Preface

The considerable breadth and depth of projects and programs at the Media Laboratory of the Massachusetts Institute of Technology (MIT) are explored in this special double issue of the *IBM Systems Journal*. The Media Lab has long been recognized as a leader in probing beyond the boundaries of the current and conventional understanding of systems technologies and their interactions with people, and for articulating its findings and innovative results across a wide span of media. This is the second time the *Journal* has presented the work of the lab, the first being four years ago in Volume 35, Numbers 3&4, 1996. Much has happened at the lab since 1996, and much is new since then.

This issue contains an introduction to the broad themes bearing on the work of the Media Lab, followed by an essay on why the lab is able to produce such innovative results. The remaining 34 papers and essays are presented in three parts, roughly reflecting the three programmatic elements of the Media Lab's projects: arts and media, learning and expressing, and everywhere computing. Each of these parts has a summary essay at the front and another at the back—bookends in a sense—that provide, respectively, a description of the current environment and a glimpse into the future. We are indebted to W. Bender of the Media Lab and D. A. Boor of IBM Corporate Headquarters, who represents IBM at the lab, for their considerable efforts in bringing together the many people and papers necessary for an issue of this breadth and scale. IBM has been a major supporter of the lab since its inception.

The introduction to the Media Lab's themes, authored by Negroponte, provides a quick look at the forces shaping the projects and programs of the lab, as they might be viewed from a broader social con-text. It describes the way in which the digital world has grown and changed during the last decade or so. Negroponte reflects on the impact that dramatic change has had on the lab and on the ways we think, the means by which we translate thoughts into actions, even what we think about.

That brief introduction is followed by a definitive look at the culture of the Media Lab and how and why the lab works, written by Haase. The author discusses form, content, and style along a number of dimensions that shed light on the culture and what makes the lab function successfully. Haase then shows how the elements of the form and the breadth of the interdisciplinary content might be successfully duplicated elsewhere, whereas the diversity and characteristics of the culture may be harder to replicate.

The three parts follow, each representing a point of view for understanding the work of the Media Lab and a focus for separating and distinguishing a segment of the lab's overlapping areas of endeavor. In large measure, these parts are in line with the current thinking about the creation of three new organizational entities within the lab—the renamed Media Laboratories as a central focus, with a lab for each of three experimental contexts, intertwined and interdependent, but with each having its own focus and perspective.

The first part and its collection of papers is on the perspective of arts and media. The introduction, the front bookend, by Lippman, describes the ways in which content and technology continue to interact to change the human experience, and provides a brief introduction to the papers. The view toward the future, the back bookend, by Machover, looks forward to the contributions the digital world can make to

a renaissance in artistic and creative expression. The papers in between show how broadly and deeply the Media Lab has explored the confluence of the arts and media.

The perspective of learning and expressing is the subject of the second part and its suite of papers. The introductory essay, by Bender, contains a discussion of a shift toward learning through expressing, with a summary of the papers. The future is outlined at the end by Resnick in an essay that critiques the information-oriented view of what can be accomplished with systems and encourages a richer view focused on learning and innovation. The papers illustrate the scope of possibilities for systems as agents for the creation and dissemination of ideas.

The third and concluding part, with its assembled papers, treats the perspective of everywhere computing. It begins with an introduction by Pentland that prepares us for a world, and a set of papers, populated by seemingly everyday physical objects, now imbued with capabilities for computation and communication. This part ends with a view by Gershenfeld into the future of bits and atoms and the formidable challenges of networks of billions of intelligent devices. The papers in this part demonstrate the ways in which the physical sciences interact with computational sciences to create new and exciting computerized devices.

The next issue of the *Journal* will describe some of the emerging technologies for e-business, including transcoding, the Java** language, and the Extensible Markup Language (XML).

This is my final issue as editor of the *Journal*. I have thoroughly enjoyed my twelve years as editor, working with readers, authors, referees, issue coordinators, and editorial and production staff. I go on to my next role with happiness for what you have shared with me and with sadness for what I am leaving behind. Please join me in welcoming John Ritsko, the current managing editor, as the new editor of the *Journal*.

<div align="right">
Gene F. Hoffnagle
Editor
</div>