The Computer Society recently recognized two pioneers in the field of distributed computing for their groundbreaking work. Each has advanced new ideas and strategies that have helped to make distributed computing applications a prominent feature of the modern digital landscape.

K.H. (Kane) Kim, a professor of electrical engineering and computer science at the University of California, Irvine, recently received the 2005 IEEE Computer Society Tsutomu Kanai Award. Kim’s citation reads, “For fundamental and pioneering contributions to the scientific foundation of both real-time object structuring-based distributed computing and real-time fault-tolerant distributed computing.”

A member of the ACM and an IEEE Fellow, Kim has been recognized by the Computer Society on several occasions. A former chair of the Society’s Technical Committee on Distributed Processing, Kim received a Technical Achievement Award in 1998 and a Meritorious Service Award in 1995.

Kim originated the distributed recovery block technique and several other basic approaches for cost-effective design of ultrareliable fault-tolerant, real-time, distributed and parallel computer systems. The primary developer of the TMO (time-triggered message-triggered object) structuring scheme (also called RTO.k), Kim is also credited with developing the DREAM kernel, a prototype OS kernel providing guaranteed timely services.

In the mid-1980s, Kim founded UC Irvine’s Distributed Real-time Ever-Available Microcomputing (DREAM) Laboratory. The DREAM Lab, equipped with three advanced parallel and distributed computing testbeds, evaluated TMO-structured real-time system engineering and other techniques for fault tolerance in distributed computer systems.

Kim is a partner in the OptIPuter project, a proposed infrastructure that coordinates computational resources over parallel optical networks using existing IP communication mechanisms. An active volunteer in the Computer Society, Kim was founding editorial board member of IEEE Transactions on Parallel and Distributed Systems.

In an April meeting at Samsung corporate headquarters in Seoul, officials from the IEEE Computer Society and Samsung SDS, the digital systems division of the global electronics manufacturer, signed a memorandum of understanding that outlines the framework of a new strategic partnership between the two organizations.

“This MOU opens the door to providing IEEE Computer Society products and services featuring the Certified Software Development Professional program to a new audience in Asia,” said David Hennage, executive director of the Computer Society, who signed the document on behalf of the Society. “Company executives tell us they need standards, training, and certification to make an impact on product and service quality for their customers. Testing and quality assurance are just some of the critical issues that together we can help address.”

“By adopting the CSDP certification program and its related content,” Hennage continued, “Samsung SDS can fortify our development force’s competency and at the same time, by marketing the certification program in Korea, both institutions can find a way to create mutually beneficial business opportunities. We are sure that this will bring fruitful results to both institutions.”

Initially, 30 software developers from Samsung SDS will take the CSDP exam under the new agreement. Later in the year, the organizations will meet to formalize the structure of their partnership.

Samsung SDS started as a business branch within Samsung Electronics in the late 1980s. Since then, it has offered a full spectrum of IT services, including consulting, design, development, production, installment, operation, maintenance, fee collection systems, and traffic management administration.

For more information on the memorandum of understanding or on the Computer Society’s CSDP program, contact Stacy Saul at ssaul@computer.org.
In a special ceremony at ISADS 2004, Java innovator James Gosling received the 2004 IEEE Computer Society Tsutomu Kanai Award “for major contributions to advances in the technology for construction of distributed computing systems through invention of the Java Language system.”

Sun Microsystems designed Java in the early 1990s in anticipation of a trend in digital technology that might require connecting many household machines together. A lack of consumer demand doomed this application. Sun officials then attempted to promote the technology to cable TV companies, but executives were intimidated by the system’s interactive nature. However, in the mid-1990s, the emergence of the World Wide Web resulted in an unexpected explosion of applications for Java. The language has remained popular since, evolving through several iterations over the past decade.

One of the three originators on the project that led to the creation of Java, Gosling is currently a vice president and Fellow at Sun Microsystems. As Chief Technology Officer of the Developer Products group, he leads a team working to create a high-end tool that performs semantic modeling tasks for software developers. Designed to deal with today’s massively complex systems, semantic models can give developers sophisticated insight into the structure of an application.

At Sun, Gosling has built a multi-processor version of Unix, as well as several compilers. He also headed the development of a windows manager called Network-extensible Windowing System (NeWS), a PostScript-based system for distributing computer processing power across a network. Emacs, a popular and powerful text editor for Unix systems, is another of Gosling’s creations.

In 2004, Gosling was elected to the National Academy of Engineering for his work on Java. After the momentum Java received from Internet sites, the language has evolved into a nearly ubiquitous fixture of the computing landscape, powering everything from cell phones and PDAs to on-board automotive applications. In Brazil, a Java-based national healthcare system links 12 million people in 44 cities.

The Kanai award recognizes major contributions to state-of-the-art distributed computing systems and their applications. A crystal memento and a $10,000 honorarium accompany the award, which is presented each year at the International Symposium on Autonomous Decentralized Systems.

Texas A&M’s Bjarne Stroustrup, the designer and original implementer of the widely used C++ programming language, recently received the 2004 Computer Entrepreneur Award. His citation reads, “For pioneering the development and commercialization of industrial-strength, object-oriented programming technologies and the profound changes they fostered in business and industry.”

While at Bell Labs, Stroustrup developed C++. The language originated as an extension of the C programming language, retaining most of C’s efficiency and flexibility but also supporting features that C alone could not. In particular, C++ was designed to support object-oriented programming, incorporating the concept of classes from older languages. Originally designed for use in Unix environments, C++, like C before it, can be used with any OS.

Currently the College of Engineering Chair Professor of Computer Science at Texas A&M University, Stroustrup retains ties with Bell Labs (now known as AT&T Labs-Research). Elected to the National Academy of Engineering in 2004, Stroustrup is also a Fellow of the IEEE, the ACM, and AT&T. In 2005, he became the first computer scientist ever to be awarded the William Procter Prize for Scientific Achievement from the Sigma Xi scientific research society.
Past recipients of the Computer Entrepreneur Award include Gene Amdahl, Daniel Bricklin, Michael Dell, Bill Gates, Andrew Grove, and Steve Jobs.

**HANS KARLSSON AWARDS HONOR STANDARDS CONTRIBUTIONS**

While some Computer Society awards, like the Entrepreneur Award, recognize individual innovation, others, like the Hans Karlsson Award, honor leadership through collaboration. Recognizing that individual, corporate, and organizational rivalries within the computer industry sometimes hinder the common good, the Computer Society established the Hans Karlsson Award for Leadership and Achievement through Collaboration.

**Wayne Hodgins**

Wayne Hodgins of the design software and digital content company Autodesk received the Hans Karlsson Award in recognition of his work on educational technology standards. His citation reads, “For your extraordinary leadership and vision that led to the first learning technology standard and that was instrumental in moving an entire industry to pursue a standards-based rather than a proprietary approach.”

Hodgins is the elected chair of the IEEE P1484 Standards Working Group for Learning Object Metadata, a focus group of the IEEE Learning Technology Standards Committee.

In his role as Director of Worldwide Learning Strategies at Autodesk, Hodgins is responsible for improving interactions among employees, partners, and customers through what he refers to as learnativity.

**Victor Hayes**

For his “dedication to the advancement of technologies and their use in a wide area of segments, markets, and applications benefitting all our lives,” Victor Hayes also received the Hans Karlsson Award. The award recognizes his long-standing involvement with the IEEE 802.11 wireless standard. Hayes chaired the IEEE 802.11 Wireless LAN Working Group, a sub-committee of the IEEE 802 LAN/MAN Standards Committee, at the time of the 802.11 standard’s release in 1996. Broad adoption of 802.11-compliant technology has pushed down prices of wireless Web access, service, and equipment, leading to widespread wireless Internet connectivity at hotels, airports, cafes, businesses, and homes. Hayes is widely hailed as the champion of the 802.11 standard.

Hayes spent most of his career at Lucent Technologies and retired from his position as senior scientist at Agere Systems in 2003.

**BOEING AND IBM EARN SOFTWARE PROCESS ACHIEVEMENT AWARDS**

In addition to recognizing the leadership of individuals in promoting collaboration, the Computer Society presents awards that praise the collaborative efforts of work groups. The Software Process Achievement Award highlights innovation demonstrated by an individual or team responsible for an improvement to their organization’s software process. To be considered for this award, the improvement must be sustained, measured, and significant.

In 2004, the Software Process Engineering group at Boeing, and the Global Services Application Management group at IBM both received Software Process Achievement Awards. Boeing received the honor “in recognition of significant, measured software process improvements throughout the Information Systems Division and establishment of a firm basis for continued improvements into the future.” The award was presented to the IBM team “in recognition of rapid, continuous, improvement to their software capability in response to increasingly stringent marketplace demands.”

Past winners of the Software Process Achievement Award include teams from Wipro Technologies, Hughes, and Raytheon.

**DISTINGUISHED SERVICE IN A PRE-COLLEGE ENVIRONMENT AWARD**

Because excellence in engineering often begins with early exposure to the field, the Computer Society presents an award to individuals who further the professional and technical goals of the IEEE Computer Society in a pre-college environment. Robert A. Reilly received this recognition for his role in founding the K12Net bulletin board system, an early tool for connecting teachers and students to the emerging Internet.

Established in 1990—before most K-12 teachers, students, and administrators had heard of the Internet—K12Net was an education-focused bulletin board system. By the end of its brief run, tens of thousands of teachers, children, and parents had experienced online computing. Although K12Net’s international growth was explosive, the FIDOnet technology that it relied upon soon became obsolete. By 1997, as the World Wide Web and inexpensive local access to the Internet started to become more widespread, nearly all K12Net BBs had disappeared.

Reilly, a senior member of the IEEE, is a visiting scientist at the Massachusetts Institute of Technology Media Lab, where he is investigating the role of emotions and their impact on learning.

The IEEE Computer Society maintains an active awards program, presenting dozens of annual awards that can carry honoraria of up to $10,000. The deadline to nominate peers for most awards is 1 October.

For details on individual award criteria, listings of past winners, and nomination forms for upcoming awards, visit www.computer.org/awards/.

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