

Curriculum Vitae
John M. Vlissides

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EDUCATION

6/90 **PhD** Electrical Engineering, Stanford University
4/85 **MS** Electrical Engineering, Stanford University
5/83 **BS** Electrical Engineering (Highest Distinction), University of Virginia

HONORS

Tau Beta Pi; Eta Kappa Nu; U.Va. Electrical Engineering Dept. Chairperson's Prize, 1983; *Software Development* magazine Productivity Award for *Design Patterns*, 1994; IBM Outstanding Technical Achievement Award, 1996; *Dr. Dobb's Journal* Excellence in Programming Award, 1998; elected to IBM Academy of Technology, 1998; "Best of Object-Oriented Programming, 1998" for *Design Patterns CD* by Amazon.com

EXPERIENCE

12/91–present: **Research Staff Member, IBM T.J. Watson Research Center, Hawthorne, NY**

Conducting research in user interface development tools, programming environments, and object-oriented system architecture, programming, and visualization. Provided consulting services in these areas to ABB (Mannheim, Germany), Sony (San Jose, CA), VW/Porsche/Audi (Salzburg, Austria), Sprint (Dallas, TX), StorageTek (Longmont, CO), Manulife (Toronto, ON), Hewlett Packard (Boise, ID), Alberta Wellnet (Edmonton, AB) and BEA (Denver, CO), as well as consulting for various groups within IBM (Rome lab, Boeblingen lab, Government Systems, IGS, ISSCC, Java & Object Solutions, Toronto lab, Pacific Development Centre, Edmonton lab, Tivoli). Presented numerous papers and tutorials at leading software conferences (COOTS, C++ World, ECOOP, ICSE, ObjectExpo, ObjectWorld, OOPSLA, PLDI, POPL, SIGS/OOP, USENIX, various IBM conferences), universities (Brown, Columbia, Cornell, Stanford, U. of Indiana, U. of Delaware, UC-Berkeley), and government agencies (NSA, NRO). Developed and taught courses in design patterns and frameworks at various IBM sites (Watson, Cary, Poughkeepsie, Santa Teresa, Toronto) and for UC Berkeley Extension and the Western Institute for Computer Science (WICS) series at Stanford. Co-authored *Design Patterns*, the seminal work on the topic.

6/90–11/91: **Post-doctoral Scholar, Stanford University, Stanford, CA**

Continued graduate research on improving programmer productivity, focusing on object-oriented abstractions for building highly interactive applications with graphical user interfaces. Co-taught the C++ programming language course for WICS, having gained more than five years' experience with object-oriented programming and design in general and with C++ in particular. Designed and co-developed ibuild, an interactive user interface builder for workstation applications.

2/91, 7/91, 11/91: **Consultant to Digital Equipment GmbH, Viernheim, Germany; Asea Brown Boveri, Mannheim, Germany**

Provided consulting services for PROSYS, a joint ABB-Digital project to develop computer-aided power plant monitoring and control systems.

8/90–11/91: **Consultant to Hewlett Packard Co., Sunnyvale, CA**

Provided consulting services under nondisclosure agreement.

12/88–11/91: Consultant to Fujitsu America, Inc., San Jose, CA
Provided consulting services under nondisclosure agreement.

1/85–6/90: Research Assistant, Stanford University

Conducted dissertation research on Unidraw, one of the first object-oriented frameworks for graphical editing systems. Co-developed InterViews, a user interface toolkit used by hundreds of developers throughout the world; authored or co-authored several papers describing its design and implementation; and presented numerous seminars and tutorials at universities (CMU, MIT, Stanford, UCSC), for government (IDA, LBL, NASA, NIST), and in industry (ABB, AT&T Bell Labs, DEC, Fujitsu, HP, IBM, Perkin-Elmer, Sun, Sony, TI, Xhibition). Developed idraw, an object-oriented drawing editor for workstations.

Summers 1983–85: Senior Software Engineer, Structural Systems Technology, Inc., McLean, VA

Developed OMNIRUN, a software system for automating the structural analysis of guyed telecommunications towers. The system is in daily use and has been applied to the design and analysis of hundreds of towers worldwide.

Summer 1982: Summer Intern, RCA Antenna Division, Gibbsboro, NJ

Performed radiation pattern optimization studies on new H-Panel VHF antenna design.

Summers 1976–81: Software Engineer, Structural Systems Technology, Inc.

Performed design analyses of guyed telecommunications towers and developed software tools to facilitate the process.

PUBLICATIONS

Books

- J. Vlissides. *Pattern Hatching: Design Patterns Applied*. Addison-Wesley, Reading, MA, 1998.
- J. Vlissides, J.O. Coplien, N. Kerth, eds. *Pattern Languages of Program Design 2*. Addison-Wesley, Reading, MA, 1996.
- T. Lewis, L. Rosenstein, W. Pree, A. Weinand, E. Gamma, P. Calder, G. Andert, J. Vlissides, K. Schmucker. *Object-Oriented Application Frameworks*. Manning, Greenwich, CT, 1995.
- E. Gamma, R. Helm, R. Johnson, J. Vlissides. *Design Patterns: Elements of Reusable Object-Oriented Software*. Addison-Wesley, Reading, MA, 1995.

Journal Papers

- F. Budinsky, M. Finnie, J. Vlissides, P. Yu. Automatic code generation from design patterns. *IBM Systems Journal*, Vol. 35, No. 2 (1996), pp. 151–171.
- J. Vlissides, M. Linton. Unidraw: A framework for building domain-specific graphical editors. *ACM Transactions on Information Systems*, Vol. 8, No. 3, July 1990, pp. 237–268.
- M. Linton, J. Vlissides, P. Calder. Composing user interfaces with InterViews. *Computer*, Vol. 22, No. 2, February 1989, pp. 8–22.

Conference Papers

- C. Chambers, B. Harrison, J. Vlissides. A debate on language and tool support for design patterns. *Proceedings of the 27th ACM Principles of Programming Languages Conference (POPL 2000)*, Boston, MA, January 2000, pp. ??–??.
- W. De Pauw, D. Lorenz, J. Vlissides, M. Wegman. Execution patterns in object-oriented visualization. *Proceedings of the Fourth Conference on Object-Oriented Technologies and Systems (COOTS '98)*, Santa Fe, NM, April 1998, pp. 219–234.
- K. Beck, J.O. Coplien, R. Crocker, L. Dominick, G. Meszaros, F. Paulisch, J. Vlissides. Industrial experience with design patterns. *Proceedings of the 18th International Conference on Software Engineering*, Berlin, Germany, March 1996, pp. 103–114.
- W. De Pauw, D. Kimelman, J. Vlissides. Modeling object-oriented program execution. *Proceedings of the 8th European Conference on Object-Oriented Programming*, Bologna, Italy, July 1994, pp. 163–182.
- W. De Pauw, R. Helm, D. Kimelman, J. Vlissides. Visualizing the behavior of object-oriented systems. *OOPSLA '93 Conference Proceedings*, Washington, D.C., September 1993, pp. 326–337.
- E. Gamma, R. Helm, R. Johnson, J. Vlissides. Design patterns: Abstraction and reuse of object-oriented design.

Proceedings of the 7th European Conference on Object-Oriented Programming, Kaiserslautern, Germany, July 1993, pp. 406–431.

R. Helm, T. Huynh, K. Marriott, J. Vlissides. An object-oriented architecture for constraint-based graphical editing. *Proceedings of the Third Eurographics Workshop on Object-Oriented Graphics*, Champéry, Switzerland, October 1992, pp. 1–22.

J. Vlissides, S. Tang. A Unidraw-based user interface builder. *Proceedings of the ACM SIGGRAPH Fourth Annual Symposium on User Interface Software and Technology*, Hilton Head, SC, November 1991, pp. 201–210.

J. Vlissides, M. Linton. Applying object-oriented design to structured graphics. *Proceedings of the 1988 USENIX C++ Conference*, Denver, CO, October 1988, pp. 81–94.

Magazine Articles

High-level program specification and optimization. *Dr. Dobb's Journal*, November 2000.

The compound without a name. *Java Report*, November 2000.

The EXE interview: John Vlissides. *EXE Magazine*, October 2000.

McConnell complete. *Dr. Dobb's Journal*, October 2000.

To code or not to code, part II. *C++ Report*, June 2000 (with A. Alexandrescu).

To code or not to code, part I. *C++ Report*, March 2000 (with A. Alexandrescu).

Visitor in frameworks. *C++ Report*, November/December 1999.

Diversify. *C++ Report*, November/December 1999.

Tooled Composite. *C++ Report*, September 1999.

XP. *C++ Report*, June 1999.

Compounding Command. *C++ Report*, April 1999 (with R. Helm).

Pluggable Factory, part II. *C++ Report*, February 1999.

Minimalism and immersion. *C++ Report*, November/December 1998.

Pluggable Factory, part I. *C++ Report*, November/December 1998.

Composite design patterns (they aren't what you think). *C++ Report*, June 1998.

Notation, notation, notation. *C++ Report*, April 1998.

Subject-oriented design. *C++ Report*, February 1998.

Multicast - Observer = Typed Message. *C++ Report*, November/December 1997.

Multicast. *C++ Report*, September 1997.

Latter-day events. *C++ Report*, June 1997.

Patterns: The top ten misconceptions. *Object Magazine*, March 1997.

Type laundering. *C++ Report*, February 1997.

Generation Gap. *C++ Report*, November/December 1996.

The trouble with Observer. *C++ Report*, September 1996.

To kill a singleton. *C++ Report*, June 1996.

Protection, part II: Membership has its privileges. *C++ Report*, April 1996.

Protection, part I: The Hollywood principle. *C++ Report*, February 1996.

Seven habits of successful pattern writers. *C++ Report*, November/December 1995.

Visiting rights. *C++ Report*, September 1995.

Orphanage, adoption, and surrogates. *C++ Report*, June 1995.

Pattern hatching: Perspectives from the Gang of Four. *C++ Report*, March/April 1995.

Miscellaneous

D. Lorenz, J. Vlissides. Automated architectural transformation: objects to components. IBM Research Research Report RC 21773 (98045), June 2000.

W. De Pauw, D. Kimelman, J. Vlissides. Visualizing object-oriented software execution. In *Software Visualization: Programming as a Multimedia Experience*, J. Stasko, et al., eds. MIT Press, Cambridge, MA, 1998.

E. Gamma, R. Helm, R. Johnson, J. Vlissides. *Design Patterns CD: Elements of Reusable Object-Oriented Software*. Addison-Wesley, Reading, MA, 1998.

S. Lippman, ed. Pattern hatching. In *C++ Gems: Programming Pearls from the C++ Report*. SIGS Books, New York, NY, 1996.

R. Helm, T. Huynh, K. Marriott, J. Vlissides. An object-oriented architecture for constraint-based graphical editing. In *Object-Oriented Programming for Graphics*, C. Laffra, et al., eds. Springer-Verlag, Berlin, 1995.

J. Vlissides. *Generalized Graphical Object Editing*. PhD thesis, Stanford University, June 1990. (Available as Stanford University Computer Systems Laboratory Technical Report CSL-TR-90-427.)

M. Linton, P. Calder, J. Vlissides. InterViews: A C++ graphical interface toolkit. Technical Report CSL-TR-88-358, Stanford University Computer Systems Laboratory, July 1988.

PATENTS

Issued

5,592,600, Animated display showing execution of object-oriented programs. Filed 9/27/94, issued 1/7/97.

Inventors: W. De Pauw, V. Cina, R. Helm, D. Kimelman, J. Vlissides.

5,606,699, Storing and querying execution information for object-oriented programs. Filed 4/28/95, issued 2/25/97.

Inventors: W. De Pauw and J. Vlissides.

6,106,569, Method of developing a software system using object-oriented technology. Filed 3/11/98, issued 8/22/00.

Inventors: K. Bohrer, J. Carey, B. Carlson, T. Graser, A. Nilsson, J. Vlissides.

Pending

Visualizing execution patterns in object-oriented programs. Filed 8/1/96. Inventors: W. De Pauw, J. Vlissides, D. Lorenz, M. Wegman.

Querying and navigating execution patterns in object-oriented programs. Filed 4/9/99. Inventors: W. De Pauw, J. Vlissides.

Extensible and efficient double dispatch in single-dispatch object-oriented programs. Filed 8/10/00. Inventor: J. Vlissides.

REFEREEING

Journals

ACM Transactions on Computer-Human Interaction, ACM Transactions on Graphics, IEEE Computer, Software—Practice & Experience, Communications of the ACM, IBM Systems Journal, National Science Foundation

Conferences

ACM Object-Oriented Programming Systems, Languages, and Applications, ACM SIGGRAPH, ACM SIGPLAN PLDI, ACM Symposium on User Interface Software and Technology, Pattern Languages of Programs

Publishers

Addison-Wesley, John Wiley & Sons

PROGRAM COMMITTEES

ACM Object-Oriented Programming Systems, Languages, and Applications (1996, 1999, 2001 Program Chair), *Pattern Languages of Programs Conference* (1994-1997), *European Pattern Languages of Programs Conference* (1996-1997), *IBM International Conference on Object Technology* (1996).

EDITORSHIP

Consulting Editor, *Software Patterns Series*, Addison-Wesley.

FAMILY

Wife Dru Ann (married 1992), four children: Matthew (b. 1993), Helen (b. 1996, d. 1997), Mark (b. 1998), Robert (b. 2000).

HOBBIES

Music, spirited driving, reading, creative writing, cooking, and travel.

LANGUAGES

English (fluent), Greek (nearly fluent), German (conversant), Spanish (basic knowledge).

REFERENCES

Dr. Mark N. Wegman, IBM T.J. Watson Research Center, P.O. Box 704, Yorktown Heights, NY 10598.

Prof. Ralph Johnson, Department of Computer Science, University of Illinois, 1304 West Springfield Avenue, Urbana, IL 61801.

Dr. Mark A. Linton, Vitria Technology, Inc., 500 Ellis Street Mountain View, CA, 94043

Prof. David R. Cheriton, Computer Science Department, Stanford University, Stanford, CA 94305.

Prof. Brad A. Myers, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA 15213-3890.

Mr. Paul Becker, Addison-Wesley Publishing Co., One Jacob Way, Reading, MA 01867.

Mr. John Wait, Addison-Wesley Publishing Co., One Jacob Way, Reading, MA 01867.

Mr. Charles Brauer, Director, Software Research & Development, Fujitsu America, Inc., 3055 Orchard Drive, M/S B-2-5, San Jose, CA 95134.

Dr. David M. Ungar, Sun Microsystems Laboratories, Inc., 2550 Garcia Avenue, M/S 10-21 Mountain View, CA 94043.

Mr. Fred Purdy, President, Structural Systems Technology, Inc., 6867 Elm Street, McLean, VA 22101.