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ACM Association for Computing Machinery

IEEE Computer Society

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**ACM, IEEE COMPUTER SOCIETY HONOR INNOVATOR OF DEPENDABILITY OF CRITICAL  
COMPUTER SYSTEMS**

**UCLA's Avižienis Pioneered the Field of Fault-Tolerant Computers Used in Space Exploration**

**NEW YORK, MAY 21, 2012** -- ACM (the Association for Computing Machinery) and the IEEE Computer Society will jointly present the Eckert-Mauchly Award to Algirdas Avižienis of the University of California, Los Angeles for fundamental contributions to fault-tolerant computer architecture and computer arithmetic. His conceptual designs led to construction of the Self-Testing and Repairing (STAR) computer at the Jet Propulsion Laboratory at California Institute of Technology, which was instrumental to the JPL mission to explore space. The Eckert-Mauchly Award [http://awards.acm.org/eckert\\_mauchly](http://awards.acm.org/eckert_mauchly) is known as the computer architecture community's most prestigious award. Avižienis will receive the 2012 Eckert-Mauchly Award at the International Symposium on Computer Architecture (ISCA) <http://isca2012.ittc.ku.edu>, June 12, in Portland, OR.

Avižienis coined the term Fault-Tolerant Computing to capture the unique aspects of his ideas for creating a low-power, long-life computer using self-repairing techniques. He chaired the first IEEE Technical Committee on Fault-Tolerant Computing in 1969, and established the first international conference. Moving to UCLA from the Jet Propulsion Laboratory, he expanded the scope of his research to fault-tolerant system architecture and dependability modeling. He extended his work on error-detecting codes for VLSI (Very Large Scale Integration) design, resulting in new techniques to implement self-checking programmable logic arrays and improved chip yields.

Continuing his contributions to the science of dependable computing, Avižienis addressed ways to provide tolerance against software faults through Multi-Version Programming. He subsequently developed redundant number systems for fast digital arithmetic, a critical element in the field of digital arithmetic, and created efficient algorithms for error-coded operations.

In addition to mentoring a large number of Ph.D. and M.S. students, Avižienis established one of the first graduate courses in the US dedicated to computer algorithms and processors. When Lithuania achieved

independence in 1990, he helped establish western-style research and Ph.D. programs at the national university of Lithuania, Vytautas Magnus, which is located in his home town of Kaunas.

A Fellow of IEEE, he is a recipient of the American Institute of Aeronautics and Astronautics (AIAA) Information Systems Award and the National Aeronautics and Space Administration (NASA) Exceptional Service Award. He also received the IEEE Computer Society Technical Achievement Award and the International Federation for Information Processing (IFIP) Silver Core Award. He earned B.S., M.S. and Ph.D. degrees from the University of Illinois, Urbana-Champaign.

ACM and the IEEE Computer Society [www.computer.org/portal/web/awards/eckert](http://www.computer.org/portal/web/awards/eckert) co-sponsor the Eckert-Mauchly Award, which was initiated in 1979. It recognizes contributions to computer and digital systems architecture and comes with a \$5,000 prize. The award was named for John Presper Eckert and John William Mauchly, who collaborated on the design and construction of the Electronic Numerical Integrator and Computer (ENIAC), the pioneering large-scale electronic computing machine, which was completed in 1947.

#### **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 the IEEE Computer Society**

The IEEE Computer Society, [www.computer.org](http://www.computer.org), is one of the world's leading computing membership organizations and a trusted information and career-development source for a global workforce of technology leaders including: professors, researchers, software engineers, IT professionals, employers, and students. The IEEE Computer Society provides high-quality, state-of-the-art information on an on-demand basis. The Computer Society provides a wide range of forums for top minds to come together, including technical conferences, publications, a comprehensive digital library, unique training webinars, and professional training. IEEE is the world's largest professional association for advancement of technology and the Computer Society is the largest society within the IEEE.

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