TOOLS USA 2000

July 30–August 4

Software Serving Society

www.tools-conferences.com/usa

Fess Parker's DoubleTree Resort

Santa Barbara California USA

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Technology of Object-Oriented Languages and Systems
INTERNATIONAL CONFERENCE AND EXHIBITION

TOOLS USA 2000 30 July–4 August • Santa Barbara

TOOLS is the major international conference and exhibition devoted entirely to the applications of object technology. **TOOLS** emphasizes the practice and industrial applications of modern software technology. **TOOLS USA 2000** returns to Santa Barbara and continues the commitment to excellence demonstrated by earlier conferences in Europe, the Pacific, Asia and the US. The theme is *Software Serving Society,* highlighting the ever growing role of software-controlled technology in our daily life.

K E Y N O T E   S P E A K E R S

Monday, July 31, 2000 — 11:45 -13:00

From developing components to component-based development *Clemens Szyperski,* Microsoft, USA

Shifting the emphasis from the traditional production of one deliverable software product to the production of systems that are composed out of components has an almost traumatic consequence. This talk spans the spectrum from why components are a good idea to why we need to rethink our trade to the approaches now emerging to make all this possible.

Tuesday, August 1, 2000 — 11:45 -12:30

Social and political consequences of software engineering issues *Bertrand Meyer,* ISE, USA

The technical issues we discuss in software engineering circles do not arise in a vacuum. They are increasingly connected with social, political and even ethical issues. This talk will discuss non-technical consequences of some recent advances in software engineering technology.

Tuesday, August 1, 2000 — 14:00 -14:45

How will the Web impact tools? *Jim Miller,* Microsoft, USA

The Web and Web-based protocols provide a strong infrastructure that spans consumer-to-business, business-to-business, and intra-enterprise. Do the same tools that we use for local applications or client-server applications provide enough leverage for this new environment?

Wednesday, August 2, 2000 — 11:45 -12:30

XML and the evolution of components *Don Box,* Developmentor, USA

This talk will explain and illustrate why XML can be considered the next generation of component software.

Wednesday, August 2, 2000 — 11:45 -12:30

Fred Taylor, making software, and conversation *Kent Beck,* Author and Technologist, USA

To break through dysfunctional patterns of software development we must adopt a new paradigm and new practices. eXtreme Programming proposes "conversation" as the new paradigm, and suggests a set of practices to turn software development in to a dynamic conversation between business and technology.

Thursday, August 3, 2000 — 11:45 -12:30

Agent-mediated E-commerce:Agents, Components, Services, Workflow, UML, Java, XML and Games *Martin Griss,* HP Lab, USA

Software agents are a specialized kind of distributed components, offering greater flexibility than traditional components. They are integrating several technologies, including components, agents, workflow, software busses, UML, XML, Java, aspects and HP E-Speak.

Thursday, August 3, 2000 — 14:00 -14:45

Keeping software soft *Martin Fowler,* ThoughtWorks, USA

This talk will present a new breed of processes variously called *"lightweight methodologies"* or *"glorified hacking"* that promise a new approach to improve software development by accepting and encouraging change. Such methodologies include Crystal, Adaptive Software Development, and most (in)famously: eXtreme Programming.

SUNDAY, JULY 30

Time	
8:00 - 9:00	Registration desk open
9:00 - 17:00	**Tutorial: Introduction to Object Technology**
9:00 - 17:00	**WET: Workshop on Education and Training**

MONDAY, JULY 31

Time	Session				
7:00 – 8:00	Registration desk open				
8:00 – 9:30	C1	P1	T1	L1	Testing
9:30 – 10:00	Break				
10:00 – 11:30	C1	P1	T1	L1	Component-based Development panel
11:45 – 13:00	**Opening Plenary —Keynote: Clemens Szyperski**				
13:00 – 14:30	Open-air lunch in the Fess Parker Plaza del Sol				
14:30 – 16:30	C2	P2	T2	L2	Metrics and Quality Assurance Articles
16:30 – 17:00	Break—book signing at Borders booth				
17:00 – 18:00	C2	P2	T2	L2	
18:30 – 20:00	Barbecue at Ledbetter Beach (5 minute ride, trams leave hotel at 18:30)				

TUESDAY, AUGUST 1

Time	Session					
7:00 – 8:00	Registration desk open					
8:00 – 9:30	C3	P3	T3	L3	Programming	Project Management	Eiffel Summit
9:30 – 10:00	Break—Exhibition open; book signing at Borders booth					
10:00 – 11:30	C3	P3	T3	L3	Programming	Workshop continued	Eiffel Summit
11:45 – 12:30	**Keynote: Bertrand Meyer**					
12:30 – 14:00	Open-air lunch in the Fess Parker Plaza del Sol; exhibition open					
14:00 – 14:45	**Keynote: Jim Miller**					
15:00 – 16:30	C4	P4	T4	L4	Database Applications and the Web		Eiffel Summit
16:30 – 17:00	Break—Exhibition open; book signing at Borders booth					
17:00 – 18:30	C4	P4	T4	L4			Eiffel Summit
18:30 – 20:00	Exhibitors' cocktail reception in Exhibit Hall					

WEDNESDAY, AUGUST 2

Time	Session						
7:00 – 8:00	Registration desk open						
8:00 – 9:30	C5	P5	T5	L5	Language Issues	Relating Bus. needs to IT	Design and Coding Fest
9:30 – 10:00	Break—Exhibition open; book signing at Borders booth						
10:00 – 11:30	C5	P5	T5	L5	Components	Workshop continued	Design and Coding Fest
11:45 – 12:30	**Keynote: Don Box**						
12:30 – 14:00	Open-air lunch in the Fess Parker Plaza del Sol; exhibition open						
14:00 – 14:45	**Keynote: Kent Beck**						
15:00 – 16:30	C6	P6	T6	L6	Specification	Workshop continued	Design and Coding Fest
16:30 – 17:00	Break—Exhibition open; book signing at Borders booth						
17:00 – 18:30	C6	P6	T6	L6	Design	Workshop continued	Design and Coding Fest
18:30 – 20:00	Conference dinner and classical concert under the stars in Fess Parker Plaza del Sol						

THURSDAY, AUGUST 3

Time	Session						
7:00 – 8:00	Registration desk open						
8:00 – 9:30	C7	P7	T7	L7	Knowledge-based Systems	Proj. Mgmt. Panel	Special Tutorial
9:30 – 10:00	Break—Exhibition open; book signing at Borders booth						
10:00 – 11:30	C7	P7	T7	L7	Distributed Systems		Special Tutorial
11:45 – 12:30	**Keynote: Martin Griss**						
12:30 – 14:00	Open-air lunch in the Fess Parker Plaza del Sol; exhibition open						
14:00 – 14:45	**Keynote: Martin Fowler**						
15:00 – 16:30	C8	BOF 1	BOF 2	BOF3	Development Tools	E-Commerce Technology	Extreme Eiffel
16:45 – 18:00	**The Great Language Debate**						
18:00 – 19:00	Conference closes; refreshments and informal discussions						

FRIDAY, AUGUST 4

Time			
8:30 – 17:00	Tutorial: Project Management Bill Duncan	Tutorial: Design by Contract Bertrand Meyer	Tutorial: Object-Oriented Metrics Christine Mingins

TRACK C — COMPONENT-BASED DEVLOPMENT AND WINDOWS TECHNOLOGIES

C1 — Creating the Information Anywhere Architecture

Dana Moore
Monday, July 31
8:00 - 11:30

This tutorial presents an architecture for creating a personal information space accessible from the web, handheld and wireless devices. It details and demonstrate programming the PalmOS and digital wireless telephones. It explores Email Fusion, Wireless applications architectures, safe access to information behind firewalls, the Roku Information Model, and Roku, a personal context engine, Handheld Device Markup Language (HDML), Wireless Markup Language (WML), Wireless SDKs from Nokia and Unwired Planet, the Palm SDK, the Java KVM, and Java Conduit Kit.

Dana Moore acts as Chief Scientist for Roku Technologies, a company focused on creating active information spaces and information switching. His research specialties are agent-based systems and information fusion.

C2 — New Microsoft Component Technologies

Raphael Simon/ Emmanuel Stapf
Monday, July 31
14:30 - 18:00

This tutorial presents new Microsoft developments in the area of COM and COM+, what this technology brings to the programming community and how it fits with currently existing standards and technologies.

Raphael Simon is a senior engineer with ISE, Santa Barbara. He is a specialist in COM+ developments and a co-author of *Windows Programming Made Easy* (Prentice Hall, 2000) to appear during the summer.
Emmanuel Stapf is a senior engineer with ISE. He is a specialist in compilers, runtime and development environments.

C3 — Building COM Applications

Michael Stal
Tuesday, August 1
8:00 - 11:30

This tutorial presents the fundamental concepts behind Microsoft COM. C++ examples will be used to illustrate programming with Microsoft COM. Advanced COM-based and COM-related technologies such as Microsoft Transaction Server (MTS) and Microsoft Message Queue Server (MSMQ) are introduced. It gives a short overview of COM+, the new version of COM included in Windows 2000 and takes a look at SOAP, the XML-based protocol that allows remote method invocations on top of HTTP.

Michael Stal is head of the Distributed Object Computing group at Siemens Corporate Technology in Germany. He is Siemens' representative at the OMG, president of the International Java Club, editor-in-chief of Java Spektrum, co-author of *Pattern-Oriented Software Architecture—A System of Patterns* and the upcoming *Pattern-Oriented Software Architecture 2*.

C4 — CORBA 3

Michael Stal
Tuesday, August 1
15:00 - 18:30

The Common Object Request Broker Architecture was established in 1990 by the Object Management Group, a vendor-independent consortium of over 800 companies. The goal of CORBA was to enable programmers to master the complexity of developing O-O distributed heterogeneous systems. CORBA is not just an O-O RPC (Remote Procedure Call), but a full-blown infrastructure for building distributed software systems. The tutorial introduces CORBA, CORBA-based services and CORBA related technologies using C++ examples.

C5 — Keys to Enterprise Application Integrations

John Williams
Wednesday, August 2
8:00 - 11:30

Enterprise Application Integration (EAI) is a challenge for many organizations. Such integration often accounts for 1/4 of the cost of implementing new systems. Learning to do it well can have a significant impact on an IT organization. This tutorial will highlight the issues and key considerations for successfully integrating enterprise wide systems. Case studies will be used to highlight different approaches and help you select the most appropriate one for your organization.

John Williams is Vice President, Business Development for Castek Reuse Business Group in Cary, NC. He is also a contributing editor to Application Development Trends where he writes a monthly column entitled "On Component Strategies."

C6 — Reuse In The Real World

John Williams
Wednesday, August 2
15:00 - 18:30

Reuse has a reputation for being difficult if not impossible to achieve on any but the smallest scales. Can organizations really expect to reuse more than simple GUI components? This tutorial will use case studies to show how enterprises are succeeding with reuse today. The studies will highlight the key issues for success and show the pitfalls you need to avoid. Learn what it takes to implement a successful reuse program.

C7 — XML for E-commerce

Danko Nebesh/ Robert Tarr
Thursday, August 3
8:00 - 11:30

The use of O-O technology in internet/e-commerce applications created a need for a standard way to pass data among disperate applications. XML was developed to solve this problem, and to enable the creation of advanced web-based applications. This tutorial describes XML, compares and contrasts XML to HTML and SGML. It explains how to create Document Type Definitions DTD~Rs and stylesheets, discusses what markup languages have been created using XML, presents tools for parsing, validating and displaying XML documents and how it can be used by Java programmers.

Danko Nebesh is a senior researcher, designer and developer specializing in agent-based systems at the Department of Defense.
Bob Tarr is a senior software developer at the Department of Defense, specializing in software agents and distributed object technologies.

C8

Special tutorial:
Component-based Development and New Windows Technologies
Thursday, August 3
15:00-16:30

This tutorial will present new developments in COM, COM+ and successor technologies.

TRACK P — PROCESS, MANAGEMENT & METHODOLOGY

P1

Effective Strategies for Rapid Application Development

Michael Anton
Monday, July 31
8:00 - 11:30

This tutorial presents strategies to achieve incredibly effective developments, doing in one day what others accomplish in weeks or months. Participants will walk-through analysis, design, and implementation of a substantial real-world application, developed in a single week using proven O-O techniques. They will learn how to avoid time-wasting activities, see how extensibility is built in, addressing future requirements, and solve problems by finding, developing, and applying pattern languages during analysis, design, programming and even team building.

Michael Anton is Director of Software Development at Financial Technology Solutions Inc, a firm specializing in software development for the financial industry.

P2

Business specifications and RD-ODP

Haim Kilov
Monday, July 31
14:30 - 18:00

This tutorial based on substantial industrial experience in business and other specification discovery, structuring and representation emphasizes the commonality between various kinds of specifications and traceability between specifications used at different stages of the information management lifecycle. It is based on concepts and constructs defined in international standards: Reference Model of Open Distributed Processing (RM-ODP) and General Relationship Model (GRM) and contains examples.

Haim Kilov is a Technical Director with Genesis Development Corporation and author of several books published by Prentice Hall. His approach to information modeling, widely used in financial, insurance, telecommunications, document management and other areas, especially for business specifications, has brought demonstrable clarity and understandability to specifying businesses and systems.

P3

Applying the Lessons of eXtreme Programming

Pete McBreen
Tuesday, August 1
8:00 - 11:30

Managing the incremental, iterative development processes needed by modern software systems is not easy. eXtreme Programming projects manage to be successful with a 3 week delivery cycle, incrementally gathering requirements and adding fully tested, useful system features. This tutorial describes what this tells us about the nature of software development, and identifies practices that could usefully be applied in other software development processes.

Pete McBreen is a course designer, teacher, and project leader in object technology. He is responsible for ensuring that project teams make effective use of Object technology on projects including project startup, methodology and tool selection, mentoring, process improvement, system design and quality assurance.

P4

Requirements Management

Larry Boldt
Tuesday, August 1
15:00 - 18:30

The process of specifying the customer needs and desires from a software system becomes increasingly critical as applications grow. Organizations wishing to cut development costs, decrease time-to-market and reduce resources must use an effective, robust requirements management process. This tutorial discusses how to improve this process through an O-O approach and describes the advantages of requirements treated as objects, captured at their source, stored in a central repository, and requirement changes automatically transmitted to all stakeholders.

Larry Boldt is co-founder of TBI. His areas of expertise include: requirements management, requirements-based testing, business process reengineering (BPR), software quality management, system implementation and training development to improve clients' short- and long-term business performance and meet the standards of the Capability Maturity Model (CMM).

P5

Good Software under Bad Conditions

Todd Lauinger
Wednesday, August 2
8:00 - 11:30

This tutorial relies on years of experience of keeping software teams productive. It discusses the nature of software development and the "3 T's" of software development productivity, Talent, Technique, and Technology. Talent is the most important of the 3. However, good technique and technology will make good talent even better. The tutorial presents an action plan that participants can take in their organization to foster better productivity.

Todd Lauinger is a Senior Technical Consultant at Best Buy Co. He has years of experience developing mission-critical large scale software systems using a variety of technologies and techniques. He is a published author and experienced conference speaker, teacher, and mentor in state-of-the-art software strategies.

P6

Adding Value to the Unified Process

Richard Mitchell
Wednesday, August 2
15:00 - 18:30

Both the Unified Modeling Language and the Unified Process are quite loosely defined. Guidelines that constrain the language and the process in very practical ways can make the process much more effective. This tutorial proposes a coherent body of such guidelines.

Richard Mitchell is senior modeling consultant in Fortune 500 companies for InferData Corporation, an O-O training and consultancy firm. He has authored numerous contributions on design by contract and development methods, presented articles and tutorials worldwide. He is Program Chair for TOOLS Europe, and in the program committee of Object Technology and UML series of conferences.

P7

Refactoring

Martin Fowler
Thursday, August 3
8:00 - 11:30

Experts in O-O Development stress the importance of iterative development. During this process, functions need to be added to the existing code base with the risk that the result does not quite fit with what is expected. Refactoring is a methodology to modify code in a controlled manner. This tutorial shows how a lump of poorly designed code can be put into good shape, describes how refactoring works, presents a handful of example refactorings, and discusses the keys to successful refactoring.

Martin Fowler is Chief Scientist at ThoughtWorks, an internet systems integration consulting firm. As a Consultant, he pioneered the use of objects in business information systems with Smalltalk, C++, object and relational databases, and EJB for leasing, payroll, derivatives trading and healthcare. He is known for his work on patterns, UML, lightweight methodologies, and refactoring and for his books: *Analysis Patterns, Refactoring,* and the award winning *UML Distilled.*

TRACK T   S U P P O R T I N G   T E C H N O L O G I E S

T1 T2 T3 T4 T5 T6 T7

T1 — O-O Database Programming In Java

Raimund Ege
Monday, August 31
8:00 - 11:30

Typical Java applications involve access to a database. It is necessary to convert Java objects as they are stored in a database, and re-convert them when they are read. This tutorial explores the issues involved, the database technologies available (legacy vs. relational vs. O-O) and the best-suited access mechanisms (JDBC, OPJ, TOPLink...). The tutorial has 2 parts: accessing a relational database using the Java Database Connectivity (JDBC) package, and storing Java objects in an O-O database directly.

Raimund Ege is an Associate Professor of Computer Science at the Florida International University, Miami. He is the author of Programming in an Object-Oriented Environment and Object-Oriented Programming with C++.

T2 — Object Structuring Techniques

John Potter / Jeff Sanders
Monday, August 31
14:30 - 18:00

Design methods merrily talk of object composition and aggregation, but there is little effective support provided in programming languages for direct representation of these abstractions in code. This tutorial presents techniques for structuring objects, with a focus on implementation strategies for making object structure explicit. It defines the notion of object ownership, its underlying theory based on the graph theoretical notion of domination, and programming idioms for representing and maintaining ownership.

John Potter is an associate professor in Computer Science and Engineering at the University of New South Wales, Sydney. He previously headed up the Object Technology Group at the Microsoft Research Institute in Sydney.

T3 — Building Real-time Embedded Systems with MetaH and UML

Ed Colbert / Bruce Lewis
Tuesday, August 1
8:00 - 11:30

This tutorial will look at how to develop embedded, time-critical system that can evolve as requirements or technology changes, using MetaH and the Unified Modeling Language (UML). MetaH is an architectural design language, with a supporting toolset, for specifying, analyzing, and integrating computer control systems. It is designed for the specification of real-time, fault-tolerant, securely partitioned, dynamically reconfigurable multi-processor system architectures.

Ed Colbert is a trainer and consultant in object-oriented methods, software engineering, and the Ada programming language. *Bruce Lewis* is a computer engineer with DARPA responsible for the experimental development, assessment and transition of new software engineering technology.

T4 — Mobile Agent Systems

Danko Nebesh / Robert Tarr
Tuesday, August 1
15:00 - 18:30

Mobile agents and mobile code can be used to design and build robust and fault-tolerant distributed systems. They have applications in areas including distributed information retrieval, network management, workflow management, and e-commerce. This tutorial provides an in-depth look at mobile agents, including Aglets (IBM), Voyager (ObjectSpace) and Hive (MIT) and their application in modern networked computing.

Danko Nebesh is a senior researcher, designer and developer specializing in agent-based systems at the Department of Defense.

Bob Tarr is a senior software developer at the Department of Defense, specializing in software agents and distributed object technologies.

T5 — Use Case Pattern Language

Steve Adolph
Wednesday, Augus 2
8:00 - 11:30

Use cases describe a system´s functional requirements by telling stories about how its usage delivers value to its actors. The Use Case pattern language captures the knowledge and experience of successful use case developers so that it can be easily re-used by other Use Case developers. Patterns can capture the solution to a difficult problem and cope with the fuzziness necessary with the answers to these questions. This tutorial describes the mechanism of Use Case pattern, provides a set of patterns and explains how to use them.

Steve Adolph is senior consultant with WSA Consulting Inc. His development experience includes systems for cellular telephone call-processing, mobile dispatch, railway signaling, and direct-to-plate system for the printing industry. He has helped clients adopt Use Case modeling and witnessed the frustration due to complexity in what appears as a simple task.

T6 — Aspect-Oriented Programming

Cristina Lopes / Gregor Kiczales
Wednesday, August 2
15:00 - 18:30

Like objects, aspects are intended to be used in both design and implementation. During design, the concept of aspect facilitates thinking about cross-cutting concerns as well-defined entities. During implementation, aspect-oriented programming languages—namely AspectJ—make it possible to program directly in terms of design aspects. This tutorial presents examples of aspects, including aspects for tracing, contracts, feature addition/deletion, distribution support and error handling.

Cristina Videira Lopes is a research scientist at the Xerox Palo Alto Research Center. She has been developing aspect-oriented programming languages, in particular for distributed applications.

T7 — JINI, Towards Seamless Connectivity of Hardware and Software

Gilda Pour
Thursday, August 3
8:00 - 11:30

A distributed system must adapt to network changes. The JINI architecture is designed to adapt to those changes. JINI is a Java-based simple infrastructure for seamless connection of hardware devices and software services together in a networked environment. This tutorial describes the JINI Vision and the JINI Architecture, including the service architecture, its model for distributed computing, as well as the key concepts of JINI model and its components, sample Applications and useful sources.

Gilda Pour is a professor of software and information engineering at San Jose St ate University. She combines years of R&D and industrial experience at NASA, HP Labs, the Air Force, Rome Laboratory with extensive academic expertise in object-oriented software engineering for parallel and distributed systems.

TRACK L — LANGUAGES & APPLICATIIONS

L1

Agent-Based Programming in Eiffel

Bertrand Meyer
Monday, July 31
8:00 - 11:30

The introduction into an object-oriented framework such as Eiffel of "agents," a higher-level functional abstraction, brings a whole new set of expressive possibilities. This tutorial will explain how to use agents in the best possible way and detail their application to a wide range of areas including: graphical programming; error handling; writing extensive contract specifications; numerical programming; and iterators.

Bertrand Meyer is CTO of Interactive Software Engineering and an adjunct professor at Monash University, Melbourn, Australia. He is the author of several books and the main designer of the Eiffel method and language.

L2

OPENing up the UML

Brian Henderson-Sellers / Bhuvan Unhelkar
Monday, July 31
14:30 - 17:00

OPEN is the premier third-generation, process-focussed, public domain O-O methodology. OPEN is introduced through study examples using UML as the notation. Process, modelling and notational issues are discussed in terms of the process architecture as well as a detailed description of the UML, integrated with how to use it (i.e. OPEN's modelling tasks and techniques) to illustrate the flexibility of the OPEN process.

Brian Henderson-Sellers is Director of the Centre for Object Technology Applications and Research and Professor of Information Systems at University of Technology, Sydney (UTS). Author of eight books, he is well-known for his work in (MOSES, COMMA and OPEN) and in O-O metrics.
Bhuvan Unhelkar is Director for Object and Internet Technologies with Myriad Solutions in Sydney.

L3

Idiomatic Java

Angelika Langer
Tuesday, August 1
8:00 - 11:30

This is a tutorial for Java programmers who want to deepen their knowledge of the language. We will look into various core Java language features in order to explore how these features can be sensibly used in practice. The focus is not so much on the features themselves, but on advanced usage of them and Java specific programming idioms.

Angelika Langer works as a freelance trainer and mentor. Her main area of interest and expertise is object oriented software development in C++ and Java. She writes a column for the C++ Report, is a recognized speaker at O-O conferences worldwide, contributed to the standardization of C++ on the ISO/ANSI committee, and is author of the book *The Standard IOStreams and Locales.*

L4

Using C++ Templates for Implementing Patterns

Angelika Langer
Tuesday, August 1
15:00 - 18:30

Templates were introduced to C++ to express common structure in form of parameterized types implemented as class templates. Function templates, in addition, allow expression of common functionality. Using the template language feature in C++, behavioral patterns as defined by Gamma et al. can be implemented using templates instead of inheritance and virtual functions. In this tutorial, the alternative template technique is demonstrated using the strategy pattern as an example.

L5

Real-time programming in Java

Ben Brosgol
Wednesday, August 2
8:00 - 11:30

Some of Java's defining characteristics, such as Object-Oriented Programming, dynamic loading, and garbage collection, have proved to be obstacles to the language's spread for real-time system developments. Since 1999 two independent efforts work to extend the Java platform to satisfy the requirements for real-time systems. This tutorial analyzes the Java platform (language, API, JVM) with respect to real-time support, compares and contrasts the two real-time Java specifications, and shows how to use the specifications to produce real-time programs.

Benjamin Brosgol is a primary member of the Real-Time for Java Experts Group, reviewer of the specification produced by the J-Consortium's RTJWG, and a co-author of *Real-Time Programming in Java.*

L6

O-O Cobol, the Good, the Bad and the Ugly

Guido Dedene
Wednesday, August 2
15:00 - 18:30

This tutorial presents a critical appraisal of the current standards proposals for COBOL 2002, including object-orientation and Web technology. All O-O criteria will be reviewed in detail for the proposed standards. The integration of COBOL with legacy systems and other O-O-languages will be presented using case studies. Traditional principles of structured programming in COBOL will be discussed in view of their relevance in O-O COBOL.

Guido Dedene is professor of Business Information Systems at the Faculty of Economics and Applied Economics of the Katholieke Universiteit Leuven in Belgium. He is co-founder of the Leuven Institute for Research on Information Systems (LIRIS) and holds several board positions at E-Business spin-off companies of K.U.Leuven, and published in refereed journals, including IEEE and ACM.

L7

Constructing Reliable C++ Classes

Jeff Kotula
Tursday, August 3
8:00 - 11:30

This tutorial presents a six-step method for creating reliable, trusted classes that are correct, robust, and usable. The six steps focus solely on the design and implementation of classes rather than an entire software lifecycle. Each step is elucidated through discussion of its goals, descriptions of concrete techniques and recommendations, and analysis of the decisions made during the step. An example of class design will be used to guide and illustrate; a character string class will be discussed.

Jeff Kotula is a Principal Software Engineer at Stratasys, Inc., Minnesota, the leading manufacturer of office prototyping machines supporting industrial CAD/CAM.

W O R K S H O P S   &   P A N E L S

Workshop & Panel Chair: Gilda Pour, San Jose State University

WORKSHOPS

W1 Project Management of O-O Systems
Tuesday, August 1, 8:00 - 11:30

W2 Eiffel Summit
Tuesday, August 1, 8:00 - 18:30

W3 Relating business needs to IT
Wednesday, August 2, 8:00 - 18:30

W4 Extreme Eiffel Design and Code Fest
Wednesday, August 2, 8:00 - 18:30

PANELS

P1: Component-based development
Monday, July 31, 10:00 - 11:30

P2: Project management
Wednesday, August 2, 8:00 - 9:30

P3: Software technology for E-commerce
Thursday, August 3, 15:00 - 16:30

P4: The Great Language Debate
Thursday, August 3, 16:45 - 18:00

PRE-CONFERENCE TUTORIAL
Sunday, July 30, 9:00 - 17:00

Object Technology: An Executive Overview

Object technology is increasingly recognized as the best approach to building quality software and improving software productivity. Although the basic terms are widely used, they are not always coherently and completely described. This tutorial presents a consistent, general and up-to-date description of object technology, providing a general overview to managers and software developers interested in mastering the concepts.

Clifford Ritchie is president of CERCo, a Scotts Valley, California based software engineering company devoted to producing quality software by adhering to sound software engineering practices.

Workshop on Education and Training
Sunday, July 30, 9:00 - 17:00

**Co-Chairs:Richard   Mitchell,InferData,USA
James McKim,Rensselaer at Hartford,USA
Pete   BcBreen,Consultant,Canada**

This intense full-day workshop will explore the issues of software instruction in both universities (*Education,* morning session) and industry (*Training,* afternoon session).A final panel will combine the lessons from both sessions,bringing together experts from both communities.

Eiffel Design & Code Fest
**WEDNESDAY, AUGUST 2, ALL DAY
CHAIR:Richard Bielak**

We will write a WikiWiki Web server in Eiffel. A WikiWiki web server allows people to see and edit every page it displays.
We will extend existing libraries and and write additional code as needed. We don't expect to finish the entire project, but do expect to have the design sketched out and a small demo working.All the code will be released as Open Source.
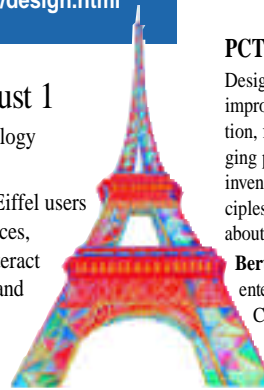
More details at www.tools.com/design.html

Eiffel Summit 2000 - August 1

Chairs: Paul Ford, Navigation Technology
Darren Hiebert, Xontech

The Summit will provide a forum for Eiffel users and developers to meet, share experiences, learn about ongoing Eiffel projects, interact with the developers of the technology and exchange with peers who have been successful in implementing Eiffel-generated applications.

*More details at **www.tools-conferences.com/usa/program/eiffel_summit***

POST-CONFERENCE TUTORIALS

Friday, August 4, 8:30 to 17:00

PCT 1 Project Management by Bill Duncan

Is your project on schedule? Within budget? Which variances are significant? Is your project performance improving or getting worse? Is the team following its plan? How will scope changes affect your ability to deliver? How reliable are your weekly project status reports? The best way to get good answers to these questions is through the appropriate use of an "earned value management system". This seminar takes the mystery out of the concept, and explains how to apply the techniques to your projects.

William R.Duncan is a principal in Project Management Partners, a project management consulting and training firm headquartered in Lexington, MA USA. He is the former Director of Standards for the Project Management Institute (PMI), a member of the Editorial Review Board of the Project Management Journal (PMJ), and a certified Project Management Professional (PMP).

PCT 2 OO Metrics by Christine Mingins

This tutorial demonstrates how to integrate the management of the evolving software product with the software process using product and process metrics. It reviews the main existing metrics and includes extensive practical advice on implementing an effective metrics program in your organization.

Christine Mingins is an associate professor and associate head of school at Monash University in Melbourne and the co-author of *Design Patterns and Contracts.* She has extensive experience in O-O project management consulting, O-O metrics, and component technologies.

PCT 3 Design by Contract by its creator

Design by Contract is an easy-to-apply technique that guarantees improvements in software reliability, provides automatic documentation, facilitates reuse, and profoundly affects the testing and debugging process. In this one-day post-conference tutorial, Bertrand Meyer, inventor of Design by Contract, will provide a description of the principles and their application to better software development in just about any language and environment.

Bertrand Meyer is a pioneer in software engineering and object-oriented methodologies and techniques and the inventor of Design by Contract.

T E C H N I C A L   S E S S I O N S

ST - TESTING
MONDAY, JULY 31, 8:00 - 9:30

An MFC Based Multi-Threaded Test Environment for the Validation of an Embedded Automotive Microcontrollers
Amir A Khwaja, Intel Corporation, USA

Specification-based Testing for Real-Time Reactive Systems
V. S. Alagar, O.Ormandjieva, M. Zheng, Concordia University, Canada

Interface Mutation to Assess the Adequacy of Tests for Components
Sudipto Ghosh and Aditya P. Mathur, Purdue University, USA

SM - METRICS AND QUALITY ASSURANCE
MONDAY, JULY 31, 14:30 - 16:00

Traveling Through Dakota:Experiences with an Object-Oriented Program Analysis System
Michael Hind, IBM Watson Research Center, USA, Anthony Pioli, Register.com, USA

Algorithmic Analysis of the Impacts of Changes to Object-oriented Software
Michelle Lee, Network Solutions, USA, A. Jefferson Offutt and Roger T. Alexander, George Mason University, USA

Towards a Syntactic Metrics Suite for Object-Oriented Design
Letha H. Etzkorn and Harry S. Delugach, The University of Alabama in Huntsville, USA

SP - PROGRAMMING APPROACHES
TUESDAY, AUGUST 1, 8:00 - 9:30

On the Inheritance of State-Based Object Behavior
David Harel and Orna Kupferman, The Hebrew University, Israel

Implementing Collaboration-based Designs using Aspect-Oriented Programming
Elke Pulvermueller and Andreas Speck, University of Tuebingen, Germany,
Awais Rashid, Lancaster University, United Kingdom

Behavioral Subtyping and Behvioral Enrichment of Multimethods
Neelam Soundarajan and Stephen Fridella, Ohio State University, USA

SB - DATABASE APPLICATIONS
TUESDAY, AUGUST 1, 15:00 - 16:30

A Java Main Memory Database System
Raimund K. Ege, FIU, USA

An ORDBMS-based Reuse Repository Supporting the Quality Improvement Paradigm-Exemplified by the SDL-Pattern Approach
Raimund L. Feldmann, Birgit Geppert, Wolfg and Mahnke, Norbert Ritter, and Frank Roessler, University of Keiserslautern, Germany

Web - Based Virtual Classroom
Vladimir Trajkovic, Danco Davcev, Goran Kimovski, Zaneta Petanceska, University "Sv. Kiril i Metodij", Macedonia

SL - LANGUAGE ISSUES
WEDNESDAY, AUGUST 2, 8:00 - 9:30

Weak Subtyping and Genericity
A. Heberle, W. Lowe, R. Neumann, W. Zimmermann, University of Karlsruhe, Germany

Programming with Patterns
Peter Forbrig and Ralf Lammel, Universitat Rostock, Germany

Automating Delegation in Class-Based Languages
John Viega, Reliable Software Technmologies, USA, Paul Reynolds, University of Virginia, USA, Reimer Behrends, Michigan State University, USA

SC - COMPONENTS
WEDNESDAY, AUGUST 2, 10:00 - 11:30

A Metacomponent Model to Support the Extensibility and Evolvability of Networked Applications
Gledson Elias da Silveira and Silvio Lemos Meira, Federal University of Pernambuco, Brazil

Design-time Assembly of Runtime Containment Components
David H. Lorenz and Predrag Petkovic, Northeastern University, USA

Automatic Generation of Fault-Tolerant CORBA-Services
Andreas Polze, Janek Schwarz, and Miroslaw Malek, Humboldt-University of Berlin, Germany

SS - SPECIFICATION
WEDNESDAY, AUGUST 2, 15:00 - 16:30

Using Plans for Specifiying Preconfigured Bean Sets
Dietrich Birngruber and Markus Hof, Johannes Kepler University, Austria

But who will guard the guardians?
Dave Maley and Ivor Spence, Queen's University of Belfast, United Kingdom

Prose + Test Cases = Specifications
Daniel Hoffman, University of Victoria, Canada, Paul Strooper, University of Queensland, Australia

SD - DESIGN METHODS
WEDNESDAY, AUGUST 2, 17:00 - 18:30

Object-oriented Manufacturing Application Framework
Sai Peck Lee, Siew Khim Thin, Hong Song Liu University of Malaya, Malaysia

POD:A Composition Environment for Pattern-Oriented Design
Sherif M. Yacoub, Hengyi Xue, and Hany H. Ammar, West Virginia University, USA

Pattern-Oriented Analysis and Design (POAD):A Structural Composition Approach to Glue Design Patterns
Sherif Yacoub & Hany H. Ammar, West Virginia University, USA

SK - KNOWLEDGE-BASED SYSTEMS
THURSDAY, AUGUST 3, 8:00 - 9:30

Business Rules Are Meta-Data
Alan Perkins, Visible Systems Corporation, USA

A Role-based Security Architecture for Business Intelligence
S. Megaache, T. Karran, G. R. Ribeiro Justo, University of Westminster, UK

A Knowledge-Based System for Software Reuse Technology Practices
N. Nada, L.Luqi, D. Rine, E. Damiani, S. Tuwaim, Naval Postgraduate School, USA

SU - DISTRIBUTED SYSTEMS
THURSDAY, AUGUST 3, 10:00 - 11:30

A Tool for Testing Liveness in Distributed Object Systems
Paul Sivilotti and Charlie Giles, Ohio State University, USA

Modular Object-Oriented Design of Distributed Systems
Gurdip Singh and Jun Wu, Kansas State University, USA

An Adaptive Framework for Distributed Complex Applications Development
Ilham Benyahia * & Mohamed Hilali, Universite du Quebec a Hull, Canada

SO - DEVELOPMENT TOOLS
THURSDAY, AUGUST 3, 15:00 - 16:30

A Distributed Object-Oriented Framework for Tool Development
John M. Kewley and Radu Prodan, Swiss Center for Scientific Computing, Switzerland

Evolutionary Computer Aided Prototyping System (CAPS)
Mantak Shing, Nader Nada, Luqi, Valdis Berzins, Naval Postgraduate School, USA

User Interface Specification and Modeling in an Object Oriented Environment for Automatic Software Development
Maria D. Lozano, University of Castilla-La Mancha Albacete, Spain, Pascual Gonzalez, University of Castilla-La Mancha Albacete, Spain, Isidro Ramos Polytechnic University Valencia, Spain

REGISTRATION FEES & PRACTICAL INFORMATION

REGISTRATION FEES

REGISTRATION FEES	Before July 10	After July 10
1 Day	$545.00	$595.00
2 Days	$895.00	$995.00
3 Days	$1195.00	$1295.00
4 Days	$1395.00	$1495.00
Pre-Post-Conference Tutorial		
With Conference*	$445.00	$495.00
Without Conference	$545.00	$595.00
WET		
With Conference*	$345.00	$395.00
Without Conference	$445.00	$495.00
Eiffel Summit (included in conference)		
Without Conference	$545.00	$595.00

DISCOUNTS

Full-Time Faculty Members: Take advantage of a 40% discount on the above registration fees
Full-Time Students: Take advantage of a 60% discount on the above registration fees

GROUP DISCOUNTS

A 10% discount is applicable to any registration (conference and teaching symposium) of 3 or more people from the same company site, at the same time, for a minimum of 2 days attendance. For 5 or more people the discount is 20%. These discounts are applicable to regular registrations only.

FEE INCLUDES

All fees include: a copy of the tutorial notes for each tutorial attended, a copy of the conference proceedings, breaks, lunches, and free access to the exhibition. A beach barbecue will be held on Monday, July 31 as well as an open-air classical concert dinner on Wednesday, August 3. Those who are registered on those days can attend at no extra charge.

PAYMENT & CANCELLATION

Payment should be made by cheque, credit card or international money order to the order of I.S.E. and accompanied by the registration form. Substitutions will be accepted at any time. Written cancellations received by June 30 will be liable to a 50 percent service fee. After this date, there will be no refund.

PRACTICAL INFORMATION

ACCOMMODATION

TOOLS USA 2000 will be held at the Fess Parker's DoubleTree Resort, the most beautiful resort on the "American Riviera," right across from the Santa Barbara beach. Rooms are available for conference attendees at the special rates of $189 single/double, $206 triple and $219 quadruple (guaranteed until July 7, or until no vacancy). To benefit from the special rate, you must mention that you are attending TOOLS USA 2000.

For reservations contact:
Fess Parker's DoubleTree Resort
633 East Cabrillo Blvd
Santa Barbara, CA 93103
Phone: 805-564-4333 or 800-879-2929
Fax: 805-962-8198
Email: info@fpdtr.com
Web: www.fpdtr.com

SPECIAL EVENTS

Beach BBQ Dinner - Monday, July 31 - 6:30 to 8:30. Additional tickets: $30.00
Exhibit Cocktail - Tuesday, August 1 - 6:00 pm to 8:00 pm
Conference Dinner and concert - Wednesday, August 2 - 6:30 to 8:00 Additional tickets: $60.00

TRAVEL ARRANGEMENTS

American Airlines is the official carrier of the 34th TOOLS Conference. Discounts are offered to attendees traveling with AA from a destination in the US or through a connecting flight in the US. Simply call the American Airlines Meeting Services desk toll free number 1-800-433-1790 and specify the AN#6770UO.

The airport is only twenty minutes from downtown Santa Barbara. A free shuttle service from the airport to the Fess Parker's DoubleTree Resort is available by calling the Resort ahead of time, or upon arrival at 805-564-4333. Airport-to-hotel shuttle service is also available from most other hotels.

TOOLS attendees who want to rent a car can contact THRIFTY car rental. Simply call the worldwide reservation line at 1-800-THIRFTY or the local number (805) 681-1222.

For more information on carriers, flight availability, or car rental, please contact International Travel of Santa Barbara, Phone 1-800-383-2116 or (805)683-2117, Fax (805)683-2118, E-mail: itsb@sb.net.

OLD SPANISH DAYS FIESTA

For five memorable days, August 2th through 6th, Santa Barbara's week-long festival celebrates the founding of the city by Spanish missionaries. Residents and visitors will share our cultural and romantic past with the ringing of the bells on the steps of the Old Mission, the procession of the El Desfile Historico parade to the colorful Mercados, the Rodeo featuring the Competicion de Vaqueros, the Arts & Crafts Show, the beautiful Noches do Ronda and much more, with most events free to all. You can find out more on the Fiesta's Web site at http://www.oldspanishdays-fiesta.org

We urge you to stay a few extra days in Santa Barbara to join the festivities with your family and friends!

SANTA BARBARA

Take a peek at some of Santa Barbara's history and activities (festivals, winery tours, scenic drives, etc.) at:
Santa Barbara Live magazine
http://www.santabarbaralive.com
Santa Barbara City: official city pages
http://www.santa-barbara.ca.us
Santa Barbara Guide: information on sights, events, shopping...http://www.sbguide.com
Yahoo's Santa Barbara Web Directory
http://dir.yahoo.com/regional/u_s__states/ california/cities/santa_barbara

TOOLS conference site:
the Fess Parker DoubleTree Resort
http://www.fpdtr.com

I WISH TO ATTEND

❑ **1 day**   **July/Aug.** _____ $ _____

❑ **2 consecutive days**   **July/Aug.** _____ $ _____

❑ **3 consecutive days**   **July/Aug.** _____ $ _____

❑ **4 consecutive days**   **July/Aug.** _____ $ _____

❑ **Pre-conference session**   **July 30** $ _____

❑ **WET**   **July 30** $ _____

❑ **Eiffel Summit**   **August 1** $ _____

❑ **Post-conference session**   **August 4** $ _____

Less Discount $ (_____)

Total $ _____

**ON THE DAYS THAT I WILL BE PRESENT AT TOOLS USA 2000,
I WILL BE ATTENDING THE FOLLOWING SESSIONS:**

TUTORIALS		TECHNICAL SESSIONS			PANELS	WORKSHOPS
❑ C1	❑ P1	❑ T1	❑ L1	❑ ST	Panels	Workshops
❑ C2	❑ P2	❑ T2	❑ L2	❑ SM	❑ P1	❑ W1
❑ C3	❑ P3	❑ T3	❑ L3	❑ SP	❑ P2	❑ W2
❑ C4	❑ P4	❑ T4	❑ L4	❑ SB	❑ P3	❑ W3
❑ C5	❑ P5	❑ T5	❑ L5	❑ SL	❑ P4	❑ W4
❑ C6	❑ P6	❑ T6	❑ L6	❑ SC		
❑ C7	❑ P7	❑ T7	❑ L7	❑ SS		
				❑ SD	Workshop on Education and Training	

Pre-Conference Tutorial
Object Technology: An Executive Overview

❑ SR

❑ WET

❑ OT

❑ SU

Eiffel Summit

Post-Conference Tutorials

❑ SO

❑ ES

❑ PCT 1   ❑ PCT 2   ❑ PCT 3

PERSONAL INFORMATION

Name _____

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PAYMENT

#_____ Conference Days $_____

❑ Faculty ❑ Student Discount _____%

❑ 3 ❑ 5 Registration Discount _____%

Subtotal $_____

Additional Lunches ($25.00) $_____

Additional Beach Barbecue ($30.00) $_____

Additional Concert Dinner ($60.00) $_____

TOTAL $_____

❑ Check or International Money Order to the order of I.S.E. # _____ enclosed

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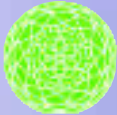Email: tools-conferences@tools.com

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TOOLS USA 2000

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Kent Beck, Raimund Ege, Martin Fowler, Martin Griss, Brian Henderson-Sellers, Gregor Kiczles, Haim Kilov, Angelika Langer, Bertrand Meyer, Jim Miller, Christine Mingins, Gilda Pour, Michael Stal, Clemens Szyperski ...

The hottest topics in software by the creators of the technology: will you be there?

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