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### COLUMNS

#### Guest Columns

**The Impedance Imperative**

*Tuples + Objects +Infosets = Too Much Stuff!*

*By Dave Thomas*

> Once upon a time it was possible for every new programmer to quickly learn how to write readable programs to **Create**, **Read**, **Update** and **Delete** business information. These so-called **CRUD** applications, along with reporting, were pervasive throughout business and essentially defined IT or MIS as it was called in those days.

**“Analysis Paralysis”? -- There exist so many ways to proceed, how could you get paralyzed?**

*By Francis G. Mossé*

> The author has been in several situations in which students would stop him in class and ask with stern faces: “How do you avoid *analysis paralysis*?” First time he heard that he sincerely replied: “How do you get to be paralyzed?”… Indeed, there are many ways to avoid analysis paralysis—at least 5.

**The Tale of Java Performance**

*By Osvaldo Pinali Doederlein*

> Java, like most new languages, suffered from immature implementations and very weak performance in the early days. The unprecedented success of early Java, though, should teach us the first important lesson about performance – it’s not always critical.
## UML

**UML 2 Activity and Action Models, Part 2**  
*By Conrad Bock*

This is the second in a series introducing the activity model in UML 2, and how it integrates with the action model. The column recaps behavior models in UML and the role of actions in them. It covers the execution characteristics of actions in general, which inherit to the many kinds of actions provided in UML 2. It also covers additional characteristics of actions that invoke behaviors.

## Cyber Databases

**A Snapshot of the Trends of the Internet Era: United States 2003**  
*By Won Kim*

Won Kim has been monitoring several aspects of the Internet with a keen interest during the past 3-4 years. In this column, he gives a snapshot of the trends in 2003 in the United States.

## OO Requirements Engineering

**Using Quality Models to Engineer Quality Requirements**  
*By Donald Firesmith*

There are a great number of different kinds of quality requirements. Consisting of a hierarchy of quality factors including associated quality characteristics and quality measures, a quality model provides a structured foundation on which to identify, analyze, and specify these quality requirements.

## Objects and Agents

**Changing Roles: Dynamic Role Assignment**  
*By James Odell, H. Van Dyke Parunak, Sven Brueckner and John Sauter*

An important characteristic of real-world agent systems is that the roles played by an agent may change over time. These changes can be of several different kinds. The authors describe an illustrative application where role changes are important, analyze and classify the various kinds of role changes over time that may occur, and show how this analysis is useful in developing a more formal description of the application.
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## REFEREED ARTICLES

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| **UML Specification and Relational Database**<br>
*By Liwu Li and Xin Zhao* | 87   |
| Liwu Li and Xin Zhao discuss how to extend the UML metamodel with elements for modeling relational dependencies. They also present techniques for converting structures of relational dependencies to UML constructs. The introduced metaelements and conversion techniques can be used in relational database design that is presented in the UML. They unify object-oriented software design and relational database design. | |
| **Toward Better Logical Models in UML**<br>
*By P. V. Reddy* | 101  |
| P.V. Reddy presents three ways of how to improve the logical models in UML. | |
| **Understanding Symmetry in Object-Oriented Languages**<br>
*By Liping Zhao and James O. Coplien* | 123  |
| Symmetry is a fundamental principle of scientific inquiry. Though its role in software is less well understood than in the physical sciences, many software design constructs can be formalized as symmetries, especially in object-oriented programming and design. Motivated by the success of symmetry in other disciplines, the authors have made a conscious effort to understand the importance of symmetry in programming and design. | |
| **Mapping UML Associations into Java Code**<br>
*By Gonzalo Génova, Carlos Ruiz del Castillo and Juan Llorens* | 135  |
| Principles for the implementation of UML binary associations in Java are explored. Some paradoxes related to the specification of visibility for bi-directional associations are discussed. | |

## BOOK REVIEW

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| **Patterns of Enterprise Application Development**, by Martin Fowler<br>
Reviewed by Charles Ashbacher | 163  |

## PRODUCT REVIEW

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| **JBuilder 9 Enterprise Suite**<br>
Reviewed by Dave Neuendorf and Richard Wiener | 165  |
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