 38(9) 2005.
- Janzen, D. "Building Web Applications with Servlets and JavaServer Pages," *The Journal of Computing Sciences in Colleges*, 17(4) 2002.

Conference Proceedings or Presentations

- Janzen, D. and Saiedian, H. "On the Influence of Test-Driven Development on Software Design", *Conference on Software Engineering Education and Training (CSEE&T)*, North Shore Oahu, HI, April 2006.
- Janzen, D. and Saiedian, H. "Test-Driven Learning: Intrinsic Integration of Testing into the CS/SE Curriculum", *Technical Symposium on Computer Science Education (SIGCSE)*, Houston, TX, March 2006.
- Janzen, D. "Software Architecture Improvement through Test-Driven Development," Doctoral Symposium, Object-Oriented Programming, Systems, Languages, and Applications (OOP-SLA), San Diego, CA, October 2005.
- Janzen, D. "Software Architecture Improvement through Test-Driven Development," ACM Student Research Competition, Poster and Extended Abstract, *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, San Diego, CA, October 2005.
- Kaufmann, R. and Janzen, D. "Implications of Test-Driven Development, A Pilot Study," Poster, *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, Anaheim, CA, October 2003.
- Janzen, D. "Building Web Applications with Servlets and JavaServer Pages," Tutorial presented at *Eighth Annual Consortium for Computing in Small Colleges Central Plains Conference*, Kansas City, KS, April 2002.
- Janzen, D. "From RS-232 to Object Request Brokers; Incremental Object Oriented Networking Projects," 32nd Technical Symposium on Computer Science Education (SIGCSE), Charlotte, NC, February 2001.
- Janzen, D. "Teaching Object Technology in Industry Short Courses," Poster, *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, Denver, CO, November 1999.
- Janzen, D. "Artificial Intelligence approaches to Fraud Detection and Risk Management," Panel Presentation, AI Approaches to Fraud Detection and Risk Management Workshop, *American Association of Artificial Intelligence (AAAI) National Convention*, Providence, RI, July 1997.

PhD Dissertation

• Janzen, D. "An Empirical Evaluation of the Impact of Test-Driven Development on Software Quality", University of Kansas, August 2006.

Master's Thesis

• Janzen, D. "On Using Classification and Regression Trees in Machine Learning", University of Kansas, April 1993.

Selected Undergraduate Research Supervised

- "Machine Learning Approaches to Named Entity Recognition," Allison Penner, 2004
- "Lossy Digital Audio Compression with an emphasis on Ogg Vorbis I," Benjamin Voth, 2004
- "JPEG Image Compression," James Powers, 2004
- "Mersenne Primes," Ian Schmidt, 2004
- "Open Source Software for The Industry Reality or Utopian Idea? Case Study: Open Source GIS Application," Denis Antipov, 2003

- "Enterprise Application Design Patterns in a Web Application," Kenneth Riungu, 2003
- "The Implications of Test-Driven Development on Software Quality," Reid Kaufmann, 2003
- "Design Patterns in Object-Oriented Software," Shelly Weibert, 2003
- "Evolution and Computing," Brian Stucky, 2002
- "The Use of Elliptic Curves in Modern Cryptography," Lisa Thimm, 2001
- "Research, Design, and Implementation of a Modern Web Application," Paul Ortman, 2001
- "Multithreaded Programming in Java: Scheduling in the Virtual Machine," Ryan Koehn, 1998

Patents Awarded

Co-inventor of "Method and Apparatus for Detection and Prevention of Calling Card Fraud" patent #6,188,753 filed June 30, 1997, awarded February 13, 2001.

Certifications

Sun Certified Programmer for the Java 2 Platform, awarded May 29, 2001.

Awards

- Grand Finals Third Place Winner in ACM Student Research Competition, Graduate Division, awarded at ACM Awards Banquet, San Francisco, CA, May 21, 2006
- Third Place Winner in ACM Student Research Competition, Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), San Diego, CA, 2005
- Doctoral Symposium, Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), San Diego, CA, 2005
- Special Projects Award, ACM Special Interest Group on Computer Science Education (SIGCSE), 2005.
- Strobel Scholarship, University of Kansas, 2004.
- Educator's Scholarship to Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Vancouver, BC, 2004, Anaheim, CA, 2003, Seattle, WA, 2002, Tampa, FL, 2001, Minneapolis, MN, 2000 and Denver, CO, 1999.
- Faculty Development Award, Bethel College, 2000, 2003.
- Julius and Agatha Dyck Franz Teaching Development Award, Bethel College, 1998, 2003.
- Outstanding Achievement Award, Sprint Corporation, 1996.
- Hiebert Merit Award, Tabor College, 1990.

Courses Taught

- "Advanced Java Topics," Simex, 2004.
- "Computer Literacy," Bethel College, 1997-1998.
- "Computer Programming 1," Bethel College, 1998-2004; Hesston College 1999-2000.
- "Computer Programming 2," Bethel College, 1997-2003.
- "Computer Programming C++," University of Kansas, 2005.

- "Computer Systems," Bethel College, 2002-2003.
- "Computers in Organizations," Bethel College, 1998-1999.
- "Data Communications and Computer Networks," Bethel College, 1998, 2000, 2002, and 2004.
- "Data Structures," Bethel College, 2001.
- "Database Systems/Other Topics," Independent study, Bethel College, 1998.
- "Developing Web Applications with Spring and Hibernate," Simex, 2005.
- "Introduction to Computer Science," University of Kansas; 1991-1992. Coordinator, 1992.
- "Introduction to Information Systems," Bethel College, 2003.
- "Object-Oriented Analysis and Design," Bethel College, 2000-2001, Simex 2003.
- "Object-Oriented Analysis and Design for Managers," Bethel College, 2000.
- "Object-Oriented Design Patterns in Java and C++," Simex 2002-2006.
- "Object-Oriented Programming in C++," Bethel College 2000-2001, Simex 2001-2005.
- "Object-Oriented Programming in Java," Simex 2001-2004.
- "Senior Seminar," Bethel College, 1997-2004.
- "Software Design and Development," Bethel College, 1999, 2001 and 2003.
- "Software Studio," Bethel College, 2000, 2001, 2003, and 2004.
- "Test-Driven Development with JUnit and Ant," Simex 2004-2006.

Invited Presentations

- "Test-Driven Development Research" to Java Developers' Lunch and Learn, Cessna Aircraft Company, December 2005.
- "Agile Processes" to BUS 735 Systems Analysis and Design, Univ. of Kansas, November 2005.
- "Test-Driven Development and JUnit" to EECS 810 Principles of Software Engineering, Univ. of Kansas, October 2005.
- "Computing in the World, at Bethel, and in the Summers" to Newton Kiwanis, Sept. 2003.
- "Y2K, Disaster or Disruption" to Bethel College Life Enrichment, October 1999.
- "Teaching Object Technology in Industry Short Courses," to Bethel College Faculty, Fall Retreat, August 1999.
- "Y2K Implications" to Bethel College Mennonite Men's group, June 1999.
- "Distributed Objects with Multithreaded Object Request Brokers," as part of Mathematical Sciences Seminar, Bethel College, April 1999.
- "Technology as Tool" to Bethel College Faculty, Fall Retreat, August 1998.

Conferences Attended

• Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), San Diego, CA, 2005; Vancouver, BC, 2004; Anaheim, CA, 2003; Seattle, WA, 2002; Tampa, FL, 2001; Minneapolis, MN, 2000; Denver, CO, 1999.

- SIGCSE Technical Symposium on Computer Science Education, Houston, TX, 2006; Reno, NV, 2003; Charlotte, NC, 2001; Atlanta, GA, 1998.
- Conference on Software Engineering Education and Training, North Shore Oahu, HI, 2006.
- Consortium for Computing Sciences in Colleges Central Plains Conference, Emporia, KS, 2003; Kansas City, KS, 2002; Lee's Summit, MO, 2000.
- Twelfth National Conference on Artificial Intelligence (AAAI), Seattle, WA, 1994.
- ACM 20th Annual Conference on Computer Science, Kansas City, MO, 1992.

Contests

Coach for ACM Intercollegiate Programming Contest teams, 1998, 2001-2003, Highest team ranking: 22 out of 113 in North Central Region, 2001. State rankings: 1st and 3rd in Kansas, 2003, 2nd and 4th in Kansas, 2002.

Service

College Committee Service

- Undergraduate Curriculum Committee, University of Kansas, 2004-2005.
- Admissions, Scholarship, and Financial Aid Committee, Bethel College, 2003-2004.
- Computer Science Curriculum Committee, Associated Colleges of Central Kansas, 1997-2004, Chair 2001-2003.
- Faculty Welfare Committee, Faculty Development Chair, Bethel College, 2001-2003.
- Technology Committee, Bethel College, 1998-2000.
- Social Activities Committee, Bethel College, 1998-2000, 2001-2003.
- Advisory Committee to the Associate Dean of Student Development, Bethel College, 1998-99.
- Science Hall Task Force, Bethel College, 1997-98.
- Computer Literacy Task Force, Bethel College, 1997-98.

Review Service

- Technical Symposium on Computer Science Education, SIGCSE Tutorials, 2005.
- Conference on Software Engineering Education and Training, CSEE&T papers, 2005.
- Reviewed "Faith in the Machine," by Ian H. Hutchinson for *Perspectives on Science & Christian Faith*, American Scientific Affiliation, July 2000.

Professional and Community Service

- Chair of Northridge Elementary School Site Council, 2002-2003.
- Employee Satisfaction Survey lead, Bethel College, 2001-2002.
- Bethel Software Training (BeST) founder and director, Bethel College, 2000.
- USD373 Technology Task Force, November 1999.
- Web site redesign lead, Bethel College, 1998-99.
- United Way Volunteer, Sprint, Overland Park, KS.

Professional Affiliations

Association of Computing Machinery (ACM), IEEE Computer Society (IEEE-CS), Special Interest Group on Computer Science Education (SIGCSE), Association for Information Systems (AIS).