

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 **University of Kansas, 2006**
Defended in August 2006. Graduated 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 **University of Kansas, 1993**
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 **Eötvös University, 1989**

Certifications

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

Academic Experience

California Polytechnic State University **August 2006 to present**
Assistant Professor of Computer Science. Full-time faculty member teaching undergraduate and graduate courses in software engineering.

Bethel College, North Newton, KS **August 1997 to 2006**
Associate Professor of Computer Science with tenure. 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 to Associate Professor and granted tenure March 2003.

University of Kansas, Lawrence, KS **1991 to 1993 and 2004 to 2006**
Graduate Teaching Assistant for undergraduate computer programming and data structures courses.

Related Professional Experience

Simex LLC **June 2001 to present**
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.

Sprint Corporation, Overland Park, KS **January 1993 through August 1997**
Held increasingly responsible positions from Artificial Intelligence Analyst to Manager, Applied De-

velopment. 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

1991 to 1992

Constructed intelligent address matching database application in Fortran.

Courses Taught (Cal Poly courses highlighted)

- “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
- **“Introduction to Software Engineering,” Cal Poly, 2007-2008**
- “Object-Oriented Analysis and Design,” Bethel College, 2000-2001, Simex 2003
- “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 Construction,” Cal Poly, 2007**
- **“Software Deployment,” Cal Poly, 2007**
- “Software Design and Development,” Bethel College, 1999, 2001 and 2003
- **“Software Engineering I (Graduate course),” Cal Poly, 2007**
- **“Software Engineering II (Graduate course),” Cal Poly, 2008**
- **“Software Requirements Engineering,” Cal Poly, 2006-2007**

- “Software Studio,” Bethel College, 2000, 2001, 2003, and 2004
- “Test-Driven Development with JUnit and Ant,” Simex 2004-2006

Selected Graduate Research Supervised

- “A Coupling-Complexity Metric Suite for Predicting Class Quality,” Chris Gray, MS Thesis, defended June 3, 2008
- “Design Patterns go to Hollywood: Teaching Design Patterns with Multimedia,” Adam Dukovich, MS Thesis, defended June 3, 2008
- “A Pedagogical Approach to Introducing Test-Driven Development,” Chetan Desai, MS Thesis, defended May 20, 2008
- “A Quantitative Analysis of the Effects of Access Methods on Cohesion,” Brian Abreu, MS Thesis, defended June 15, 2007
- “Effects of Dependency Injection on Maintainability,” Ekaterina Razina, MS Thesis, defended June 7, 2007

Graduate Committee Membership

- “Improving Adoptability in Reverse Engineering Tools,” Erik Kitson, defended October 3, 2008
- “A Comparison of Object-Relational and Relational Databases,” Lara Nichols, defended December 10, 2007
- “Tablet-Based Presentation Systems & Learning Styles,” Ngan Phan, defended April 18, 2008

Selected Undergraduate Research Supervised

- “Project Tsukahara: Web 2.0 Meet Planning Application,” Jason Desrosiers, 2008
- “HomeBuyerDB.com: The Home Buyer Data Base,” Ben Koonce, 2008
- “Automating Rape Suspect Examinations with Programmatic PDF Annotations,” Broc Miramontes, 2007
- “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

Teaching Development

- “Assessment and Rubrics,” April 11, 2008, Center for Teaching and Learning, Cal Poly
- “Professional Development,” January 11, 2007, Newer Faculty Learning Community
- “Using a WIKI to Improve Learning,” December 1, 2006, Teaching Well Workshops
- “Excellence in Teaching and Learning,” October 12, 26, 2006, Newer Faculty Learning Community
- “Making Handouts and Homework Meaningful and Exciting,” October 20, 2006, Teaching Well Workshops
- “Professional Development,” October 19, 2006, Newer Faculty Learning Community
- “Improving Learning using a Hybrid (Blended) Course,” October 6, 2006, Teaching Well Workshops
- “Newly tenured faculty RPT panel,” October 5, 2006, Newer Faculty Learning Community
- “How to Have a Rewarding First Quarter at Cal Poly,” September 15, 2006

Journal Publications

- Desai, C., **Janzen, D.** and Savage, K. “A Survey of Evidence for Test-Driven Development in Academia,” *SIGCSE Bulletin inroads*, 40(2) 2008
- **Janzen, D.** and Saiedian, H. “Does Test-Driven Development Really Improve Software Design Quality?,” *IEEE Software*, 25(2) 2008
- **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

- Haungs, M., Clements, J., and **Janzen, D.** “Improving Engineering Education through Creativity, Collaboration, and Context In a First Year Course,” American Society for Engineering Education (ASEE) Annual Conference, Pittsburgh, PA, June 2008
- **Janzen, D.** and Ryoo, J. “Seeds of Evidence: Integrating Evidence-Based Software Engineering,” *Conference on Software Engineering Education and Training (CSEE&T)*, Charleston, SC, April 2008
- Ryoo, J., Fonseca, F., and **Janzen, D.** “Teaching Object-Oriented Software Engineering through Problem-Based Learning in the Context of Game Design,” *Conference on Software Engineering Education and Training (CSEE&T)*, Charleston, SC, April 2008

- **Janzen, D.** and Saiedian, H. “Test-Driven Learning in Early Programming Courses,” *Technical Symposium on Computer Science Education (SIGCSE)*, Portland, OR, March 2008
- Razina, E. and **Janzen, D.** “Effects of Dependency Injection on Maintainability,” *The 11th IASTED International Conference on Software Engineering and Applications (SEA)*, Boston, MA, November 2007
- **Janzen, D.**, Saiedian, H., and Turner, C. “Empirical Software Engineering in Industry Short Courses,” *Conference on Software Engineering Education and Training (CSEE&T)*, Dublin, IR, July 2007
- **Janzen, D.** and Saiedian, H. “A Leveled Examination of Test-Driven Development Acceptance,” *International Conference on Software Engineering (ICSE)*, Minneapolis, MN, May 2007
- **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 (OOPSLA)*, 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

Electronic Publications

- **Janzen, D.** “Software Architecture Improvement through Test-Driven Development,” ACM Student Research Competition Grand Finals, ACM Digital Library, May 2006

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

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

Grants Funded

- “Test-Driven Learning: Integrating Test-Driven Development in an Early Programming Course,” Lockheed Martin, co-Principal Investigator with John Clements, September 2007, \$25,000
- “Planting Test-Driven Development SEEDS: An NSF CAREER Grant,” Support for Faculty Efforts to Obtain Extramural Funding, Cal Poly, May 2007, \$6,460
- Twenty-four technical books for software engineering capstone sequence, Intuit Inc., November 2006, \$692
- Nintendo DS Lite’s provided as prize for five members of team developing outstanding system in software engineering capstone sequence, Intuit Inc., March 2007, \$750
- Ipod Nano’s provided as prize for five members of team developing outstanding requirements in software engineering capstone sequence, Intuit Inc., December 2006, \$1000
- “Software Architecture Improvement Through Test-Driven Development: An Empirical Study,” Special Projects Award, ACM Special Interest Group on Computer Science Education (SIGCSE), July 2005, \$5,000

Grants Under Review

- “Software Engineering Metrics and Adobe Flex,” Adobe Inc., co-Principal Investigator with Daniel Jackson, June 2008, \$8,000
- “Test-Driven Learning in Early Programming Courses,” National Science Foundation, Division of Undergraduate Education, CCLI Phase 1, May 2008, \$149,397

Awards

- Professor of the Year, Computer Science Department, Cal Poly, May 2007
- Innovation Quest Finalist, Cal Poly, April 2007
- Grand Finals Third Place Winner in ACM Student Research Competition, Graduate Division, awarded at ACM Awards Banquet, San Francisco, CA, May 21, 2006
- Paul F. Huebner Memorial Award, Electrical Engineering and Computer Science Department, University of Kansas, 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
- 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

Invited Presentations

- "Test-Driven Development," Adobe Systems Inc., San Jose, CA, October 2008
- "Test-Driven Development," Central Coast Code Camp, San Luis Obispo, CA, September 2008
- "Pair Programming and Test-Driven Development in CS1/CS2," Computer Science Department Fall Retreat, September 2008
- "Real Estate Tools for a Buyers Market," Innovation Quest Finalist, Cal Poly, April 2007
- "Software Engineering Stories: From Fraud Detection to eXtreme Programming," Invited Talk, IEEE Student Chapter, Cal Poly, November 2006
- "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

- Central Coast Code Camp, San Luis Obispo, CA, 2008
- Conference on Software Engineering Education and Training, Charleston, SC, 2008
- SIGCSE Technical Symposium on Computer Science Education, Portland, OR, 2008
- Central Coast Code Camp, San Luis Obispo, CA, 2007
- Conference on Software Engineering Education and Training, Dublin, Ireland, 2007
- International Conference on Software Engineering (ICSE), Minneapolis, MN, 2007
- Conference on Software Engineering Education and Training, North Shore Oahu, HI, 2006
- Academy for Software Engineering Educators and Trainers, North Shore Oahu, HI, 2006
- SIGCSE Technical Symposium on Computer Science Education, Houston, TX, 2006
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), San Diego, CA, 2005
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Vancouver, BC, 2004
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Anaheim, CA, 2003
- Consortium for Computing Sciences in Colleges Central Plains Conference, Emporia, KS, 2003
- SIGCSE Technical Symposium on Computer Science Education, Reno, NV, 2003
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Seattle, WA, 2002
- Consortium for Computing Sciences in Colleges Central Plains Conference, Kansas City, KS, 2002
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Tampa, FL, 2001
- SIGCSE Technical Symposium on Computer Science Education, Charlotte, NC, 2001
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Minneapolis, MN, 2000
- Consortium for Computing Sciences in Colleges Central Plains Conference, Lee's Summit, MO, 2000
- Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), Denver, CO, 1999
- SIGCSE Technical Symposium on Computer Science Education, Atlanta, GA, 1998
- Twelfth National Conference on Artificial Intelligence (AAAI), Seattle, WA, 1994
- ACM 20th Annual Conference on Computer Science, Kansas City, MO, 1992

Professional Affiliations

- American Society for Engineering Education (ASEE)
- Association of Computing Machinery (ACM)
- IEEE Computer Society (IEEE-CS)
- Special Interest Group on Computer Science Education (SIGCSE)

Conference Program Committees

- Short papers chair, Conference on Software Engineering Education and Training, CSEE&T, 2008

Review Service

- IEEE Software, 2008
- Technical Symposium on Computer Science Education, SIGCSE Papers, 2008
- Conference on Software Engineering Education and Training, CSEE&T Papers, 2008
- Empirical Software Engineering, An International Journal, 2007
- International Journal of Engineering Education, Special issue on Trends in Software Engineering Education papers, 2007
- Conference on Innovation and Technology in Computer Science Education, ITiCSE Papers, 2007
- Technical Symposium on Computer Science Education, SIGCSE Papers, 2007
- Technical Symposium on Computer Science Education, SIGCSE Tutorials, 2007
- Technical Symposium on Computer Science Education, SIGCSE Papers, 2006
- Technical Symposium on Computer Science Education, SIGCSE Tutorials, 2005
- Conference on Software Engineering Education and Training, CSEE&T Papers, 2005
- Perspectives on Science & Christian Faith, American Scientific Affiliation, 2000

College/Department Service

- College of Engineering Strategic Challenges Task Group, 2008
- SOAR New Student Orientation Presentation, July 2008
- Curriculum Committee, Computer Science Department, 2008
- PBLI Academic Steering Committee, 2007-2008
- Open House Committee, Computer Science Department, 2007-2008
- Software Engineering Curriculum Committee, 2006-2008
- 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

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

Outreach

- Computer Club (six week after school course), Del Mar Elementary School, 2008
- Society of Women Engineer's Build an Engineer Day, co-led computer science labs for 45 middle school students, October, 2007
- Society of Women Engineer's High School Shadow Day, presented guest lecture on the differences between computer science and software engineering to about 45 high school students, November, 2007

Professional and Community Service

- Chaperone for sixth-grade Science Camp Week at Rancho El Chorro, Del Mar Elementary, Morro Bay, CA, February 2008
- Organized and led bi-weekly study on dating and marriage, Navigators, California Polytechnic State University, 2006-2007
- 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