Philip M. Johnson | Curriculum Vitae

Information and Computer Sciences, University of Hawaii – Honolulu, HI 96822

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Education

University of Massachusetts	**Amherst, MA**
Ph.D., Computer Science	*1990*
University of Massachusetts	**Amherst, MA**
M.S., Computer Science	*1985*
University of Michigan	**Ann Arbor, MI**
B.S., Computer Science	*1980*
University of Michigan	**Ann Arbor, MI**
B.S., Biology	*1980*

Academic Experience

University of Hawaii	**Honolulu, HI**
Professor	*1990–Present*

- Associate Chair — *2010–Present*
- Professor — *2001–Present*
- Director, ✐ Collaborative Software Development Laboratory — *1990–Present*
- Associate Professor — *1995–2001*
- Assistant Professor — *1990-1995*

School of Engineering, Blekinge Institute of Technology	**Karlskrona, Sweden**
Visiting Professor	*2006*
Distributed Systems Technology Centre, University of Queensland	**Brisbane, Australia**
Senior Research Fellow	*1997*
Department of Computer Science, University of Massachusetts	**Amherst, MA**
Research Assistant	*1984–1986, 1987–1990*
Department of Computer Science, University of Michigan	**Ann Arbor, MI**
Lecturer	*1981–1982*

Industry Experience

Sixth Sense Analytics	**Raleigh, NC**
Member, Technical Advisory Board	*2006–2009*
Hawaii Strategic Development Corporation	**Honolulu, HI**
Member, Board of Directors	*2006–2009*
Tiki Technologies, Inc.	**Honolulu, HI**
Member, Board of Directors	*2003–2005*

LavaNet, Inc.	**Honolulu, HI**
Member, Board of Directors	*2002–2005*
BreastCancer.org	**Philadelphia, PA**
Member, Professional Advisory Board	*2000–Present*
High Technology Development Corporation	**Honolulu, HI**
Member, Board of Directors	*2000–2004*
hotU, Inc.	**Honolulu, HI**
Co-Founder	*2000*
Referentia, Inc.	**Honolulu, HI**
Member, Professional Advisory Board	*2000–2002*
Department of Computer Science, University of Massachusetts	**Amherst, MA**
Lisp Hacker	*1986–1987*
Software Services Corporation	**Ann Arbor, MI**
Systems Programmer	*1982–1983*
Veterans Hospital	**Ann Arbor, MI**
Systems Analyst	*1981–1983*
Great Lakes Software Systems	**Ann Arbor, MI**
Programmer	*1978*

Publications

Journal articles...

Searching under the streetlight for useful software analytics, P. Johnson, *IEEE Software,* Volume 30, No. 4, July 2013 (🖹 pdf)

Operational definition and automated inference of test-driven development with Zorro, H. Kou, P. Johnson, H. Erdogmus, *Automated Software Engineering,* Volume 16, Number 4, December 2009 (🖹 pdf)

Protocols in the use of empirical software engineering artifacts, V. Basili, M. Zelkowitz, D. Sjoberg, P. Johnson, T. Cowling, *Empirical Software Engineering,* Volume 12, February 2007 (🖹 pdf)

Experiments to understand HPC time to development, L. Hochstein, T. Nakamura, V. Basili, S. Asgari, M. Zelkowitz, J. Hollingsworth, F. Shull, J. Carver, M. Voelp, N. Zazworka, P. Johnson, *CTWatch Quarterly,* November 2006 (🖹 pdf)

Improving software development management through software project telemetry, P. Johnson, H. Kou, M. Paulding, Q. Zhang, A. Kagawa, T. Yamashita, *IEEE Software,* Volume 22, No. 4, July 2005 (🖹 pdf)

Measuring HPC productivity, S. Faulk, J. Gustafson, P. Johnson, A. Porter, W. Tichy, L. Votta, *International Journal of High Performance Computing Applications,* December 2004 (🖹 pdf)

Lessons learned from VCommerce: A virtual environment for interdisciplinary learning about software entrepreneurship, P. Johnson, M. Moffett, B. Pentland, *Communications of the ACM,* Volume 46, No. 12, December 2003 (🖹 pdf)

Empirically guided software effort guesstimation, P. Johnson, C. Moore, J. Dane, R. Brewer, *IEEE Software,* Volume 17, No. 6, December 2000 (🖹 pdf)

A critical analysis of PSP data quality: Results from a case study, P. Johnson, A. Disney, *Journal of Empirical Software Engineering,* Volume 4, December 1999 (📄 pdf)

The Personal Software Process: A cautionary case study, P. Johnson, A. Disney, *IEEE Software,* Volume 15, No. 6, November 1998

Reengineering inspection, P. Johnson, *Communications of the ACM,* Volume 41, No. 2, February 1998

Does every inspection really need a meeting?, P. Johnson, D. Tjahjono, *Journal of Empirical Software Engineering,* Volume 4, No. 1, January 1998

Assessing software review meetings: Results of a comparative analysis of two experimental studies, A. Porter, P. Johnson, *IEEE Transactions on Software Engineering,* Volume 23, No. 3, March 1997

Design for instrumentation: High quality measurement of formal technical review, P. Johnson, *Software Quality Journal,* Volume 5, March 1996

Experiences with CLARE: a computer-supported collaborative learning environment, D. Wan, P. Johnson, *International Journal of Human-Computer Studies,* Volume 41, December 1994

Experiences with EGRET: An exploratory group work environment, P. Johnson, *Collaborative Computing, Volume 1, No. 1,* March, 1994

The clinical significance of electrogastrography, B. Walker, M. Walker, S. Achem, P. Johnson, R. Gregg, *Psychophysiology,* Volume 20, 1983

Book chapters...

An instrumented approach to improving software quality through formal technical review, P. Johnson, *Software Inspection: An Industry Best Practice,* David A. Wheeler, Bill Brykczynski, Reginald N. Meeson, Jr., Editors, IEEE Computer Society Press, 1996. Also appearing in the Proceedings of the 16th International Conference on Software Engineering, Sorrento, Italy, 1994

Beyond exploratory programming: A methodology and environment for natural language processing, P. Johnson, W. Lehnert, *Artificial Intelligence and Software Engineering,* D. Partridge, editor, Ablex 1990. Also appearing in Proceedings of the Fifth National Conference on Artificial Intelligence (AAAI-86), Philadelphia, PA.

Achieving flexibility, efficiency, and generality in blackboard architectures, D. Corkill, K. Gallagher, and P. Johnson, *Readings in Distributed Artificial Intelligence,* A. Bond and L. Gasser, editors. Morgan-Kaufman, 1988. Also appearing in Proceedings of the Sixth National Conference on Artificial Intelligence (AAAI-87), Seattle, WA.

Conference publications...

SGSEAM: Assessing serious game frameworks from a stakeholder experience perspective, Y. Xu, P. Johnson, C. Moore, R. Brewer, J. Takayama, *Proceedings of the First International Conference on Gameful Design, Research, and Applications,* Stratford, Ontario, Canada, October 2013 (📄 pdf)

Energy feedback for smart grid consumers: Lessons learned from the Kukui Cup, R. Brewer, Y. Xu, G. Lee, M. Katchuck, C. Moore, P. Johnson, *Proceedings of Energy 2013,* Lisbon, Portugal, March 2013 (📄 pdf)

Makahiki+WattDepot: An open source software stack for next generation energy research and education, P. Johnson, Y. Xu, R. Brewer, C. Moore, G. Lee, A. Connell, *Proceedings of the 2012 Conference on Information and Communication Technologies for Sustainability,* Zurich, Switzerland, February 2013

(🖰 pdf)

Beyond kWh: Myths and fixes for energy competition game design, P. Johnson, Y. Xu, R. Brewer, G. Lee, M. Katchuck, C. Moore, *Proceedings of Meaningful Play 2012,* Lansing, Michigan, October 2012 (🖰 pdf)

The Kukui Cup: A dorm energy competition focused on sustainable behavior change and energy literacy, R. Brewer, G. Lee, P. Johnson, *Proceedings of the 43rd Hawaii International Conference on System Sciences,* Poipu, Hawaii, January 2011 (🖰 pdf)

WattDepot: An open source software ecosystem for enterprise-scale energy data collection, storage, analysis, and visualization, R. Brewer and P. Johnson, *Proceedings of the First IEEE International Conference on Smart Grid Communications,* Gaithersburg, Maryland, October 2010 (🖰 pdf)

We need more coverage, stat! Experiences with the Software ICU, P. Johnson and S. Zhang, *Proceedings of the 2009 Conference on Empirical Software Engineering and Measurement,* Orlando, Florida, October 2009 (🖰 pdf)

Requirement and design trade-offs in Hackystat: An in-process software engineering measurement and analysis system, P. Johnson, *Proceedings of the 2007 International Symposium on Empirical Software Engineering and Measurement,* Madrid, Spain, September 2007 (🖰 pdf)

Generalizing fault contents from a few classes, H. Scott and P. Johnson, *Proceedings of the 2007 International Symposium on Empirical Software Engineering and Measurement,* Madrid, Spain, September 2007

Automated recognition of test-driven development with Zorro, P. Johnson and H. Kou, *Proceedings of Agile 2007,* Washington, D.C., August 2007 (🖰 pdf)

Practical automated process and product metric collection and analysis in a classroom setting: Lessons learned from Hackystat-UH, P. Johnson, H. Kou, J. Agustin, Q. Zhang, A. Kagawa, T. Yamashita, *Proceedings of the 2004 Symposium on Empirical Software Engineering,* Los Angeles, CA., August 2004 (🖰 pdf)

Beyond the Personal Software Process: Metrics collection and analysis for the differently disciplined, P. Johnson, H. Kou, J. Agustin, C. Chan, C. Moore, J. Miglani, S. Zhen, and W. Doane, *Proceedings of the 2003 International Conference on Software Engineering,* Portland, OR., May 2003 (🖰 pdf)

Leap: A "Personal Information Environment" for software engineers, P. Johnson, *Proceedings of the 1999 International Conference on Software Engineering,* Los Angeles, CA., May 1999 (🖰 pdf)

Investigating data quality problems in the PSP, A. Disney, P. Johnson, *Proceedings of the Sixth International Symposium on the Foundations of Software Engineering,* Orlando, FL., November 1998 (🖰 pdf)

Assessing software review meetings: A controlled experimental study using CSRS, P. Johnson, D. Tjahjono, *Proceedings of the 1997 International Conference on Software Engineering,* Boston, MA., May 1997 (🖰 pdf)

Computer supported collaborative learning using CLARE: The approach and experimental findings, D. Wan and P. Johnson, *Proceedings of the 1994 ACM Conference on Computer Supported Cooperative Work,* Chapel Hill, NC., 1994

Supporting technology transfer of formal technical review through a computer supported collaborative review system, P. Johnson, *Proceedings of the Fourth International Conference on Software Quality,* Reston, VA. 1994

An instrumented approach to improving software quality through formal technical review, P. Johnson, *Proceedings of the 16th International Conference on Software Engineering,* Sorrento, Italy, May 1994

Experiences with CSRS: An instrumented software review environment, P. Johnson, D. Tjahjono, D. Wan, R. Brewer, *Proceedings of the 11th Annual Pacific Northwest Software Quality Conference,* Portland, OR. 1993

Improving software quality through computer supported collaborative review, P. Johnson, D. Tjahjono, *Proceedings of the Third European Conference on Computer Supported Cooperative Work,* Milan, Italy. 1993

Supporting Exploratory CSCW with the EGRET Framework, P. Johnson, *Proceedings of the ACM 1992 Conference on Computer Supported Cooperative Work,* Toronto, Canada. 1992

An Ada restructuring assistant, P. Johnson, D. Hildum, A. Kaplan, C. Kay, and J. Wileden, *Proceedings of the Fourth Annual Conference on Artificial Intelligence and Ada,* Fairfax, VA. 1988

Achieving flexibility, efficiency, and generality in blackboard architectures, D. Corkill, K. Gallagher, and P. Johnson, *Proceedings of the Sixth National Conference on Artificial Intelligence,* Seattle, WA, 1987

Beyond exploratory programming: A methodology and environment for natural language processing, P. Johnson and W. Lehnert, *Proceedings of the Fifth National Conference on Artificial Intelligence,* Philadelphia, PA, 1986

Workshop publications...

Lights Off. Game On. The Kukui Cup: A dorm energy competition, R. Brewer, G. Lee, Y. Xu, C. Desiato, M. Katchuck, P. Johnson, *Proceedings of the 2011 CHI Workshop on Gamification,* May 2011 (🖹 pdf)

Ultra-automation and ultra-autonomy for software engineering management of ultra-large-scale systems, P. Johnson, *Proceedings of the 2007 Workshop on Ultra Large Scale Systems,* Minneapolis, Minnesota, May 2007 (🖹 pdf)

Automated recognition of low-level process: A pilot validation study of Zorro for test-driven development, H. Kou, P. Johnson, *Proceedings of the 2006 International Workshop on Software Process,* Shanghai, China, May 2006 (🖹 pdf)

Understanding HPC Development through automated process and product measurement with Hackystat, P. Johnson, M. Paulding, *Proceedings of the Second Workshop on Productivity and Performance in High-End Computing,* February 2005 (🖹 pdf)

You can't even ask them to push a button: Toward ubiquitous, developer-centric, empirical software engineering, P. Johnson, *Proceedings of the Workshop on New Visions for Software Design and Productivity: Research and Application,* December 2001 (🖹 pdf)

Project LEAP: Lightweight, empirical, anti-measurement dysfunction, and portable software developer improvement, P. M. Johnson, *Software Engineering Notes,* Volume 24, Number 6, December 1999

Egret: A framework for advanced CSCW applications, P. Johnson, *Software Engineering Notes,* Volume 21, Number 5, September 1996

Assessing software review meetings: An empirical study using CSRS, P. Johnson, *Proceedings of the 1996 International Software Engineering Research Network Meeting,* Sydney, Australia, August 1996

Investigating Strong Collaboration with the Annotated Egret Navigator, P. Johnson and C. Moore,

Proceedings of the Fourth IEEE Workshop on Enabling Technologies: Infrastructure for Collaborative Enterprises, April 1995

Computer supported formal technical review with CSRS, P. Johnson, *Software Inspection and Review Organization Newsletter,* Volume 5, Number 3, December 1994

Collaboration-in-the-large vs. Collaboration-in-the-small, Proceedings of the 1994 CSCW Workshop on Software Architectures for Cooperative Systems, *P. Johnson,* Chapel Hill, VA. October 1994

From principle-centered to organization-centered design: A case study of evolution in a computer-supported formal technical review environment, Proceedings of the 15th Interdisciplinary Workshop on Informatics and Psychology, *P. Johnson,* Scharding, Austria 1994

Report from the 1993 ECSCW Workshop on Tools and Technologies, P. Johnson, *SIGOIS Bulletin,* April 1994

Methodological issues in CSCW research, P. Johnson, *Proceedings of the 1993 ECSCW Workshop on Tools and Technologies,* Milan, Italy 1993

An architectural perspective on EGRET, P. Johnson, *Proceedings of the 1992 ACM Conference on Computer Supported Cooperative Work, Workshop on Tools and Technologies,* Toronto, Canada 1992

Collaborative software review for capturing design rationale, P. Johnson, *Proceedings of the AAAI Workshop on AI and Design Rationale,* San Jose, CA 1992

Supporting scientific learning and research review using COREVIEW, P. Johnson, *Proceedings of the AAAI Workshop on Communicating Scientific and Technical Knowledge,* San Jose, CA. 1992

EGRET: Exploring open, evolutionary, and emergent collaborative systems, P. Johnson, *Proceedings of the 1991 ECSCW Tools and Technologies Workshop,* Amsterdam, The Netherlands 1991

Structural evolution in exploratory software development, P. Johnson, *Proceedings of the 1989 AAAI Spring Symposium on AI and Software Engineering,* Stanford University, CA. 1989

A knowledge-based rhythm composition tool, S. Founds, P. Johnson, *Proceedings of the 1989 IJCAI Workshop on Artificial Intelligence and Music,* Detroit, MI. 1989

Integrating BB1-style control into the generic blackboard system, P. Johnson, *Proceedings of the 1987 AAAI Workshop on Blackboard Systems,* Seattle, WA. 1987

Combining software engineering and artificial intelligence, P. Johnson, *Proceedings of the First International Workshop on Computer-Aided Software Engineering,* Cambridge, MA. 1987

From prototype to product: Evolutionary development from within the blackboard paradigm, D. Corkill, K. Gallagher, and P. Johnson, *Proceedings of the Workshop on High-level Tools for Knowledge-based Systems,* Columbus, OH. 1986

Requirements definition for a PLUMber's apprentice, P. Johnson, *Proceedings of the Second Annual Workshop on Theoretical Issues in Conceptual Information Processing,* New Haven, CT. 1985

Awarded Grant Support

Human centered information integration for the smart grid
National Science Foundation   2010–2014
P. Johnson, Principal Investigator $413,467

Supporting next generation energy education with the Kukui Cup

HEI Charitable Foundation — 2012

P. Johnson, Principal Investigator — $10,777

Sponsorship of the 2011 Kukui Cup

Hawaii State Department of Business, Economic Development, and Tourism — 2012

P. Johnson, Principal Investigator — $5,000

Renewable energy and island sustainability

University of Hawaii — 2009–2011

Principal Investigator: T. Kuh; Co-Principal Investigators: O. Boric-Lubecke, B. Chao, M. Coffman, D. Garmire, M. Nejhad, R. Ghorbani, P. Johnson, A. Kavcic, D. Konan, B. Liaw, E. Miller, W. Qu, M. Teng, X. Zhou. — $1,000,000

Google Summer of Code: Hackystat

Google, Inc. — 2008–2009

P. Johnson, Principal Investigator — $45,000

CSDL affiliates program

Expedia, Inc. — 2008

P. Johnson, Principal Investigator — $25,000

CSDL affiliates program

Sixth Sense Analytics, Inc. — 2006

P. Johnson, Principal Investigator — $25,000

Student engagement grant

University of Hawaii and Maui High Performance Computing Center — 2005

P. Johnson, Principal Investigator — $42,000

Eclipse innovation grant award

IBM Corporation — 2004

P. Johnson, Principal Investigator — $15,000

Supporting development of highly dependable software through continuous, automated, in-process, and individualized software measurement validation

Joint NSF/NASA Highly Dependable Computing Program — 2002–2006

P. Johnson, Principal Investigator — $638,000

Aligning the financial services, fulfillment distribution infrastructure, and small business sectors in Hawaii through B2B technology innovation

University of Hawaii New Economy Research Grant Program — 2000–2001

P. Johnson, Principal Investigator — $30,000

Internet entrepreneurship: Theory and practice

University of Hawaii Entrepreneurship Course Development Grant — 1999–2000

P. Johnson and Glen Taylor, Principal Investigators — $10,000

Java-based software engineering technology for high quality development in "Internet Time" organizations

Sun Microsystems Academic Equipment Grant Program — 1999

P. Johnson, Principal Investigator — $39,205

Project LEAP: Lightweight, empirical, anti-measurement dysfunction, and portable software developer improvement

National Science Foundation — 1998–2001

P. Johnson, Principal Investigator $265,000

Internet-enabled engineering tool for dynamically analyzing and planning world-wide subsea cable and array installations
Makai Ocean Engineering, Inc.   1998–1999
P. Johnson, Principal Investigator $83,286

Kona: A distributed, collaborative technical review environment
Digital Equipment Corporation External Research Program   1997
P. Johnson, Principal Investigator $101,413

CSDL affiliates program
Makai Ocean Engineering, Inc.   1997
P. Johnson, Principal Investigator $10,000

CSDL affiliates program
Tektronix, Inc.   1996–1998
P. Johnson, Principal Investigator $45,000

Improving software quality through instrumented formal technical review
National Science Foundation   1995–1997
P. Johnson, Principal Investigator $161,754

Collaboration mechanisms for Project HI-TIME
Pacific International Center for High Technology Research   1995
P. Johnson, Principal Investigator $30,280

Three dimensional interfaces for evolving collaborative systems
University of Hawaii Research Council Seed Money Grant   1992–1993
P. Johnson, Principal Investigator $5,000

Support for structural evolution in exploratory software development
National Science Foundation Research Initiation Award Program in Software Engineering   1991–1993
P. Johnson, Principal Investigator $54,810

An investigation of software structure evolution
University of Hawaii Research Council Seed Money Grant   1990–1991
P. Johnson, Principal Investigator $6,000

Professional activities

Editorial Board:

- Journal of Empirical Software Engineering, 2004-2008
- IEEE Transactions on Software Engineering, 2000-2004
- International Journal of Computer Supported Cooperative Work, 1997-2004

Program Chair/Co-Chair:

- International Workshop on In-Process Software Engineering Measurement and Analysis, 2007
- International Workshop on Software Engineering for High Performance Computing System Applications, 2004, 2005
- International Software Engineering Research Network Annual Meeting, 2000
- Software Architectures for Cooperative Systems Workshop, ACM Conference on Computer Supported Cooperative Work, 1994

- CSCW Tools and Technologies Workshop, European Conference on Computer Supported Cooperative Work, 1993
- CSCW Tools and Technologies Workshop, ACM Conference on Computer Supported Cooperative Work, 1992

Program Committee:

- Energy 2011, 2012, 2013
- International Workshop on Software Engineering for High Performance Computing System Applications, 2007
- PROFES 2005-2010
- Workshop on Productivity and Performance in High-End Computing, 2005, 2006
- XP/Agile Universe, 2004
- International Software Metrics Symposium, 2003, 2004
- International Symposium on Empirical Software Engineering, 2002-2004
- European Conference on Computer Supported Cooperative Work, 1997, 1999

Judge: Hawaii State Science Fair, Honolulu, Hawaii, 1998-present

Founder and Chair: Hawaii Java Users Group, Honolulu, Hawaii, 1996-2010

Member: International Software Engineering Research Network (ISERN), 1996-2010

Journal article reviewing: IEEE Transactions on Software Engineering, ACM Transactions on Software Engineering and Methodology, ACM Transactions on Programming Languages and Systems, IEEE Software, IEEE Computer, Journal of Collaborative Computing, Artificial Intelligence in Engineering, Design, and Manufacturing