

Hosaka and Spielberg Named Winners of 2006 Computer Pioneer Award

Established by the IEEE Computer Society in 1981, the Computer Pioneer Award recognizes and honors individuals whose efforts resulted in the creation and continued vitality of the electronic computer industry.

The award is presented each year to an outstanding individual or individuals whose main contributions to the concepts and development of the computer field have been made at least 15 years ago. The recognition is engraved on a Computer Pioneer medal custom-struck for the Society. Past recipients include Frances E. Allen, John Vincent Atanasoff, Frederick P. Brooks, and John W. Mauchly.

At a recent meeting in San Diego, Calif., the IEEE Computer Society Board of Governors presented the 2006 Pioneer Award to two notable trailblazers in computing.



MAMORU HOSAKA

Mamoru Hosaka's Computer Pioneer Award citation reads, "For recognition of pioneering activities within computing in Japan."

Mamoru Hosaka, 1977-1978 president of the Information Processing Society of Japan, received the IEEE Computer Society's 2006 Pioneer Award for his contributions to the field of digital systems control.

During the late 1940s, Hosaka's doctoral research centered on the dynamics of railway vehicles. By the early 1950s, he came to realize that computers could be used to coordinate the operations of the railway system as a whole. In time, his vision expanded to include individual seat reservation capabilities and rolling stock routing schemes.

Using an early Bendix G15 computer, Hosaka and his colleagues developed the Magnetic Automatic Reservation System (MARS-1), placed into service by Japanese National Railways (JNR) in 1960. Later iterations of the system, including the 1964 MARS-101, were based on a task-sharing, multicomputer architecture.

Hosaka went on to develop early implementations of computer graphics and CAD systems as well as an online application for the Tokyo Stock Exchange. In the 1970s, Toyota applied Hosaka's ideas when it began using computer-generated models to design auto bodies. In the 1990s, Hosaka's work focused on the recognition and modeling of faces and shapes.

Hosaka worked as a research engineer for JNR from 1946 to 1959. From 1959 to 1981, he served as a professor at the University of Tokyo and the Tokyo Institute of Technology. Currently a director at Kubotek, from 1981 to 1997 Hosaka worked as a professor at Tokyo Denki University, where he also sat on the board of directors.



ARNOLD M. SPIELBERG

Arnold Spielberg's Computer Pioneer Award citation reads, "For recognition of contribution to real-time data acquisition and recording that significantly contributed to the definition of modern feedback and control processes."

Arnold M. Spielberg was presented with the 2006 IEEE Computer Society Pioneer Award for contributions to data acquisition and storage during his tenure at RCA and General Electric, beginning in 1949. Spielberg's early efforts there centered on servo and guidance systems. As RCA expanded its presence in electronic computers, he created several early circuit and systems designs, including a tape-to-tape data sorter.

When RCA entered the computer field, Spielberg shifted his interests to that emerging technology, doing early circuit design on various techniques for implementing computer logic. Moving into systems design, he was responsible for the design of a tape-to-tape data sorter. He also designed and patented the first electronic library system, which was implemented as an interrogation system for searching for data stored on an array of magnetic tapes.

Spielberg later headed the development of a central processor-based point-of-sale system, known as Recorder Central, which relied upon tag readers and drum memory units for the storage and retrieval of retail price and credit information.

At GE, Spielberg collaborated with Chuck Prosper on the GE-312 and the GE-225, for which one of the major initial customers was Huntsville Arsenal, a NASA predecessor.

Retired in 1991 from Unisys, Spielberg consults for various technology companies and works with the Survivors of the Shoah Visual History Foundation, an organization founded by his son, Steven Spielberg, after directing and producing the movie *Schindler's List*.

IEEE Names 2007 Fellows

The IEEE Board of Directors recently conferred the title of Fellow upon 268 senior members of the IEEE who have demonstrated outstanding achievement in engineering, including 39 Computer Society members. The honorees were selected from among the more than 350,000 professionals who comprise the membership of the IEEE. Since IEEE policy limits the total number of Fellows selected each year to no more than 0.10 percent of the IEEE's total voting membership, this year's group is an even more select group of outstanding individuals.

The original 1912 constitution of the American

Institute of Electrical Engineers, a forerunner of the IEEE, outlined a procedure for naming Fellows. Today, Fellow status recognizes a person who has established an extraordinary record of achievements in any of the IEEE fields of interest.

The Computer Society members whose names appear below are now IEEE Fellows, effective 1 January. An accompanying citation details the accomplishments of each new Fellow. In cases where a Computer Society member has been named a Fellow based on contributions to a field other than computing, the name of the evaluating IEEE society appears after the citation.

B

Jean Bacon, University of Cambridge, for leadership in design of secure, large-scale, distributed systems.

Harut Barsamian, University of California, Irvine, for contributions to computer architecture, dynamic microprogramming, and associative search algorithms.

Luca Benini, University of Bologna, for contributions to design technologies for low-power design of integrated circuits and systems.

Bhargab Bhattacharya, Indian Statistical Institute, for contributions to testing and design of digital integrated circuits.

Pradip Bose, IBM T.J. Watson Research Center, for contributions to power modeling and processor design.

C

Donald Chamberlin, IBM Almaden Research Center, for contributions to database query languages.

Grace Clark, Lawrence Livermore National Laboratory, for contributions in block adaptive filtering.

Robert Colwell, R & E Colwell & Assoc., for technical leadership in turning novel computer architecture concepts into commercial processors.

Melba Crawford, Purdue University, for applications of satellite data and airborne LIDAR imagery.

Bill Curtis, Borland Software, for contributions to software process improvement.

G

Maya Gokhale, Los Alamos National Laboratory, for contributions to

reconfigurable computing technology.

Dmitry Goldgof, University of South Florida, for contributions to computer vision and biomedical applications.

James Goodman, University of Auckland, for contributions to shared-memory multiprocessor system design.

Steven Gorshe, PMC Sierra, for invention and standardization of elements of optical transmission systems.

H

Joseph Hughes, Georgia Institute of Technology, for contributions to engineering education program development, assessment, and accreditation activities.

J

Mehdi Jazayeri, University of Lugano, for contributions to programming languages, software engineering, and informatics education.

K

Zvi Kedem, New York University, for contributions to concurrent and parallel computing systems.

Cetin Koc, Oregon State University, for contributions to cryptographic engineering.

Sandip Kundu, University of Massachusetts, for contributions to the design of test methods for integrated circuits.

L

Sang-Uk Lee, Seoul National University, for contributions to the theory and

application of image and video coding.

Bao-Shuh Lin, Industrial Technology Research Institute, for leadership in technology and industry development of broadband information network and digital video.

P

Nikolaos Papanikolopoulos, University of Minnesota, for contributions to distributed robotics and the creation of the miniature scout robot.

Ioannis Pitas, Aristotle University of Thessaloniki, for contributions to nonlinear signal and image processing, digital watermarking, and biometrics.

R

Nalini Ratha, IBM T.J. Watson Research Center, for contributions to biometric authentication systems.

S

Sudhakar Sahasrabudhe, Dhirubhai Ambani Institute of Information and Communication Technology, for academic leadership in creating and managing an electrical engineering education system.

Betty Salzberg, Northeastern University, for contributions to access methods, online reorganization methods, and robust application techniques in computing.

John Sheppard, ARINC, for contributions to system-level diagnosis and prognosis.

Kiyohiro Shikano, Nara Institute of Science and Technology, for contributions to speech recognition,

dialog systems, voice conversion, and acoustic field realization.

John Smith, IBM T.J. Watson Research Center, for contributions to multimedia content analysis, retrieval, and adaptation.

Per Stenstrom, Chalmers University of Technology, for contributions to design of high-performance memory systems.

James Stoffel, Rochester, New York, for technical leadership in the development of imaging systems.

Athanasios Stouraitis, University of Patras, for contributions to high-performance digital signal processing architectures and computer arithmetics.

V

Maximus Viergever, University Medical Center Utrecht, for leadership and contributions to medical imaging.

W

Kyu Young Whang, Korea Advanced Institute of Science and Technology, for contributions to physical database design, query processing, and database management system architecture.

Charles Woodside, Carleton University, for contributions to real-time software system performance engineering.

Kun-Lung Wu, IBM T.J. Watson Research Center, for contributions

to derived data management for reliable computing, Web-based information systems, and transaction and query processing.

X

Ning Xi, Michigan State University, for contributions to nanorobotic manipulation and assembly.

Y

Sung-Joo Yoo, University of California, Davis, for contributions to optical networking including wavelength conversion, optical label switching networks, optical routers, and integrated photonics.

Six IEEE members with no society affiliation were named 2007 Fellows for their contributions to computing: **Zhen Liu**, IBM T.J. Watson Research Center, for contributions to the evaluation and optimization of parallel and distributed systems; **John Lafferty**, Carnegie Mellon University, for contributions to statistical pattern recognition and statistical language processing; **Abhijit Chatterjee**, Georgia Institute of Technology, for contributions to testing analog and mixed-signal circuits; **Walid Najjar**, the University of California, Riverside, for con-

tributions to dataflow and reconfigurable computing architectures; **Ming Li**, the University of Waterloo, for contributions in Kolmogorov complexity and its applications; and **Andrew Chien**, Intel, for contributions to high-performance cluster and grid computing software.

For more information on IEEE Fellows, see the related story on IEEE Fellow nominations in this issue of *Computer*, or visit www.ieee.org/fellows. ■

IEEE Foundation Funds Engineering Education Programs

Throughout the year, the IEEE Foundation solicits proposals for cash grants to support educational projects in electrical engineering. Foundation governing board members meet three times annually to award the funds to a wide array of projects, events, and initiatives.

New recipients chosen

During its November 2006 meeting, the IEEE Foundation awarded four new grants totaling \$68,810. A Hofstra University project to develop a portable weather radar engineering educational kiosk received a \$21,280 grant. Two conferences—the IEEE Educational Activities 2007 Pre-University Engineering Education Summit and the Latin American Education Engineering Innovations Conference—garnered \$30,000 and \$12,530 in funds, respectively. The IEEE-USA's Intergenerational Workforce Project came away with \$5,000.

With these four new grants, the IEEE Foundation invested more than \$300,000 during 2006 in projects that seek to improve the world's technological literacy.

Other projects funded by the IEEE Foundation in 2006 include a biomedical engineering road show for

middle schools, a conference on the history of Soviet and Russian computing, and a Thai-language book about the IEEE Virtual Museum. Visit www.ieee.org/organizations/foundation/2006grants.html for a complete list of grants awarded in 2006.

Applying for IEEE Foundation grants and subsidies

The IEEE Foundation awards subsidies and grants that support engineering history, education, and other special initiatives. Proposals must meet a number of criteria. The proposed project must promise to improve education in science, mathematics, and technology; provide a major contribution to communities served by the IEEE; preserve, study, or promote the history of IEEE-associated technologies; or recognize major contributions to these technologies.

The IEEE Foundation, an independent philanthropic body, was established in 1973 "exclusively to support the scientific and educational purposes of IEEE." Guidelines on applying for a 2007 IEEE Foundation grant are available at www.ieee.org/foundation. Mid-2007 grant proposals are due by **13 April**. Proposals for consideration in late 2007 are due by **7 September**.

IEEE Fellow Nominations Due 1 March

Fadi Kurdabi, Chair, 2007 Computer Society Fellows Committee

The IEEE and its member societies cooperate each year to select a small group of outstanding professionals for recognition as IEEE Fellows. A senior IEEE member who has achieved distinction in his or her field can be named an IEEE Fellow only after being nominated for the honor. All such nominations undergo rigorous review before the IEEE Board of Governors votes to bestow the prestigious rank of Fellow.

For information regarding nominating a candidate for IEEE Fellow recognition, visit www.ieee.org/fellows. The Electronic Fellow Nomination Process is detailed at www.ieee.org/web/aboutus/fellows/Electronic_Fellow_Nomination_Process.html.

The deadline for Fellow nominations is **1 March**. In the event that the online nomination process is unsuitable, paper nomination materials can be obtained from the IEEE Fellow Committee, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331; voice +1 732 562 3840; fax +1 732 981 9019. Hard copies can also be obtained by request from fellows@ieee.org. Nominators should avoid submitting the forms via fax.

Nominees

A nominee must be a senior member at the time of nomination and must have been an IEEE member at any level for the previous five years. This includes exchange, student, associate, member, senior, and honorary member as well as the life category of membership. It excludes affiliates, however, because this category does not comprise IEEE members. The five-year requirement must be satisfied at the date of election, 1 January 2008; thus, a nominee must have been a member at any level continuously since 31 December 2002. The five-year membership requirement may be waived in the case of nominees in Regions 8, 9, and 10. Fellows are never named posthumously.

Nominators

A nominator need not be an IEEE member. However, nominators cannot be IEEE staff or members of the IEEE Board of Directors, the Fellow Committee, the technical society, or council evaluation committee.

Preparing a nomination

Essential to a successful nomination is a concise account of a nominee's accomplishments, with emphasis on the most significant contribution. The nominator should identify the IEEE society or council that can best evaluate the nominee's work and must send the nomination form to the point of contact for that group. For the IEEE Computer Society, the point of contact is Lynne Harris, whose address appears at the end of this article.

Careful preparation is important. Endorsements from IEEE entities such as sections, chapters, and committees and from non-IEEE entities and non-IEEE individuals are optional but may be useful when these entities or individuals are in the best position to provide credible statements.

References

The nominator should select referrers who are familiar with the nominee's contributions and can provide insights into these achievements. For nominees in the US and Canada, references must be from IEEE Fellows; outside the US and Canada, senior members can provide references if necessary. References cannot come from IEEE staff or from members of the IEEE Board of Directors, the Fellow Committee, a technical society, or a council evaluation committee. While a minimum of five references are needed, it is strongly recommended that the maximum of eight be sought.

Evaluation of nominees

In evaluating nominations, the IEEE Fellow Committee considers the following criteria:

- individual contributions as a research engineer or scientist, application engineer or practitioner, technical leader, or educator;
- technical evaluation by an IEEE society or council;
- tangible and verifiable evidence of technical accomplishment, such as technical publications, patents, reports, published product descriptions, and/or services, as listed on the nomination form;
- confidential opinions of referrers who can attest to the nominee's work;
- IEEE and non-IEEE professional activities, including awards, services, offices held, committee memberships, and the like; and
- total years in the profession.

Resubmission of nominations

Typically, less than half of the nominations each year are successful. Therefore, even highly qualified individuals might not succeed the first time. Because reconsideration of a nominee is not automatic, nominators are encouraged to update and resubmit nominations for unsuccessful candidates. To resubmit these materials, ensure that the nomination forms are current. The deadline for resubmission is the same as for new nominations.

Nomination deadline

The IEEE Fellow Committee must receive 2007 nomination forms by **1 March**. The staff secretary must also receive at least five Fellow-grade reference letters directly

from the referrers by that date. In addition, the evaluating society or council must also receive a copy of the nomination by **1 March**. The deadline will be strictly enforced. If the Computer Society is to conduct the evaluation, send a copy, preferably via e-mail, to Lynne

Harris (l.harris@computer.org). The postal mailing address and phone contact information is: IEEE Computer Society, 1730 Massachusetts Ave. NW, Washington, DC 20036-1992; voice +1 202 371 0101; fax +1 202 728 9614. ■

Computer Society Board Announces 2007 Meetings and Election Schedule

The IEEE Computer Society has released its official 2007 administrative schedule. Highlights include the three annual Board of Governors administrative meeting series that serve as fixed points around which many other deadlines are scheduled. Most high-level Computer Society boards and committees, including the Publications Board, Educational Activities Board, Standards Activities Board, and Conferences and Tutorials Board, also meet during the weeklong sessions.

2007 Election

The 2007 calendar includes significant dates in the election cycle. The 2 October election will name the 2008 first and second vice presidents; the 2008 president-elect, who will serve as president in 2009; and seven members of the Board of Governors, who serve three-year terms. Officers elected in the 2007 elections begin their terms on 1 January 2008.

Nomination recommendations for candidates in this year's election must be received by the Nominations Committee no later than **27 April**. Recommendations must be accompanied by the nominee's biographical information, which should include facts about past and present participation in Society activities. Nomination materials should be sent to Deborah Cooper, Nominations Committee Chair, IEEE Computer Society, 1730 Massachusetts Ave. NW, Washington, DC 20036-1992; voice +1 202 371 0101; fax +1 202 296 6896; d.cooper@computer.org.

Noted below are deadlines for both Computer Society and IEEE election materials.

2007 Schedule

Member participation and volunteer involvement are welcomed throughout the year. The following calendar lists dates of note for the Society in 2007.

9 February: Computer Society Board of Governors Meeting, Vancouver, Canada. Culminates weeklong administrative meetings series for Society governing boards.

20 April: The Nominations Committee sends its slate of officer and board candidates to the Board of Governors.

27 April: Deadline for recommendations from mem-

bership for board and officer nominees to be mailed to Nominations Committee at the address above.

8 May: Last day to send candidates' petitions, signed by members of the 2006 Board of Governors, to Christine Schober, Society Secretary, IEEE Computer Society, 1730 Massachusetts Ave. NW, Washington, DC 20036-1992; voice +1 202 371 0101; fax +1 202 296 6896; c.schober@computer.org.

18 May: Computer Society Board of Governors Meeting, Los Angeles. Culminates weeklong administrative meetings series for Society governing boards.

8 June: Last day to submit 2007 IEEE delegate-director-elect petition candidates to the IEEE.

30 June: Position statements, photos, and biographies of those candidates approved by the Board of Governors are due at the Society's publications office in Los Alamitos, California, for publication in the September issue of *Computer*.

July: *Computer* publishes the Board-approved slate of candidates and a call for petition candidates for the same officer and Board positions.

31 July: Member petitions and petition candidates' position statements, biographies, and photos due to Society Secretary Christine Schober at the address above.

August: *Computer* publishes schedule and call for 2008 IEEE delegate-director-elect recommendations to Nominations Committee.

7 August: Ballots are mailed to all members who are eligible to vote.

September: *Computer* publishes position statements, photos, and biographies of the candidates.

2 October: Ballots from members are received and tabulated.

5 October: The Nominations Committee makes recommendations to the Board of Governors for 2008 IEEE delegate-director-elect.

9 November: Computer Society Board of Governors Meeting, Cancun, Mexico. Culminates weeklong administrative meetings series for Society governing boards.

9 November: The IEEE delegate-director-elect slate is approved by the Board of Governors.

December: *Computer* publishes election results.