

UNIVERSITY OF CENTRAL FLORIDA & THE SCHOOL OF EECS

present the Spring 2009

## EECS Seminar Series



### Dr. Andries van Dam

*Thomas J. Watson, Jr. University Professor of Technology and Education  
and Professor of Computer Science, Brown University*

**“When is the Pen Mightier than the Keyboard?”**

Thursday, March 5, 2009 • 10:30 a.m. • Harris Center (HEC) 101

Consider a not-too-distant scenario in which Tablet PCs and other surfaces, with digital pens and (multi-) touch are used as extensible electronic lab notebooks. Each of these ‘notebooks’ is a collection of arbitrarily large virtual pieces of paper that permit users both to sketch ideas for annotated diagrammatic and mathematical designs, including proof-of-concept simulations, and to engage in interactions with collaborators on shared portions of the workspace. As they seamlessly move among domains, users can have the recognition software assign domain-specific semantic interpretations to the digital ink as appropriate or leave the ink as design or annotation marks.

There is still a large distance between such a vision and what we have today: siloed applications operating in their own windows and, at least for desktop/laptop computing, relying on a 35 year-old keyboard-and- mouse interaction paradigm. While keyboarding is a fast and natural means of linear text entry, many other tasks, such as the entry of mathematical or chemical notations, require a cognitively-demanding encoding of 2D notations into linear ones that is distracting at best, unnatural at worst. Current technical advances provide exciting new opportunities to interpret digital ink as commands and application objects in appropriate ways. Such a context-sensitive interpretation often involves inferencing and extensive use of gestures fluidly intermixed with notations natural to the domain.

This talk will demo three prototype digital-ink based applications in mathematics, chemistry, and diagramming and then will describe some of the research issues that the Microsoft Research Center in Pen-Centric Computing at Brown University is addressing.

#### **DR. ANDRIES VAN DAM**

Andries van Dam is the Thomas J. Watson, Jr. University Professor of Technology and Education and Professor of Computer Science at Brown University. He has been a member of Brown’s faculty since 1965, is a co- founder of Brown’s Computer Science Department, and was its first Chairman, from 1979 to 1985. He also was Brown’s first Vice President for Research from 2002-2006. He was a Principal Investigator and was the Director from 1996-1998, in the NSF Science and Technology Center for Graphics and Visualization, a research consortium including Brown, Caltech, Cornell, North Carolina (Chapel Hill), and the University of Utah.

His research has been in computer graphics, hypermedia systems, post- WIMP user interfaces, both for virtual reality and pen computing, and educational software. He has been working for four decades on systems for creating and reading electronic books with interactive illustrations for use in teaching and research. He is the co-author of nearly a dozen books, including, *Computer Graphics: Principles and Practice*, with James D. Foley, Steven K. Feiner, and John F. Hughes (Addison-Wesley 1990) and his more recent *Object Oriented Programming in Java*, with Katherine Sanders (Addison-Wesley 2006). He received a B.S. degree, with honors, in Engineering Sciences from Swarthmore College in 1960 and Ph.D. (1966) from the University of Pennsylvania. He is a Fellow of ACM, IEEE, and AAAS (American Association for the Advancement of Science), and is a member of NAE (National Academy of Engineering) and AAAS (American Academy of Arts & Sciences). He has received honorary doctorates from Darmstadt Technical University in Germany, Swarthmore College, the University of Waterloo in Canada, and ETH Zurich in Switzerland.

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