THE UNIVERSITY OF BRITISH COLUMBIA
Curriculum Vitae for Faculty Members

Because much of my career has been spent at an industrial research lab where keeping a detailed CV was not common practice, some details are missing from this CV. Most missing details are secondary contributions prior to 1998, such as panel chairs, panel speakers, workshop papers, external review committees etc.

Date: January 19, 2003 **Initials**:

1. **SURNAME**: Kiczales **FIRST NAME**: Gregor
MIDDLE NAME(S): Jean

2. **DEPARTMENT/SCHOOL: Computer Science**

3. **FACULTY**: Science

4. **PRESENT RANK**: Professor **SINCE**: January 5, 2000

5. **POST-SECONDARY EDUCATION**

University or Institution	Degree	Subject Area	Dates
Massachusetts Institute of Technology		Computer Science	1978-83

Special Professional Qualifications

6. **EMPLOYMENT RECORD**

(a) Prior to coming to UBC

University, Company or Organization	Rank or Title	Dates
Xerox Palo Alto Research Center	Principal Scientist	1996 – 2002
	Manager, Software Design Area	1992 – 2002
	Member of Research Staff	1984 – 1992
Symbolics Cambridge Research Center	Member of Technical Staff	1983 – 1984
Atari Corporate Research	Consultant	1982 – 1983
MIT Laboratory for Computer Science	Research Staff Member	1980 – 1983

(b) At UBC

Rank or Title	Dates
Professor	2000 – present
NSERC Software Design Chair	2000 – present

(c) Date of granting of tenure at U.B.C.:

January 5, 2000

7. LEAVES OF ABSENCE

University, Company or Organization at which Leave was taken	Type of Leave	Dates
Intentional Software Corporation	Unpaid	September 2002 - present

8. TEACHING

(a) Areas of special interest and accomplishments

Course Development:

Fall 2000, I developed a new CPSC 511-Programming Languages graduate course covering a wide range of programming language concepts and techniques.

Fall 2001, I developed a new CPSC 311- Programming Languages undergraduate course covering core programming language concepts and techniques.

(b) Courses Taught at UBC

Session	Course Number	Scheduled Hours	Class Size	Hours Taught			
				Lectures	Tutorials	Labs	Other
Term 2 '01-02	CPSC 311	3/wk	80	3 hrs/wk			
Term 1 '01-02	CPSC 311*	3/wk	45	3 hrs/wk			
Term 2 '00-'01	CPSC 311	3/wk	120	3 hrs/wk			
Term 1 '00-'01	CPSC 511	3/wk	15	3 hrs/wk			

* This semester was the first time CPSC 311 had been taught in the fall.

Undergraduate Honors Students (CPSC 449):

Student	Terms	Project	Original Employment
Dawn Bakie	Term 2 '00-'01	Security Policies in AspectJ	Crystal Decisions

Undergraduate Directed Studies Students (CPSC 448):

Student	Terms	Project	Original Employment
Tom Roeder	Term 2 '00-'01	Exception Handling in AspectJ	Silicon Chalk

(c) Graduate Students Supervised

Student Name	Program Type	Year		Principal Supervisor	Co-Supervisor(s)
		Start	Finish		
Current Students:					
Chris Dutchyn	Ph.D.	2000		Gregor Kiczales[1]	Norm Hutchinson
Jan Hanneman	Ph.D.	2000		Gregor Kiczales[2]	Gail Murphy
Yvonne Coady	Ph.D.	2000		Gregor Kiczales	
Past Students:					
Brian De Alwis	M Sc.	2000	2002	Gregor Kiczales	
Stephan Gudmundson	M.Sc.	2001	2002	Gregor Kiczales	Michael Feeley
Cristina Lopes	Ph.D.	1995	1998	Gregor Kiczales	Karl Lieberherr
Shigeru Chiba	Ph.D.	1994	1996	Gregor Kiczales	Takashi Masuda

Theses Supervised (PhD):

Lopes, C. D: A Language Framework for Distributed Programming
Chiba, S. A Compile-Time Metaobject Protocol for C++

Theses Supervised (Masters):

De Alwis, B. An Aspect-Oriented Extension to Smalltalk
Gudmundson, S. Dependencies in the Context of Aspect-Oriented Programming

(d) Continuing Education Activities

(e) Visiting Lecturer (indicate university/organization and dates)

(f) Other

Ph.D. Committees Completed (all Dept. of Computer Science):

Student	Dates	Principal Supervisor	University
Robert Deline	1997 – 1999	Mary Shaw	Carnegie Mellon University
Stéphane Ducasse	1995 – 1996	P. Franchi	University of Nice, Sophia Antipolis

M.Sc. Committees (Second Reader, all Dept. of Computer Science)

Undergraduate Co-Op, Summer Students and Research Assistants:

Student	Dates	Project	Original Employment
Cristina Green	05/01-08/01	AOP in avionics code	Continuing Student
Ida Chan	05/01-12/01	AOP in operating systems	Continuing Student
Greg Smolyn	12/00- 5/02	AspectC design and implementation	CS Department Staff

[1] While I am on leave, Norm Hutchinson is the primary supervisor for Chris Dutchyn.
[2] While I am on leave, Gail Murphy is the primary supervisor of Jan Hanneman.

Summer Interns Supervised Directly While at PARC

Student	Student's University	Dates (summer)	Original Employment
Erik Hilsdale	Indiana University	1998, 1999	Xerox PARC
Taher Haveliwela	University of California, Berkeley	1998	Continuing Student
Mark Marchukov	University of Virginia	1997	Yahoo! Inc.
Beth Seamans	Stanford University	1996	Continuing Student
Jonathan Sobel	Indiana University	1996	Nortel Networks Inc.
Cristinia Lopes	Northeastern	1995	Xerox PARC
Robert Deline	Carnegie Mellon University	1995	Microsoft Inc.
Chris Maeda	University of Washington	1995	RubricSoft Inc.
Anurag Mendhekar	Indiana University	1994, 1993	Yahoo! Inc.
Amin Vahdat	University of California, Berkeley	1992	Duke University
David Goldstone	MIT	1991	U.S. Dept. of Justice
Luis Rodriguez	MIT	1990, 1989	McKinsey & Company

9. SCHOLARLY AND PROFESSIONAL ACTIVITIES

(a) Areas of special interest and accomplishments

My research is primarily in the area of programming languages and software engineering. The goal of my work is is to enable programmers to write programs that, as much as possible, look like their design structure. For a number of years I have been focusing on mechanisms that support crosscutting structures in software. Since 1995, I have been a principal contributor in the development of aspect-oriented programming. Prior to that I developed the concept of metaobject protocols, and did significant work in object-oriented programming.

(b) Research or equivalent grants (indicate under COMP whether grants were obtained competitively (C) or non-competitively (NC))

Granting Agency	Subject	COMP	$ Per Year	Year	Principal Investigator	Co-Investigator(s)
Object Technology International	Tools for Aspect-Oriented Software Development	NC	$25,000 (CDN)	2002 - 2005	G. J. Kiczales	G. J. Kiczales
NSERC	partial match for above	C	$20,000 (CDN)	2002 - 2005	G. J. Kiczales	G. J. Kiczales
NSERC	Industrial Research Chair in Software Design	C	$175,000 (CDN)	2001 - 2005	G.J. Kiczales	
Xerox	*same as above*	NC	$150,000 (CDN)	2000 - 2005	G.J. Kiczales	
Sierra Systems	*same as above*	NC	$25,000 (CDN)	2000 - 2005	G.J. Kiczales	
NIST/ATP	"High-Performance Reusable Software Through Separation of Implementation Concerns"	C	$500,000 (USD)	1995 - 1997	G.J. Kiczales	
UBC	Start-up	NC	$90,000 (CDN)	2000	G.J. Kiczales	

(c) Research or equivalent contracts (indicate under COMP whether grants were obtained competitively (C) or non-competitively (NC).

Granting Agency	Subject	COMP	$ Per Year	Year	Principal Investigator	Co-Investigator(s)
DARPA	"Development of AspectJ and support of its user community."	C	$600,000 (USD)	2000 - 2002	G.J. Kiczales	
DARPA	"Aspect-Oriented Programming and its application to Smart Matter and Information Survivability Applications."	C	$600,000 (USD)	1998 - 1999	G.J. Kiczales	

(d) Invited Presentations

Invited lectures:

2003: International Conference on Aspect-Oriented Programming; Software Development Expo West
2002: University of California, San Diego; IBM Academy, London England; Crystal Decisions; Information Processing Society of Japan, Object-Orientation Conference; University of Toronto; Net Object Days, Erfurt, Germany; Software Development Expo East.
2001: Reflection Conference; JAOO Conference; Bolt Beranek and Newman; Rockwell Martin; IRISA, Rennes; Objects, Components, Models Conference; Boeing Skunk Works; University of Alberta; Vancouver Institute
2000: JAOO Conference; Ecole des Mines de Nantes; Xerox PARC Forum
1999: Oxford University Computing Lab; University of California, San Diego
1998: Indiana University; IBM Object-Technology Practice, Frankfurt Germany; Ecole des Mines de Nantes; IRISA, Rennes
1997: Brown University; University of Virginia; MIT Artificial Intelligence Lab; ACM Conference on Domain Specific Languages; University of British Columbia; Information Processing Society of Japan SIGSE; ACM Conference on Object-Oriented Programming Languages, Systems and Applications; European Conference on Object Oriented Programming; Xerox PARC Forum
1995: International Conference on Software Engineering; Oregon Graduate Institute
1994: ACM Conference on Object-Oriented Programming Languages, Systems and Applications; INRIA Sophia Antipolis; Taligent Inc.; Xerox PARC Forum; University of Virginia; University of California, Santa Cruz
1993 Carnegie Mellon University; University of California, Berkeley; University of Washington; Cornell University;
1992 Indiana University; University of Arizona; University of Utah
1990: MIT Lab for Computer Science
1989: Information Processing Society of Japan; Seybold Forum on Object-Orientation
1985: MIT Artificial Intelligence Lab

(e) Other Presentations (These are conference and industrial tutorials.)

2003: O'Reilly Emerging Technology Conference
2002:
2001: ACM SIGSOFT Ninth International Symposium on the Foundations of Software Engineering; European Conference on Object-Oriented Programming (with Erik Hilsdale)
2000: ACM SIGSOFT European Conference on Object-Oriented Programming (with Cristina Lopes); Eighth International Symposium on the Foundations of Software Engineering; ACM Conference on Object-Oriented Programming: Systems, Languages, and Applications, Minneapolis, Minnesota, 2000 (with Erik Hilsdale).
1999: ACM Conference on Object-Oriented Programming: Systems, Languages, and Applications (with Cristina Lopes). European Conference on Object-Oriented Programming (with Cristina Lopes).
1998: ACM Conference on Object-Oriented Programming: Systems, Languages, and Applications, Vancouver (with Cristina Lopes); European Conference on Object-Oriented Programming, Brussels, Belgium, 1998 (with Cristina Lopes); BBN (GTE Internetworking), Cambridge, Massachusetts, 1998; ACM Conference on Programming Language Design and Implementation. Montreal, Canada, 1998.
1997 European Conference on Object-Oriented Programming
1996 ACM Conference on Object-Oriented Programming: Systems, Languages, and Applications (with Chris Maeda).

(f) Other (Panel presentations are not yet listed.)

(g) Conference Participation (Organizer, Keynote Speaker, etc.)

2003: Program Committee Member, International Conference on Aspect-Oriented Software Development (AOSD)
Steering Committee Member AOSD Conference
Program Committee Member, Agile Development Conference
Program Committee Member, ACM Conference on Generators and Components
Program Committee Member, ACM Conference on Object Oriented Programming Systems, Languages, and Applications (OOPSLA)
2002: Program Committee Chair, International Conference on Aspect-Oriented Software Development (AOSD)
Steering Committee Member AOSD Conference
Program Committee Member, ACM Conference on Generators and Components
Program Committee, ACM Conference on Object Oriented Programming Systems, Languages, and Applications (OOPSLA)
2001: Program and Organizing Committee Member, Reflection Conference
1999: Program and Organizing Committee Member, Reflection Conference
Program Committee, ACM Conference on Object Oriented Programming Systems, Languages, and Applications (OOPSLA)
1998: Co-chair workshop on Aspect-Oriented Programming, European Conference on Object-Oriented Programming (ECOOP)
Co-chair workshop on Aspect-Oriented Programming, International Conference on Software Engineering (ICSE).
1997: Program Committee Member, ACM Conference on Object Oriented Programming Systems, Languages, and Applications (OOPSLA)
Co-chair Workshop on Aspect-Oriented Programming, ECOOP.
1996: Program Committee Member, OOPSLA
Program Committee, International Symposium on the Foundations of Software Engineering
Program Committee, International Workshop on Object Orientation in Operating Systems
Program Chair, Reflection Conference
1995 Program Committee, ACM Conference on Object Oriented Programming Systems, Languages, and Applications (OOPSLA)
1994 Program Committee, ACM Conference on Object Oriented Programming Systems, Languages, and Applications (OOPSLA)
Chair Workshop on Open Implementation, Gleneden Oregon
1991: Workshop on Reflection and Meta-level Architectures, OOPSLA Conference
1990: Workshop on Reflection and Meta-level Architectures, Joint OOPSLA/ECOOP Conference
1989: CLOS Workshop, OOPSLA Conference
1988: CLOS Workshop, AAAI Conference

10. SERVICE TO THE UNIVERSITY

(a) Memberships on committees, including offices held and dates

Departmental:

2000-Present, Member, Recruiting Committee
2000-2001, Chair, Space Committee

University:

2001 -- Present, Member President's Advisory Committee on Canada Research Chair Applications

(b) Other service, including dates

11. SERVICE TO THE COMMUNITY

(This section has only a few of the most recent entries.)

(a) Memberships on scholarly societies, including offices held and dates

(b) Memberships on other societies, including offices held and dates

(c) Memberships on scholarly committees, including offices held and dates

(c) Memberships on other committees, including offices held and dates

(d) Editorships (list journal and dates)

(f) Reviewer (journal, agency, etc. including dates)
Numerous journal and funding agency reviews are missing from this list.
NSF Review Panel, 2003
NSF Review Panel, 2000

(g) External examiner (indicate universities and dates)

(h) Consultant (indicate organization and dates)

(i) Other service to the community
National Coordination Office (NCO) Committee on Software Development Productivity, chair of development paradigms sub-committee.

DARPA Advisory Panel, 1997

12. AWARDS AND DISTINCTIONS

(a) Awards for Teaching (indicate name of award, awarding organizations, date)

2002: Incredible Instructor Award (for CPSC 311), Dept. of Computer Science

(b) Awards for Scholarship (indicate name of award, awarding organizations, date)

1995: Xerox PARC Achievement Award
1992: Xerox PARC Achievement Award
1991: Xerox PARC Excellence in Science and Technology
1987: Xerox PARC Excellence in Science and Technology

(c) Awards for Service (indicate name of award, awarding organizations, date)

(d) Other Awards

Finalist, World Technology Network Awards, 2002.

13. OTHER RELEVANT INFORMATION (Maximum 0ne Page)

THE UNIVERSITY OF BRITISH COLUMBIA

Publications Record

SURNAME: KICZALES **FIRST NAME**: Gregor **Initials**:
MIDDLE NAME(S): Jean **Date**: January 19, 2003

In computer science, significant emphasis is placed on conference publications. Conference submissions are rigorously reviewed. In the publication section, I have listed under conference publications, those publications subjected to rigorous review. Acceptance rates for these conferences are provided when available. Workshop publications and conferences without a rigorous review process (less than 3 reviewers) have been separated into category 1c, other.

In some cases, material first appears in technical report form and then is published in a conference. Similarly, material that appeared in a conference may be significantly revised and expanded into journal format. I have listed material once, showing the history of each article.

In programming languages and software engineering the order of authorship on papers is determined by the contribution made by each author to the work. In any case where I have made equal contributions with students, I have placed myself after the students. In all cases, one is only included as an author if intellectual contributions have been made to the work.

Acronym chart:

AOSD	International Conference on Aspect-Oriented Software Development
ECOOP	European Object-oriented Programming Conference
ESEC	European Software Engineering Conference
FOOL	Foundations of Object-Oriented Languages
FSE	ACM SIGSOFT Symposium on the Foundations of Software Engineering Conference
ICSE	International Conference on Software Engineering
JAOO	Java and Object-Oriented Software Engineering Conference
OOPSLA	ACM Object-oriented Programming Systems, Languages and Applications Conference

1. REFEREED PUBLICATIONS

(a) Journals

1. "Getting Started with AspectJ", Gregor Kiczales, Erik Hilsdale, Jim Hugunin, Mik Kersten, Jeffrey Palm and William G. Griswold. *Communications of the ACM*, Special Section on Aspect-oriented Programming, 44, 10 (2001), 6 pages (7 accepted / 50 submitted)

2. "Structuring System Aspects", Yvonne Coady, Gregor Kiczales, Mike Feeley, Norm Hutchinson, and Joon Suan Ong. *Communications of the ACM*, Special Section on Aspect-oriented Programming., 44, 10 (2001), 3 pages (7 accepted / 50 submitted)

3. Bobrow, D.G., DiMichiel, L., Gabriel, R., Keene, S., Kiczales, G., and Moon, D. The Common Lisp Object System Specification. *LISP and Symbolic Computation*, 1, 3-4, 245-398. (Also appears in SIGPLAN Notices 23, September 1988.)

4. “Issues in the Pragmatics of Qualitative Modeling: Lessons Learned from a Xerographics Project”, Shrager, J., Jordan, D.S., Moran, T.P., Kiczales G., and Russell, D.M.. *Communications of the ACM*, 30, 12, (1987), p. 1036-1047

(b) Conference Proceedings (Journal-Quality)

1. Hidehiko Masuhara, Gregor Kiczales and Chris Dutchyn. A Compilation and Optimization Model for Aspect-Oriented Programs. In Proc. Of 12th International Conference on Compiler Construction, (2003), (to appear). (Conference acceptance rate: 21/ 83=25%)

2. Yvonne Coady and Gregor Kiczales. Back to the Future: A Retroactive Study of Aspect Evolution in Operating System Code. In Proc of AOSD, (2003), (to appear). (Conference acceptance rate: 21/ 80=26%)

3. Jan Hannemann and Gregor Kiczales. Design Pattern Implementations in Java and AspectJ. In Proc. of OOPSLA, ACM, (2002), pp. 161-173. (Conference acceptance rate: 25/ 125=20%)

4. Yvonne Coady, Gregor Kiczales, Mike Feeley and Greg Smolyn. Using AspectC to Improve the Modularity of Path-Specific Customization in Operating System Code. In Proc. of ESEC/FSE, ACM, (2001), pp. 88-98. (Conference acceptance rate: 29/137=21%)

5. Gregor Kiczales, Erik Hilsdale, Jim Hugunin, Mik Kersten, Jeffrey Palm and William G. Griswold. An Overview of AspectJ, In Proc. of ECOOP, Springer-Verlag, (2001). (Conference acceptance rate: 18/108=17%)

6. Kiczales, G., Lamping, J., Mendhekar, A., Maeda, C., Videira Lopes, C., Loingtier, J.-M., and Irwin, J. Aspect-Oriented Programming. In Proc. of ECOOP, Springer-Verlag, (1997), pp. 220-42.

7. Irwin, J., Loingtier, J.-M., Gilbert, J., Kiczales, G., Lamping, J., Mendhekar, A., and Spheisman, T. Aspect-oriented Programming of Sparse Matrix Code. In *Proc. of Int'l Conf. on Scientific Computing in Object-oriented Parallel Environments*, Springer-Verlag, (1997), pp. 249-56.

8. Kiczales, G., Lamping, J., Videira Lopes, C., Mendhekar, A., Murphy, G.C. Open Implementation Design Guidelines. In Proc. of ICSE, ACM, (1997), pp. 481-90. (Conference acceptance rate: 50/219=23%)

9. Maeda, C., Lee, A., Murphy, G.C., and Kiczales, G. Open Implementation Analysis and Design. In *Proc. of the Symposium on Software Reusability*, appears as *Software Engineering Notes 22*, 3, ACM Press, (1997), pp. 44-52. (Conference acceptance rate: 21/63=33%)

10. Kiczales, G. Aspect-Oriented Programming. *Computing Surveys* 28, 4es, (1996), p. 154.

11. Kiczales, G. Beyond the Black Box: Open Implementation. *IEEE Software*, 13, 1, (1996), pp. 8, 10-11.

12. Kiczales, G. and Lamping, J. Issues in the Design and Specification of Class Libraries. In *Proc. of OOPSLA*, ACM, (1992), pp 435-51

13. Bobrow, D.G., DiMichiel, L., Gabriel, R., Keene, S., Kiczales, G., and Moon, D. The Common Lisp Object System Specification. *LISP and Symbolic Computation*, 1, 3-4, 245-398. (Also appears in SIGPLAN Notices 23, September 1988.)

14. Bobrow, D.G., Kiczales, G., Kahn, K., Masinter, L., Stefik, J. and Zdybel, F. CommonLoops: merging LISP an Object-oriented Programming. In *Proc. of OOPSLA*, ACM, (1986).

15. Bobrow, D.G. and Kiczales, G. The Common Lisp Object System Metaobject Kernel: A Status Report. Daniel G. Bobrow and Gregor Kiczales. In *Proc. of the ACM Conference on Lisp and Functional Programming*, ACM, (1988), pp. 309-15.

(d) Other (Workshop papers)
(Papers before 2002 are not currently listed.)

1. Yvonne Coady, Gregor Kiczales, Joon Suan Ong, Andrew Warfield and Michael Feeley. Brittle Systems will Break - Not Bend: Can Aspect-Oriented Programming Help? In Proceedings of the Tenth ACM SIGOPS European Workshop, Saint-Emilion, France, September 22-25, 2002. (19/50 papers accepted for presentation.)
2. "A Semantics for Advice and Dynamic Join Points in Aspect-Oriented Programming" M. Wand, G. Kiczales, and C. Dutchyn. In Proc. of FOOL 9 (2002).
3. Hidehiko Masuhara, Gregor Kiczales and Chris Dutchyn. Compilation Semantics of Aspect-Oriented Programs. In Proc. of Workshop on Foundations of Aspect-Oriented Programming. (2002).

2. NON-REFEREED PUBLICATIONS (Not listed.)

(a) Journals

(b) Conference Proceedings

(c) Other

Technical Reports (not otherwise published):

3. BOOKS

(a) Authored

1. Kiczales, G, Des Rivieres, J, Bobrow, D. *The Art of the Metaobject Protoocol*, MIT Press (1989).

(b) Edited

(d) Chapters

1. Kiczales, G. and Rodriguez, Jr., L.H. Efficient Method Dispatch in PCL. In *Proc. of the 1990 ACM Conf. on Lisp and Functional Programming*, ACM, (1990), pp. 99-105. Also appears in Object-Oriented Programming: The CLOS Perspective, A. Paepcke editor, MIT Press, 1993.)

4. PATENTS

U.S. Patent 6,473,895 – Aspect-oriented system monitoring and tracing.
U.S. Patent 6,467,096 – Aspect-oriented programming
U.S. Patent 6,199, 201 – Software constructs that facilitate partial evaluation of source code
U.S. Patent 5,822, 593 – High-level loop fusion

5. SPECIAL COPYRIGHTS

6. ARTISTIC WORKS, PERFORMANCES, DESIGNS

7. OTHER WORKS

Systems

1. Portable CommonLoops (PCL). A production quality implementation of the CLOS ANSI Standard. At its peak I supported thousands of users of this system, it remains the basis of commercial CLOS products. I was the designer and primary implementer of this system.

2. The CLOS metaobject protocol. A production quality implementation of the CLOS Metaobject Protocol. This is a significant extension of the PCL system in item 1.

3. AspectJ. A production quality aspect-oriented extension to Java. This system is the de facto standard for AOP in Java. I am the leaddesigner of this system, and have led the team of four implementers. As of December of 2002, AspectJ was being downloaded 2,500 times a month.

Videotapes

1. Visions of Software in the 21st Century, with Mario Tokoro. University Video Communication Series on Object Technology. Recording of OOPSLA 1997 Invited Presentation (60 minutes).

2. Why Are Black Boxes So Hard to Reuse. University Video Communications Series on Object Technology. Recording of OOPSLA 1995 Invited Presentation (65 minutes).

8. WORK SUBMITTED (including publisher and date of submission)

1. Masuhara, H and Kiczales, G. A Semantic Framework for Aspect-Oriented Programming. ECOOP 2003. Submitted December 2003.

9. WORK IN PROGRESS (including degree of completion)

1. Kiczales, G. A Modern Software Development Tools Research Project. An account of the research methodology used in the AspectJ project, that enabled going from research idea to commercial adoption in under 5 years. (20% complete)