



The Association for Computing Machinery  
Advancing Computing as a Science & Profession

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## **ACM COUNCIL ON WOMEN HONORS LEADER IN IMPROVING PERFORMANCE OF COMPUTER-AIDED DESIGN**

### **Irwin Wins Athena Award for Contributions to Computer Architecture**

**NEW YORK, March 17, 2010** – The Association for Computing Machinery’s Council on Women in Computing (ACM-W) <http://women.acm.org/> has named Mary Jane Irwin of the Pennsylvania State University as the 2010-2011 Athena Lecturer for her outstanding research contributions to computer-aided design, computer arithmetic, and computer architecture. Irwin designed novel computer structures that are used in laptops to vastly improve the performance of image and speech applications. She also developed techniques to automate computer-aided design (CAD) activities, which have been assimilated by the CAD industry. The award, which celebrates women researchers who have made fundamental contributions to computer science, includes a \$10,000 honorarium, which is provided by Google Inc.

Irwin’s landmark contribution is the design of the first architecture for Discrete Wavelet Transform, a process that decomposes a signal into a set of basic functions. This advance provides optimal performance for signal processing and image compression used in computer-aided design. To address bottlenecks in hardware design progress resulting from poor design tools, Irwin developed a new addition algorithm, known as ELM, which offers superior energy and performance characteristics that are now found in many computers.

Irwin was one of the first researchers in computer architecture to predict that energy would become the next important constraint for high-performance systems developers of computer-aided design. To remedy this issue, she created the first architectural-level power simulator to optimize power consumption and facilitate an energy-aware design approach.

The Evan Pugh Professor of Computer Science at Penn State, Irwin also holds the A. Robert Noll Chair in Engineering in the Department of Computer Science and Engineering. She serves on the Computer Research Association’s Committee on Women (CRA-W) Steering Committee and the Board on Army Science and Technology as well as the External Research Advisory board of Microsoft Research.

Irwin was inducted into the National Academy of Engineering in 2003, and the American Academy of Arts and Sciences in 2009, and was named a Fellow <http://fellows.acm.org> of ACM in 1996. In 2007, she received the Anita Borg Technical Leadership Award. She has also served as a founding Co-Editor-in-Chief of ACM's *Journal on Emerging Technologies (JETC)* <http://jetc.acm.org> from 2004 to 2006, and Editor-in-Chief of ACM's *Transactions on the Design Automation of Electronic Systems (TODAES)* <http://todaes.acm.org> from 1998-2004. She was vice president of ACM from 1997 to 1998.

A graduate of Memphis State University with a B.S. in mathematics, Irwin received M.S. and Ph.D. degrees in computer science from the University of Illinois at Urbana-Champaign. She was awarded an Honorary Doctorate from Chalmers University in Sweden.

The Athena Lecturer is invited to present a lecture at an ACM event. Irwin will present her lecture at ACM-IEEE ISCA 2010 <http://isca2010.inria.fr/>.

Each year, the Athena Lecturer [http://women.acm.org/participate/awards/athena\\_talks.cfm](http://women.acm.org/participate/awards/athena_talks.cfm) honors a preeminent woman computer scientist. Athena is the Greek goddess of wisdom; with her knowledge and sense of purpose, she epitomizes the strength, determination, and intelligence of the "Athena Lecturers." The 2010-2011 Athena Lecturer Award will be presented at the ACM Annual Awards Banquet, June 26, in San Francisco, CA.

#### **About ACM**

ACM, the Association for Computing Machinery [www.acm.org](http://www.acm.org), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

#### **About ACM-W**

ACM-W is the ACM Council on Women in Computing <http://women.acm.org>. It celebrates, informs and supports women in computing, and works with the ACM-W community of computer scientists, educators, employers and policy makers to improve working and learning environments for women.

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