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# The Real Times

Vol.36 No.6

[www.acm.org/chapters/gbc](http://www.acm.org/chapters/gbc)

February 1998

## Responsive Object-Based Media

V. Michael Bove, Jr. MIT Media Laboratory

Thursday, February 19, 1998

Presentation starts at 7:00 PM.  
Refreshments at 6:30 PM.

### Meeting Overview

Object-Based Media refers to the representation of audiovisual information as a collection of objects — the result of scene-analysis algorithms — and a script describing how they are to be rendered for display. Such multimedia presentations can adapt to viewing circumstances (e.g. size and aspect ratio of display) as well as to viewer preferences and behavior, and can provide a richer link between content creator and consumer. With faster networks and processors, such ideas become applicable to live interpersonal communications as well, creating a more natural and productive alternative to traditional videoconferencing.

In my talk I will present some examples of object-based media applications developed by my group, and describe several analysis methods and our scripting language. I will also briefly examine research we are conducting into hardware and software designs that meet the high computational requirements of object-based and other advanced media representations.

### Speaker Biography

V. Michael Bove, Jr. holds an S.B.E.E., an S.M. in Visual Studies, and a Ph.D. in Media Technology, all from the Massachusetts Institute of Technology, where he is currently head of the Object-Based Media Group at the Media Laboratory. He is the author or co-author of over 40 journal or conference papers on digital television systems, video processing hardware/software design, multimedia, scene modeling, and optics. He holds patents on inventions relating to video recording and hardcopy, and has been a member of several professional and government committees. In December 1995, Boston Magazine named him one of the "People Shaping Boston's High-Tech Future." He is on the Board of Editors of the Journal of the Society of Motion Picture and Television Engineers, and served as general chair of the 1996 ACM multimedia conference.

More detail on his research, and downloadable documents, can be found at <http://vmb.www.media.mit.edu/people/vmb/> "http://ece.neu.edu/ieeebost/" and "http://www.ieee-boston.org/".

Directions to Bolt Beranek and Newman (BBN)/Recorded directions: (617) 873-4567

**From Route 128, Lexington:** Take Route 2 inbound. The four-lane highway narrows to two lanes near Route 16. At the traffic light bear right onto Alewife Brook Parkway. Proceed past shopping centers to the Fresh Pond Rotary. Take the first right onto Concord Avenue. Fawcett Street is one block down Concord Avenue, on the right.

**From the Mass. Pike:** Take the Pike inbound to the Cambridge/Allston exit. Exit onto the Cambridge off-ramp and take Cambridge Street. Turn left onto either Storrow or Memorial Drive. (Storrow Drive is on the Boston side of the Charles River and Memorial Drive.)

**From Storrow and Memorial Drives:** Take Storrow or Memorial Drive west: follow signs to Route 2,3,16. Remain on 2. The road will become narrow and winding. This is the Fresh Pond Parkway. Several car dealerships and Fresh Pond Seafood will be on the right. At the 1st rotary, take the third right onto Concord Ave. Continue straight at the second rotary. Fawcett is one block further on right. Once on Fawcett St. the Newman Auditorium is about 1/2 block, on the right. Park in the lot on the right side of the street; the lot is adjacent to the auditorium building.

**Public Transportation:** Take the T to Harvard Square. From Harvard Square take the Concord Ave./Belmont Center bus. Get off at Fawcett St.

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Timely notices of events, meetings, and other activities of interest to the Chapter's Membership should be submitted by the 10th of the month before the intended issue and sent, with attention to the Managing Editor to:

**GBC/ACM, P.O. Box 465, Lexington, MA 02173.  
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The Chapter's mailing list is available to related professional organizations or for commercial use. Please contact the Membership Chair at the address above when requesting mailing lists.

**Subscriptions:**

Annual subscription cost is included in the Chapter Membership dues of \$10.00. See top line on mailing label for membership expiration date. Library subscriptions are free. Please send orders for copies to the Chapter mailing address above.

**Postmaster:**

Address changes should be sent to the mailing address above. Allow eight to ten weeks for changes to address or membership renewal to become effective. Send old label with address modifications.

**IEEE, Robotics and Automation Society and the Computer Society****February 10, 1998**

On February 10th, 1998, the IEEE Robotics and Automation Society and the Computer Society will meet jointly in the Science Lecture Hall at Wellesley High School, 50 Rice Street, in Wellesley, MA, at 6:00 pm for informal discussions and formal presentation between 6:30 and 7:30 pm. The group has dinner afterwards at Bertucci's Restaurant where more conversations can take place with the guest speaker. The meetings are open to the general public and all are welcome at the dinner afterwards. Robots and Explosive Contamination:

The Development of an Autonomous Cleanup System  
The contamination of productive land by unexploded cluster munitions is a dangerous legacy of modern battles. Recently, phase I development was completed of Fetch, a robot system designed to locate and dispose of such ordinance. Fetch consists of an Operator Control Unit, OCU, and numerous robotic agents. The robots are normally autonomous but can be directed at any level of control by the operator.

Joe Jones of IS Robotics will describe the Fetch system concept and will include details of the design and programming of Fetch robots. A video tape of Fetch autonomously locating, picking up, and carrying away a munition will be shown. Joe will describe other aspects of his work at IS Robotics and will show his Rug Warrior Pro, a new version of his Rug Warrior which is featured in his book, "Mobile Robots - Inspiration to Implementation" published by AK Peters Publishing Co. A new version of this book featuring the Rug Warrior Pro will be available in summer/fall. Also being published is a robotics curriculum coming out about the same time. More info at <http://www.akpeters.com/rug-warrior.html>

**Bio:**

Joe Jones received BS and MS degrees from the Massachusetts Institute of Technology. Mr. Jones was, for nine years, a member of the research staff at MIT's Artificial Intelligence Laboratory and is now a research scientist with IS Robotics in Somerville, MA. Joe Jones is coauthor of the book "Mobile Robots: Inspiration to Implementation."

For more information, contact:

Bruce A. Seiger bseiger@concord.org Chair IEEE Robotics and Automation Society, New England Section

## Subscriptions to SEWORLD email list

We invite you to subscribe to a non-commercial mailing list for the Software Engineering community:

SEWORLD@cs.colorado.edu.  
SEWORLD serves as a central place for relevant announcements of software engineering conferences, workshops, symposia, special journal issues, calls for papers, research and educational systems, and the like. There are currently over 1200 subscribers. The list is moderated to avoid spam, duplication, and other misuses. In addition, all e-mail addresses are registered privately to the list, and are not published nor will they be given out to anybody requesting them.

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Visit the SEWORLD web site at: <http://www.cs.colorado.edu/serl/seworld>  
The web site contains an archive of past messages.

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### Biography (continued from page 6)

Professor Karl Lieberherr (<http://www.ccs.neu.edu/home/lieber/>) received his PhD in Mathematics at ETH Zurich in Switzerland. Currently as a Professor of Computer Science at Northeastern University, he teaches a number of courses on software development. He is Founding Editor-in-Chief with Roberto Zicari for the John Wiley journal "Theory and Practice of Object Systems" (TAPOS), and he has published extensively in the literature, and has recently published the book, Adaptive Object-Oriented Software: The Demeter Method with Propagation Patterns. He serves on the Advisory Board of Tendril Software, Inc., a company commercializing some of the ideas behind Demeter. This meeting is sponsored by the Boston Section of the IEEE Computer Society. Meeting begins at 6:30 pm. Coffee at 6:15 pm. A no-host dinner follows. More information: Sam Cardman at (781) 271-8636 ([sc@mitre.org](mailto:sc@mitre.org)).

### Directions to MARCAM:

Take Route 128 to the Highland Avenue, Needham, exit (the Muzi Ford exit). Turn left at the first light onto Hunting Road. Turn left at the first light onto Kendrick Street. Cross over 128, turn right at the first light onto Wells Avenue. Go about 0.2 miles to Marcam Corporation on the right side of the road at 95 Wells Avenue. Turn right into the second entrance driveway. At the back of the building, enter at 85 Wells Avenue as this is the closest entrance to the auditorium.

At Marcam Corporation, 95 Wells Avenue, Newton, MA. For more information, please contact Sam Cardman at (781) 271-8636 ([sc@mitre.org](mailto:sc@mitre.org)).

Seminar & Book Titles	Advance Registration	Walk-in	Enter Amount
Concurrent Programming in Java	\$75	\$85	
<i>Concurrent Programming in Java</i>	\$30	\$30	
Transaction Processing Overview	\$75	\$85	
<i>Principles of Transaction Processing</i>	\$30	\$30	
The C++ Standard Library	\$75	\$85	
<i>The C++ Programming Language 3rd edition</i>	\$30	\$30	
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# Professional Development Seminars - 1998 Spring Series

## Concurrent Programming in Java

With Doug Lea, State University of New York at Oswego  
March 14, 1998  
Northeastern University

### OVERVIEW

The concurrency features of Java introduce opportunities for greater parallelism and problems of thread interaction not found in sequential OO programming. Concurrent OO design patterns provide ways to exploit this parallelism and solve problems caused by thread interdependencies. Doug Lea will present techniques for effective concurrent programming in Java.

### WHO SHOULD ATTEND:

Java programmers and others involved with building multi-threaded systems and applications.

### SEMINAR TOPICS:

- Concurrency features in Java threads, locks, and monitors
- Predefined libraries
- Concurrency control in Applets and the Abstract Windowing Toolkit
- OO Design Patterns:
- Encapsulating representations
- Running asynchronous commands
- Controlling state dependent actions
- Layering concurrency control
- Creating special locking constructs

### LECTURER:

Doug Lea is a professor of Computer Science at the State University of New York at Oswego and the author of Concurrent Programming in Java, Object-Oriented System Development, and many articles and reports. He has written a number of widely used software packages including several library routines (including gnu malloc) distributed by the Free Software Foundation.

### SESSION CHAIR:

Peter Mager, psm@tiac.net

## Transaction Processing Overview

With Phil Bernstein, Microsoft Corporation  
and Eric Newcomer, Digital Equipment Corporation  
March 21, 1998  
Northeastern University

### OVERVIEW:

This seminar describes mechanisms and products that address the stringent requirements of commercial transaction processing systems, including high reliability, predictability, availability and access from the Web.

### WHO SHOULD ATTEND:

Product developers in TP and related areas, such as operating systems and communications. Designers and developers of TP applications will also benefit.

### SEMINAR TOPICS:

- ACID Properties of a transaction
- Two vs. three tier approach
- TP systems performance and the TPC C benchmark
- Servers: Presentation, Transaction, Database & TP Monitors
- Workflow controllers
- Queued transaction processing
- Products: CICS, IMS, MS Transaction Server, Tuxedo, Encina,
- ACMS, Pathway/TS, TOP END
- Standards
- Commoditization of servers
- Merging of TP and OO technology
- Web based transactions

### LECTURERS:

Phil Bernstein, Repository Architect at Microsoft Corporation, has more than 20 years experience in transaction processing. Eric Newcomer is a TP consultant and program manager at Digital Equipment Corporation.

### SESSION CHAIR:

Jay Conne, conne@acm.org

## Seminar Book Offer

Concurrent Programming in Java  
by Doug Lea  
List: \$39.76 PDS Price: \$30.00

## Seminar Book Offer

Principles of Transaction Processing  
by Phil Bernstein & Eric Newcomer  
List: \$39.95 PDS Price: \$30.00

# Professional Development Seminars - 1998 Spring Series

## The C++ Standard Library

With Bjarne Stroustrup, AT&T Labs  
April 4, 1998  
Northeastern University

### OVERVIEW:

The structure, principles, and fundamental uses of the C++ Standard Library will be introduced by the author of the C++ language. Also, newer C++ features will be introduced in the context of library usage.

### WHO SHOULD ATTEND:

C++ programmers who want to learn about the newly ratified C++ Standard Library. A working knowledge of C++ is assumed.

### SEMINAR TOPICS:

- Significance of the standard library
- Simple examples
- Design of the standard library
- Library overview
- Container design
- Iterators, based containers, STL
- Exception safety
- Allocators
- Algorithms and function objects
- Strings and I/O streams

### LECTURER:

Bjarne Stroustrup is the designer and original implementor of C++ and the author of *The C++ Programming Language* (first edition 1985, second edition 1991), *The Annotated C++ Reference Manual*, and *The Design and Evolution of C++*. A graduate of the University of Aarhus, Denmark, and Cambridge University, England, Dr. Stroustrup is currently the head of AT&T's Large-scale Programming Research Department and an AT&T Bell Laboratories Fellow.

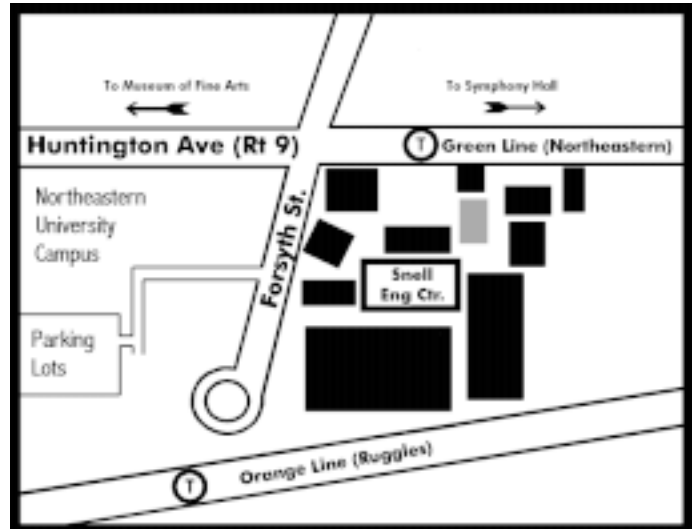
### SESSION CHAIR:

Robert Mathews, [rvm@world.std.com](mailto:rvm@world.std.com)

## GENERAL INFORMATION

### NORTHEASTERN LOCATION

Northeastern University, Boston, is within walking distance of the MBTA Green Line (Arborway/E Train) Northeastern station and the Orange Line Ruggles station. Free parking is also available.



### SCHEDULE

8:30am - 9:00am	Registration (continental breakfast)
9:00am - 12:15pm	Morning session (break at 10:30am)
12:15pm - 1:30pm	Lunch (provided on-site)
1:30pm - 4:30pm	Afternoon session (break at 2:30pm)

### REGISTRATION FEES

Included in the \$75 fee are seminar materials, lunch, and refreshments. Registrants not current members of the GBC/ACM are charged an additional \$10, and become members of the chapter for a year. This is distinct from ACM membership. Surcharge for on-site registration is \$10. Purchase orders, credit cards, faxes and e-mail cannot be accepted. **Enrollment is limited and on a first come, first served basis.** Early registration must be made by a check or money order at least three weeks in advance of the seminar to receive confirmation from GBC/ACM.

### CANCELLATION & REFUND POLICY

Cancellations must be received in writing. The full fee will be refunded if the PDS Registrar receives written notification on or before the day of the seminar, addressed to GBC/ACM, PO Box 465, Lexington MA 02173. Refund requests received after the seminar date will be subject to a \$15 administrative fee. The \$10 membership fee will not be refunded.

### ANY QUESTIONS?

See: <http://www.acm.org/chapters/gbc> or Call (617)862-1181

## Seminar Book Offer

The C++ Programming Language, third edition  
(about a 75% rewrite of the second edition)  
by Bjarne Stroustrup  
List: \$42.99 PDS Price: \$30.00

**Software Process Improvement Network (SPIN) February Dinner Meeting Announcement****“The Economic Impact of the Year 2000 Software Problem”  
Capers Jones, Chairman, Software Productivity Research, Inc.**

**Thursday, February 21, 1998. Registration starts at 5:30 pm,**

**Dinner begins at 6:30pm, the speaker starts at 8:00 pm**

**Wyndham Garden Hotel (Directions below)**

**For Dinner Reservations, call 781-942-8421, the 24-hour reservations number**

**For more info, call Johanna Rothman (781) 641-4046, jr@jrothman.com**

**For SPIN info, call Ken Oasis (617) 563-4197,**

**ken.oasis@fmr.com; or**

**www.cs.uml.edu/Boston-SPIN/**

**Overview**

At first glance the year 2000 software problem does not seem to be very dangerous. The problem is due to the fact that in order to save storage space, software applications utilized only two digits for storing calendar year dates. Thus the year 1997 would be stored as 97. The two-digit date format is benign in software applications so long as the next year is represented by a larger number than the current year. Thus the year sequence of 95, 96, 97, 98, and 99 can be handled correctly by software applications. But when the calendar changes to the new century, the sequence of 99 followed by 00 will cause significant problems. Some of the problems associated with the year 2000 problem are obvious and will no doubt be fixed. For example, problems with interest rate calculations are being worked on by banks all over the world. But it sometimes happens that the year 2000 problem occurs in hidden and unexpected places. The probability of fixing all of these hidden date problems is unfortunately quite low. For example, both commercial aircraft and many ships have year 2000 problems in their navigation software packages. The year 2000 problem also occurs in manufacturing assembly line applications, in process control applications, in telephone switching systems, and in the software controlling electricity generating facilities. The current prognosis for the United States is that about 85% of software applications may be fixed before the end of the century, but 15% may not be repaired in time. Even more troubling, Europe, South America, and the Pacific Rim countries are lagging the United States in year 2000 readiness. The net result of the year 2000 problem may affect all of us in unpleasant ways. It is possible that we may experience damages to our telephone and power systems, to transportation systems, and to manufacturing systems for a period that can run from a minimum of a few hours to a maximum of more than a month.

**Speaker Biography**

Capers Jones is the Chairman of Software Productivity Research, Inc. (SPR) in Burlington, Massachusetts. He is the inventor of SPQR/20, the first commercial software estimating tool to use function points as the basis for sizing source code and other deliverables such as specifications and user documents. Mr. Jones is an international consultant on software management topics, a speaker, a seminar leader and author. He is also on the editorial board of Ed Yourdon's American Programmer magazine, and on the advisory boards of several year 2000 and risk management groups.

**Directions**

The Wyndham Garden, Waltham is at exit 27A off route 128. If you are travelling south take the exit 27A ramp and the hotel is about 250 yards down on your right. If you are heading north then take exit 27A and then cross over route 128 and then the hotel is about 250 yards on the right. The hotel phone number is 781-890-0100. Please do not call the hotel for reservations, call the reservations number: 781-942-8421

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**Computer Society - 6:30 pm, Thursday, February 26****Smaller, More Evolveable Software**

**Karl Lieberherr, College of Computer Science, Northeastern University**

Most applications have some features that cut across the modules that make up the software. These features increase the complexity of the software significantly, making the software harder to write, maintain, and evolve. We present here an approach to software, Aspect-Oriented Programming (AOP), that results in software that is both smaller and more generic, leading to looser coupling among the different parts of the software, and simpler initial development, maintenance, and evolution of the system.

(continued on next page)

## February GB/SIGCHI MEETING ANNOUNCEMENT

### The Healing Voice: Use of Voice Recognition in a Medical Application Matt Belge, Vision and Logic, & Mary Marshall Teel, Kurzweil A.I., Lernout & Hauspie Speech Products

Thursday, February 26, 1998

Refreshments at 6:30, meeting at 7:00 Location:

Lotus, One Rogers St., Cambridge, MA  
(directions & parking info below)  
Free and open to the public.

For more information please contact the program chair:

Ron Perkins  
rperkins@shore.net  
978-465-6083 ( email preferred)

#### Overview

There exists a paradox in modern medicine. In the age of managed health care, doctors and care providers find themselves with less and less time to devote to each patient. Health institutions, on the other hand, require careful, detailed medical records to ensure quality, provide legal proof, as a basis for research, and to facilitate getting paid. While doctors have less and less time to document the care they provide, institutions want the information more and more.

In this environment, a voice recognition system makes a lot of sense. Doctors, who are used to transcribing their notes onto tape, like the idea of voice recognition. Institutions like the idea that the report will be captured by a computer. But many usability problems arise. Many doctors are not computer literate, and look upon computers with derision. They demand near perfect accuracy, while they have no time or inclination to undergo significant computer training. Adding to the complication, words that are captured as unstructured "free text" do not solve the health institutions' needs. They require structured records so that the information can be tracked.

This talk will discuss the design of a user interface for a product designed to address significant usability challenges. Designed and developed by people at Kurzweil A.I. (now a division of Lernout and Hauspie), this research effort was funded by an NIST grant.

#### About the Speakers

Matt Belge has been designing user interfaces for over 10 years. Matt did his undergraduate work in Electrical Engineering and his graduate work in Fine Arts. He is principal at Vision & Logic, a UI design consulting business. Matt has been a regular speaker at Boston CHI, and along with Mary Marshall Teel from Kurzweil A.I., he will present a paper on the design of this voice based medical system at the national CHI 98 in Los Angeles in April. Other recent projects have included the design of the user interface of desktop video conferencing products for PictureTel, and document management/OCR software for the SO/HO

market for Xerox.

Mary-Marshall Teel is a Senior Software Engineer at Kurzweil (now Lernout & Hauspie), where she has worked on voice interfaces and voice application-enabling software. She has done software development in other areas, and worked as an application specialist at Verbox.

#### Directions

The Lotus building is on the corner of First St. and Rogers St. in Cambridge, a few blocks from the Science Museum. (Note that there is another Lotus building on Cambridge Parkway next to the Sonesta hotel. Don't go to that one.) The meeting will be held in Auditorium A, on the first floor. If you need detailed directions, contact the editor.

#### PARKING

Parking is available in the Lotus garage provided you arrive before 7:00 p.m. Drive up to the garage entrance on First St. and tell the guard over the speaker that you are there for the SIGCHI meeting and they will let you park in the Lotus garage.

#### MBTA Directions

Ride the Green Line to the Lechmere stop. Exit Lechmere station, walk to the right about 100 feet and turn right to walk through the tunnel. When you exit the tunnel, continue walking straight across through the traffic light and down First street. Go past the Galleria Shopping Mall on your left and past the traffic lights. The entrance to the Lotus building is on First St. You go under an archway between two sides of the building and enter the lobby to the left.