

## **PROPOSAL TO ESTABLISH A NEW IEEE MEDAL**

### **Proposed Name of Medal:**

The IEEE John Vincent Atanasoff Information Technology Innovation Medal

### **Background**

The IEEE John Vincent Atanasoff Information Technology Innovation Medal is in recognition of John V. Atanasoff's exceptional contributions to the invention and development of electronic digital computing and computers. In 1937, after significant research and practical investigations, Atanasoff invented the basic design principles of electronic digital computing:

- use of electronics technology for computational speed,
- use of binary arithmetic for simplicity of implementation,
- use of digital calculation for accuracy, and
- use of dynamically refreshed memory for low cost and reliability.

On the basis of these revolutionary concepts and after further practical investigation, a proof-of-concept prototype and a full-scale operational unit (the Atanasoff-Berry Computer, or ABC) for solving systems of equations using digital electronics were developed and demonstrated between 1939 and 1942 by John V. Atanasoff and his graduate assistant Clifford Berry. Atanasoff was the first to use digital electronics to implement arithmetic operations. His four design principles propagated via ENIAC and EDVAC to most of the modern computer designs, and remain at the core of the electronic digital computing technologies today.

### **Description of Medal**

The IEEE John Vincent Atanasoff Information Technology Innovation Medal will encourage and recognize significant innovative information technologies (hardware, software, or both) that benefit humanity and improve quality of life in an unparalleled or substantial way. Examples include the use of information technology in scientific or engineering applications, medical treatment, living environment, energy, communication, transportation, and social systems.

### **Justification**

This Medal will enhance the awareness of Atanasoff's seminal work in conceiving electronic digital computing and computers by recognizing innovations in information technology that benefit humanity and improve the quality of life (real world

applications). It has no overlap with existing IEEE Medals and Technical Field Awards. The following is a brief comparison:

- IEEE John von Neumann Medal is for outstanding achievements in computer-related science and technology and
- IEEE Emanuel R. Piore Award is for outstanding contributions in the field of information processing in relation to computer science.

### **Selection Process**

Selection of a nominee and alternate will be based on innovation in information technology applications with consideration of the following criteria:

- potential impact for benefiting humanity or improving quality of life,
- significance of technical or practical achievement,
- originality of contribution, and
- feasibility in terms of cost effectiveness and long-term successful use.

The Selection Committee for this Medal will rank the nominees based on the above criteria. After the initial ranking of the nominees, the members will discuss the results of the rankings and consider other attributes and contributions of the nominees that cannot be captured by a point system. No award will be given unless there are at least two qualified candidates designated as nominee and alternate.

### **Medal Selection Committee**

The IEEE John Vincent Atanasoff Information Technology Innovation Medal Selection Committee will be appointed by the IEEE Awards Board, and it will operate according to the IEEE Awards Board procedure established for that purpose. Nominations will be received and reviewed by the committee. If less than two nominees meet the eligibility or selection criteria described in “Selection Process,” the committee will not propose a nominee and alternate.

The following IEEE Societies have expressed an interest in this Medal and its administration: Computer Society (lead Society; nominally holds the chair), Circuits and Systems Society (tbc), Education Society (tbc), Reliability Society (tbc), and Society on Social Implications of Technology Society (tbc). Each of these Societies will be asked to propose members initially and when openings exist. It is also suggested that the IEEE Awards Board consider one or more members of the JVA Initiative Committee for membership on the committee.

### **Eligibility**

This Medal may be awarded to one to three individuals or a team, but not an organization. There are no restrictions regarding who may be nominated with respect to IEEE membership, gender, or age.

## **Administration**

This Medal will be administered by the IEEE Medal Selection Committee designated for this Medal in accordance with the procedure established by the IEEE Awards Board for the administration of IEEE Medals, the IEEE Medals Council, and the IEEE Awards Board. The IEEE Board of Directors grants approval for each proposed recipient.

## **Prize Items**

The recipient will receive a US\$20,000 honorarium, a gold vermeil medal, a bronze replica, and a certificate. In the event that a team or multiple recipients are selected, the honorarium will be shared equally among the recipients. Each recipient will receive a gold medal, a bronze replica and a certificate.

## **Funds Budget**

A JVA Initiative Committee has been formed and, as a result of its fund-raising activity and contacts, a donation of US\$1,000,000 for this Medal has been allocated by the Government of the Republic of Bulgaria. The annual costs associated with the Medal are:

1. Honorarium	US\$20,000
2. Travel	US\$2,000
3. Prize	US\$1,000
4. Publicity	US\$2,000

## **Nominations**

Nominations will be solicited in the usual manner employed by the IEEE Awards Board including, but not limited to, a call for nominations in “The Institute” – the global newspaper of the IEEE. Any person may nominate or support a candidate for a medal, with the following exceptions: members of the IEEE Board of Directors, members of the IEEE Awards Board, members of the IEEE Medals Council, members of the relevant IEEE Medal Selection Committee, self-nominations and IEEE staff. The JVA Initiative Committee has volunteered to assist in solicitations.

## **Schedule**

Nominations submitted to IEEE will follow the same schedule as the other IEEE Medals. The proposed recipient(s) are recommended to the IEEE Board of Directors with the presentation made in the following calendar year at the IEEE Honors Ceremony. The medal recipient may, in exceptional cases, request a change in venue, subject to approval by the IEEE Awards Board.

The proposed schedule has nomination solicitation on the first 1 July that follows approval of this Medal and appointment of the Selection Committee, and anticipates the first award presentation at the following year's IEEE Honors Ceremony.

### **IEEE Publicity Plan**

The publicity plan for IEEE Medals consists of three phases:

- Phase 1 – call for nominations;
- Phase 2 – announcement of Medal recipient(s);
- Phase 3 – presentation of Awards.

With the permission of the sponsor – the Bulgarian Ministry of Education and Science – the IEEE Awards program publicizes the sponsor in any promotional materials regarding this Medal or IEEE Medals in general.