Barry Boehm, Software Engineering Pathfinder, To Receive 2010 IEEE Simon Ramo Medal

Contributions Transformed Software Development into an Engineering Discipline

PISCATAWAY, N.J., 17 June 2010 – Barry Boehm, an engineer whose integration of systems engineering principles with software development has helped enhance the quality, cost-effectiveness and competitiveness of how software and other complex systems are developed, is being honored by IEEE with the 2010 IEEE Simon Ramo Medal. IEEE is the world’s largest professional association advancing technology for humanity.

The medal, sponsored by Northrop Grumman Corporation, recognizes Boehm for leadership in and innovative solutions to the integration of systems engineering and software engineering. The medal will be presented on 26 June 2010 at the IEEE Honors Ceremony in Montreal, Quebec, Canada, and will be broadcast live on the Web through IEEE.tv (www.ieee.tv).

For over 35 years, Boehm’s innovations and leadership have profoundly impacted systems and software developers as well as organizational leaders and policy makers in both the commercial and government defense sectors. Boehm showed that engineering rigor could be applied to software development and that the software engineering component was as important as hardware engineering when developing complex systems. His models for predicting and evaluating software development projects and processes helped create software engineering economics as its own discipline. Boehm’s analysis methods have enabled developers to improve software productivity and quality by applying economic techniques to the process.

During the 1970s, Boehm was involved with a U.S. Air Force study on future information processing requirements and capabilities. His analysis showed that software was the most critical technology for strategic, tactical and air defense systems, with higher projected costs than that needed for hardware. As a result, the government, which was expecting hardware issues to be the most critical, redirected its research and development program toward software issues. With software and its related costs carrying such an impact on overall projects, the importance of rigorous cost and schedule estimation methodologies was clear. Today, any organization within the U.S. Department of Defense (DoD) that develops software makes use of Boehm’s methods or techniques derived from his work.
Among the modeling techniques developed by Boehm are the “Constructive Cost Model” (COCOMO), which became the standard for software cost and schedule estimation, and its extension, COCOMO II. Boehm also developed the “Spiral Model,” which is a lifecycle process model defining iterative development cycles that incrementally mature a software-reliant system through effective risk management. The spiral model serves as the basis for the current generation of flexible, incremental, risk-driven lifecycle process models for systems and software. Extensions of his “win-win” approach and “anchor-point” spiral enhancements were adopted by the DoD to improve the U.S. Army Future Combat Systems Program and by the recent National Research Council study on Human-System Integration.

An IEEE Life Fellow, Boehm is also a Fellow of the Association for Computing Machinery (ACM), American Institute of Aeronautics and Astronautics, International Council on Systems Engineering and a member of the U.S. National Academy of Engineering. His awards include the ACM Distinguished Research Award in Software Engineering (1997), the IEEE Harlan Mills Award (2000) and a lifetime achievement award from the American Society for Quality Control (1994). Boehm received his bachelor’s degree from Harvard University, Cambridge, Mass., and his master’s and doctorate degrees from the University of California, Los Angeles, all in mathematics. He also received an honorary doctorate in computer science from the University of Massachusetts. Boehm is the founding Director Emeritus of the University of Southern California (USC) Center for Systems and Software Engineering, Los Angeles; director of research of the DoD-Stevens Institute of Technology-USC Systems Engineering Research Center; and the TRW Professor of Software Engineering at the USC Viterbi School of Engineering, Los Angeles.

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