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Annual Report of the Cellular Neural Network and Array Computing Technical Committee 2000

Website

Under the guidance of Ronald Tetzlaff, the technical committee launched a website called the "CNN Information Center" to educate the public about cellular neural network and array computing technology and to provide a forum for CNN researchers to find out the latest developments and links to further information. The website is hosted by the CAS server and is accessible via http://www.ieee-cas.org/~cnnactc

CNNA

The 6th IEEE International Workshop on Cellular Neural Networks and Their Applications (CNNA 200) will be held in Catania, Italy from 23-25 May 2000. This workshop was organized by Luigi Fortuna and has been sponsored by various agencies such as the IEEE Circuits and Systems Society, the Office of Naval Research Europe, the Univerista degli Studi Catania, ST Microelectronics, ACCENT and Yamaha Motor Europe. This biennial workshop has emerged as the premier forum for dissemination of results related to cellular neural networks and array computing. This year highlights include a strong single track technical program to encourage multidisciplinary interactions, three plenary sessions by Profs. Leon Chua, Tamas Roska and Angel Rodriguez-Vazquez, a panel session on MEMS to encourage interaction with the Sensors Technical Committee and a demo session on "CNN Technology in Action" which highlights the latest technological advances. This workshop was scheduled to follow closely on the heels of the Symposium on Nonlinear Dynamics in Electronic Systems (NDES) to encourage interactions between the two groups of researchers.

Prof. Veikko Porra is organizing the next IEEE CNNA, which will be held in June 2002 in Helsinki, Finland.

ISCAS-2000

The technical committee submitted proposals for two special sessions to be held at ISCAS in Geneva in June 2000. Both proposals were accepted. One session is entitled "CNN technology I: Hardware and basic software" the other session is entitled "CNN technology II: Application." Both sessions have five papers.

The chairman of the CNNAC technical committee, Tamas Roska, and the chairman of the Sensors technical committee, M. Zaghloul, served as joint chairs for Neural Systems Track. All members of the CNNAC technical committee agreed to serve as reviewers for the conference.

Young Author's Contest

This year saw the introduction of a Young Author's Contest, whose results are scheduled to be announced at CNNA in Catania. The organizing committee consisted of Marco Gilli, Csaba Rekeczky, Bertram Shi and Mamoru Tanaka. The contest had two separate parts. The first was a CNN template design contest, which emphasized theoretical aspects in the design of a new and innovative template. Submission was in the form of a paper which describes the new template, its functionality, as well as theoretical justification for its performance, stability, robustness, etc. The second contest was an analogic programming contest. Contestants were given the task to extract watermarks from images for which they were required to design an algorithm written in CNN Alpha or AMC code. A simulator was provided for downloading by the team at the Hungarian Academy of Sciences. Example input images and desired output have been provided by the contest organizers, with evaluation to take place on a separate test set of images unseen by the participants. Three prizes in each part will be given with awards of US$500, US$300 and US$200.

All students entering the contest would be eligible for free registration at CNNA 2000, where the award ceremony will take place. The registration fees will be covered by the Technical Activities Board.

Bylaws

Tamas Roska and Bertram Shi (the chairman and secretary) have proposed bylaws which outline the management of the technical committee as it proceeds in the future. These proposed bylaws will be voted on and, if approved, adopted at the annual meeting of the Technical Committee which will be held at ISCAS 2000 in Geneva. A copy of the proposed bylaws is attached here.

Attachment

(Proposed) Bylaws of the

Cellular Neural Networks and Array Computing

Technical Committee of the IEEE Circuits and Systems Society

The goal of the Cellular Neural Networks and Array Computing (CNNAC) Technical Committee is to foster research, development, education and industrial dissemination of knowledge relating to the emerging field of cellular dynamic computers and models briefly called CNN computing. CNN ("cellular neural/nonlinear network") computing is used as a generic terms for analog and logic (analogic) stored programmable array computers and models with a core of mainly locally interconnected dynamical systems. The activity is genuinely multidisciplinary, drawing upon knowledge and expertise from fields such as biology, physics and chemistry, in addition to areas more traditionally associated with the IEEE such as electrical and computer engineering, computer science and information technology .

Membership

Membership of the CNNAC Technical Committee is open to any IEEE member. Membership is approved by a majority of active members present at any of the Committee's general meetings. Membership is by recommendation and by majority vote of the members present at a meeting. A member is removed from the committee if he/she does not attend three consecutive annual committee meetings. The committee shall have up to 30 members.

At any time, the Committee shall have three officers: the Chair, the Secretary and either the Chair-elect or the Past Chair. Both the Chair and the Secretary serve two year terms. The Chair-elect and Past Chair serve one-year terms.

Meetings

The annual meeting of the committee will be held at the International Symposium of Circuits and Systems (ISCAS). Other general meetings will be held at the European Conference on Circuit Theory and Design (ECCTD) and the Workshop on Cellular Neural Networks and their Applications (CNNA). Any business requiring Committee approval will be transacted at the annual or general meeting, with the exception of the election of officers, which shall take place only at the annual meeting. Outside of the annual and general meetings, the three Officers can, upon a majority vote, undertake unplanned business on behalf of the Committee, provided that these activities do not require formal committee approval and that they be reported to the Committee at the next meeting.

Duties and Election of Officers

Chair

The Chair presides over committee meetings and is responsible for all interactions with the CAS Society. With the assistance of the Secretary, he/she is responsible for reporting the activities of the Committee to the CAS Board of Governors on a timely basis. The Chair is also responsible for recommending Associate Editors for the CAS Transactions.

The Chair is not directly elected, but assumes the chairmanship on the first of January following his/her one year term as Chair-elect. The Chair must be a member of both the Committee and of the Circuits and Systems Society. The Chair serves a two year term.

Past Chair

The Past Chair is responsible for organizing any and all CNNAC Technical Committee-sponsored special sessions and workshops at ISCAS. He/She is also responsible for assisting the Chair in transacting the business of the committee.

The Past Chair is not directly elected, but assumes his/her position on the first of January following his/her two year term as Chair. The Past Chair must be a member of both the Committee and of the Circuits and Systems Society. The Past Chair serves a one year term.

Chair-elect

The Chair-elect is responsible for organizing any and all CNNAC Technical Committee-sponsored special sessions and workshops at ISCAS. He/She is also responsible for assisting the Chair in transacting the business of the committee.
The Chair-elect will be elected by majority vote of the members of the Committee present at the annual meeting falling in the first year of the term of the current chair. The Chair-elect must be a member of the Committee and of the Circuits and Systems Society. He/She assumes the Chair-elect position on the first of January following his/her election and serves a one-year term. The Chair-elect assumes the chairmanship of the Committee on the first of January following his/her one year term.

Secretary

The Secretary, who will also act as the Treasurer for the Technical Committee, will record the minutes of the yearly meeting and maintain the roll of the committee. The Secretary will be the focal point for the Committee's nominations for CAS Society awards and for nominating transactions papers in the field of cellular neural networks and array computing for the Best Paper Awards. He/She will report on Committee activities through the IEEE Circuits and Systems Society Newsletter at least twice a year (following ISCAS in the Summer and prior to ISCAS in the Spring).
The Secretary will be elected by the membership of the Committee present at the annual meeting falling in the second year of the term of the current Secretary. He/She will serve for a two -year term beginning the first of January following his/her election. The Secretary must be a member of both the CNNAC Technical Committee and the Circuits and Systems Society.

Activities

The Committee will be responsible for nominating individuals for the various CAS society Awards, and for nominating deserving papers in the area of Cellular Neural Networks and Array Computing for each of the CAS Society's Best Paper Awards. Every active Committee member will be solicited by the Secretary to submit potential nominees. The Officers will decide the names to be submitted to the CAS Award Committees from the names submitted by the members.
The Committee will organize a special session and/or workshop on Cellular Neural Networks and Array Computing at each ISCAS. The Chair-elect or Past Chair will be responsible for organizing this activity at the ISCAS following the annual meeting where he/she assumes his/her position. The Chair is expected to assist in the organization, but final responsibility lies with the Chair-elect or Past Chair.
The Committee will recommend new Associate Editors for the Transactions of the Society in the fields relating to Cellular Neural Networks and Array Computing to the Editorial Board of the CAS Society. The Committee will accept nominations for these positions and review them at an annual meeting preceeding the term of the incoming editors. The Chair will be responsible for learning when each Editorial Board will be formed and for soliciting nominations from the Committee membership in a timely manner.
The Committee may engage in other activities such as editing a reprint books, the organizing of special issues of an IEEE publication, workshops, conferences, and other publication activities in the area of Cellular Neural Networks and Array Computing.

Amendments

Future amendments to these bylaws will be by a majority vote from the Committee members present at an annual meeting or from majority of the members at large through mail. Any bylaw amendment can be introduced at the Committee meeting, provided that at least one of the three Officers has been notified at least one month prior to the Committee meeting. Approval by the three Officers is not necessary, but notification is required. An approved amendment will take effect the day following the conclusion of the annual meeting where it was approved.