PART V – EDUCATION COMMITTEE

ARTICLE I

PURPOSE

Approved on September 27, 2021

Section 1. The IEEE Computational Intelligence Society (CIS) Education Committee operation manual follows the mandate of IEEE CIS Bylaws. The operations manual contains only those items that govern the operations of CIS Education Committee and the decisions of Education Committee on matters delegated to it by the IEEE CIS Society, including guidelines for the formation of a subcommittee and regulations. These guidelines reinforce the requirements of IEEE CIS Policies. The operation manual is also used as guideline to the Vice President of Education for the IEEE CIS.

ARTICLE II
COMMITTEE

Section 1. Forming the committee of Education

The committee of Education is formed by the chairs of sub-committees defined in Article III. The VP for Education appoints the chairs of sub-committees, in agreement with CIS president.

Section 2. Mission of Education Committee

The committee, which is formed by members as defined in Article II Section 1, is responsible for organizing, promoting, coordinating and monitoring CIS educational activities and services. In particular, the Education committee shall prepare, develop, and recommend plans for educational activities, stimulate the submission of and review proposals for educational activities, make recommendations on matters concerning educational activities, including proposals for new educational activities and their regulations.

ARTICLE III
SUBCOMMITTEES

Section 1. Definition of sub-committees

There are nine sub-committees in the Education Committee. Each of the sub-committees has its individual identified mission to achieve through activities organized and new initiatives. Sub-committees may also need to cooperate. The mission of each of the sub-committees is described in the following.

1) Content Creation Sub-Committee,
2) Summer Schools Sub-Committee,
3) Graduate Student Research Grants Sub-Committee,
4) Education Competition Sub-Committee,
5) High School Outreach Sub-Committee,
6) Education Portal Subcommittee
7) Continuing Education Sub-Committee,
8) CIS Educational Repository Sub-Committee,
9) Education Strategic Planning Subcommittee.

Section 2. Appointment of chair of sub-committees

The chairs of the sub-committees are nominated by the VP-Education and appointed by the president of IEEE CIS, after approval by EXCOM. The chairs of sub-committees must be IEEE CIS members. The appointment of the sub-committee members must be approved by the VP-Education. The selection of sub-committee chairs should consider their past participations within/with CIS Education Committee, the balance of geographic regions distribution and gender distribution. The chairs of sub-committees should be appointed in January. All chairs of sub-committees report to the Vice President Education.

Section 3. Term of chair of sub-committees

The term of each assignment of the chair of sub-committee is one year. If re-assigned, the chair can continue in the second year. The maximum continuous duration for the chairs of sub-committees is two consecutive one-year terms.

Section 4. Education Committee Complaint Handling

If a member has a complaint or dispute about how committee procedures are applied or appointments are made, they shall submit a complaint in writing to the VP Education. The VP Education will confirm receipt of the complaint within 5 business days. The VP Education will evaluate the complaint on its merits and makes a decision. The VP Education will notify the complainant with a decision on the outcome within 30 days of original receipt of the complaint. If the complainant is unsatisfied with the decision of the VP Education, they may appeal the matter in writing to the president of IEEE CIS within 30 days of notification of the VP Education's decision. The president of IEEE CIS will confirm receipt of the appeal within 5 business days. The president of IEEE CIS, will review the original complaint, the decision by the VP Education and consult with IEEE CIS EXCOM on the matter. The president of IEEE CIS will resolve the complaint and communicate the resolution to the complainant. If the complainant remains unsatisfied, the complainant may escalate the matter in writing to IEEE CIS ADCOM within 30 days of the president's decision, who will then discuss the matter and reach a resolution that will be communicated in

writing to the complainant. If the complainant is still unsatisfied with the outcome, the complainant may escalate the matter to IEEE Ethics and Members Conduct Committee (EMCC) and follow IEEE complaint handling procedures listed at https://www.ieee.org/about/ethics/complaint-procedures.html

It shall be the goal of IEEE CIS to complete the complaint resolution process for a particular complaint/dispute within three months of receipt.

ARTICLE IV
SUBCOMMITTEE (SC) ROLES

Section 1: Content Creation Sub-Committee

The content creation subcommittee is tasked with encouraging the creation of educational content. A primary venue for this will be contacting conferences and encouraging them to record plenary presentations and invited and contributed talks. This mission overlaps with that of the continuing education subcommittee and, as the content creation subcommittee manages to encourage the creation of content they will refer the results to the continuing education subcommittee for inclusion in their repository.

The content creation subcommittee will also maintain a bibliography and index of computational intelligence content housed in other locations than the CIS repository with a charge to verify that links are live and the external repositories still exist. A list of educational books on CIS will be a part of this effort as well as articles with an educational focus or slant.

The committee will also encourage the creation of other computational intelligence content. The committee will propose and encourage special sessions at conferences on educational issues and content.

Section 2: Summer Schools Sub-Committee

The CIS Summer Schools are designed for senior undergraduate, graduate students, post-doc and young researchers who are willingly to deepen their skills in computational intelligence and related areas. The objective is to stimulate them to be involved in rapidly evolving fields, and to foster participation in the adventure of research.

Summer School Sub-Committee collaborates the event with IEEE CIS sponsored conferences including IEEE CEC, IEEE FUZZ, WCCI, SSCI, etc. So the Sub-Committee chair will contact with these conference organizers for planning activities. IEEE CIS Chapters can also organize summer schools not necessarily collocated with a conference.

The Call-for-Summer-School-Proposals will be put on the CIS webpage and the CIS Newsletter at the beginning of the year, preferably in the February issue, to advertise the activity and encourage applications.

Section 3: Graduate Student Research Grants Sub-Committee

The mission of the committee is to seek applications and award scholarship grants to enable graduate students to visit another university, institute or research agency for collaboration with researchers in the field of interest. The main tasks are the following: (1) review and award research grants, (2) promote graduate student research grants, (3) answer queries from students, (4) follow up grant recipients' progress, and (4) check and maintain website content with correct, sufficient and up-to-date information.

Section 4: Education Competition Sub-Committee,

The duties of the IEEE CIS Education Competition Subcommittee include, but are not limited to: promoting competitions, organizing and funding competitions of educational value, supporting competition hosts and competitions chairs as well as encouraging to make results of competitions available as a source of educational material. The subcommittee funds competitions mainly hosted in conferences, and occasionally competitions hosted at universities or organized by companies, clubs, etc. Promotion will be done using several channels including the sub-committees website, its twitter account, the IEEE CIS newsletter as well as emails to competition organizers and likely participants.

Section 5: High School Outreach Sub-Committee

The High School Outreach Subcommittee aims to facilitate the outreach to high-school students between the ages of 12-18 and their teachers. In order for the high school students and teachers to know about CIS-related techniques, we would also design introduction courses of the three fundamental pillars of computational intelligence: Fuzzy Logic, Neural Networks, and Evolutionary Computation. The contents of the course materials will be designed suitable for beginners who wish to find out more about these areas. Our vision is to find ways of bringing Computational Intelligence into the classroom or Web to inspire young computer scientists and students.

This subcommittee will require engagement especially with the CIS Educational Repository Subcommittee to discuss the storage of educational materials, and with the Education Portal Subcommittee to discuss new materials, and with the Summer School Subcommittee, and with the Content Creation Subcommittee. There may also be engagement with the Competition Subcommittee to possible establish competitions to promote the Computational Intelligence for high school students and teachers.

Section 6: Education Portal Subcommittee

To establish an IEEE CIS Education Portal aimed at enabling CIS educators to share practices, experiences, materials and reading lists. This will facilitate entry-level undergraduate lecturers and high school teachers to obtain guidance on how to teach CI. We will initially assume that the portal is for professionals who are fluent in English and are familiar with algorithms and programming. In future years, this could potentially be expanded.

This subcommittee will require engagement especially with the CIS Educational Repository Sub-Committee to discuss the storage of educational materials, and with the Continuing Education Subcommittee to discuss new materials, and with the High School Outreach Sub-Committee. There may also be engagement with the Education Competition Sub-Committee to possible establish competitions to generate new education materials and with the Summer Schools Sub-Committee if summer schools at more entry-level materials are held.

Section 7: Continuing Education Sub-Committee,

The objective of the Continuing Education sub-committee is providing members, designers, and researchers in the industrial sector with assistance and support for using tools of computational intelligence and their applications in various industrial sectors. The goal is to have industry cognizant of the unique capabilities and appropriate applications of computational intelligence techniques. The main tasks for the committee are the following: maintain the website content with correct and contemporary information, find and/or create new relevant information for the website, develop connections in industry and answer questions.

Section 8: CIS Educational Repository Sub-Committee,

The aim of the Education Repository subcommittee is to organize and expand the repository of CIS educational content and make it easily accessible. This will be done in collaboration with technical committees, content creation subcommittee and the High School Outreach subcommittee. Educational content includes videos, presentations, articles and case studies.

The ambition is to curate a repository of up-to-date educational materials on CI topics that cover different age groups and different education/knowledge levels. This will enable CIS to inspire those with an interest in CI to connect and develop their understanding.

Section 9: Education Strategic Planning Subcommittee.

The Education Strategic Planning Subcommittee is responsible for identifying strategic directions for the IEEE CIS Education Committee in accordance to the mission of the same Education Committee and in alignment with guidelines stablished by IEEE CIS Strategic Planning Committee.

An example of its charge is to discuss new and better ways to provide access to current and new educational materials and to foment learning on topics related to CI by high-school students, undergraduate students, graduate students, and Industry personnel. Educational materials include, but are not limited to videos, powerpoints, lecture notes, on-line courses and other resources; and access to those materials should be through intuitive interfaces that can provide application-specific and topic-specific searches in a didactic manner – i.e. not a *simple popularity-based* search engine, but educational-driven.

ARTICLE V – CALENDAR

Section 1. Time Sensitive Actions

Several educational activities require time sensitive actions from the subcommittee chairs.

1) The Content Creation Sub-Committee needs a complete execution plan of video recording for major CIS conferences in collaboration with the conference organizers. Any speaker/presenter should sign the IEEE COPYRIGHT AND CONSENT FORM to ensure proper permission for recording and distributing the material.
2) The Summer Schools Sub-Committee and the VP encourage applications to be submitted early in the year and starting after April the 15th. Whenever funds permits a second call for summer school is activated in July for winter schools (January the 1st to March the 31st of the following year).
3) The Graduate Student Research Grants Sub-Committee places the call for proposals in the previous November before major university breaks so that CIS students can start their research activities during the university summer/winter break time.
4) The Education Competition Sub-Committee should announce the competitions as soon as they have been granted by the Education Competition Sub-Committee and acknowledged by the VP Education. The subcommittee also announces competition hostedby conferences that are financially sponsored or co-sponsored, or technically co-sponsored by IEEE CIS, as a valuable learning resource. .

ARTICLE VI – OUTCOMES AND RECIPIENTS

The CIS members are the major recipients of the educational activities and only

they are eligible to apply for grants, to apply for summer schools, or to apply for competitions, unless the strategy is opened to new members recruitment. However, other IEEE members and the open public can benefit from some material stored and made available in the CIS Educational Repository and in the Education Portal, as well as the high school outreach web link.

ARTICLE VII – Graduate Student Research Grants

Section 1. *Overview*. The purpose of the grants is to enable graduate students to visit another institution to do research projects over the summer, thus the grants are mainly used for travel and accommodation costs. Applicants must be student members of the IEEE CIS at the time the scholarship is awarded, and awards will not be made to the same applicant in two consecutive years.

Section 2. *Funding*. The primary intent of these scholarships is to cover the expenses related to a visit to another university, institute or research agency for collaboration with an identified researcher in the field of interest of the applicant. In certain cases, the scholarship may also be used to cover expenses related to support the student at their home institution for intensive work on a particular project, if – due to extenuating circumstances – such work cannot be continued as scheduled during the regular academic semester. Funds cannot be used for stipend, salary, conference travel or buying computers or other equipment. Funds can be used to cover travel expenses as well as certain living expenses (such as housing).

Section 3. *Field of applications*. The field of interest of applicants is open, but should be connected with an identifiable component of CIS (neural networks, fuzzy systems, or evolutionary computation).

Section 4. *Awards*. The amount of a CIS scholarship varies from $1,000 to $4,000. We expect to award 3-5 scholarships every year. The number of scholarships depends on the budget approved by CIS ADCOM. Renewals and continuations for a second year's support will only be considered if the justification for such a request is sufficiently compelling and the budget allows.

Section 5. *Process and Applications*. To apply for a CIS scholarship, interested applicants should submit a proposal to the CIS Graduate Student Research Grants Sub-Committee. The proposal, to be submitted as a single PDF file, should state the general purpose of the request, and should include (a) cover page with the applicant's address, student status, IEEE number, expected graduation date, host institution (if applicable), (b) detailed explanation of the research to be conducted with the support from the scholarship (10pt font, 3 page maximum), (c) references related to the proposed research (10pt font, 1 page maximum), (d) a timeline of tasks required to complete research goals, (e) a fully explanatory and detailed budget with individual line items along with the justification of the requested item and amount (1 page maximum). If the work

is to be conducted at the home institution, an explanation why additional funds are needed to continue the work during the break, and why the work cannot be done during the academic semester, or simply cannot continue as normally progressing during the academic semester (additional 1 page maximum), (f) the resume (1 page maximum) and the applicant IEEE member number, (g) two reference letters supporting the application (including letters from sponsoring professors, if applicable). These must be included with the application form and are not to be received individually. Information in the application must follow the above presentation order. Only if requested by the referee, reference letters may be sent directly to the Graduate Student Research Grants Sub-Committee Chair in order to remain confidential from student. Such letters will then not be viewable by the student. All applications MUST BE RECEIVED no later than the deadline.

Section 6. *Review Criteria*. The following provides the selection criteria used.

1. The proposals should firstly be ranked according to the quality of the proposal:
   a. Merit of the proposed research
   b. Originality of the research
   c. Qualifications and past performance of the applicant
   d. Supporting references
   e. Reasonableness of budget
2. Then, the following should also be considered:
   a. Give higher priority to PhD, Master's, and then Bachelor students.
   b. Give higher priority to those who plan to visit another university/institute in another country, over those staying at their home institution. Good proposals staying at the home institution may also be selected but, in case there is a draw, the one traveling abroad will be awarded as this provides the student the opportunity to develop further skills.
   c. Do not grant any student who was awarded last year. A one-year gap is required for every candidate between two applications.
   d. Balance different regions as a discriminant criterion.

Section 7. *Notification of awards*. The results should be publicized on the CIS Website and all the applicants be notified of the results before end of May. The Graduate Student Research Grants Sub-Committee chair should also notify IEEE CIS Administrative Manager of the award recipients.

Section 8. *Completion and Deadlines*. The research work must be completed and monies must be spent by November 31, and the technical report is due on December 1.

ARTICLE VIII – Summer Schools

Section 1. *Overview*. The CIS Summer Schools are designed for senior undergraduate, graduate students, post-doc and young researchers who are willingly to deepen their skills in computational intelligence and related areas. The objective is to stimulate them to involve in rapidly evolving fields, and to foster participation in the adventure of research. Any researcher, CIS local chapter, or organization who is interested in holding an IEEE Computational Intelligence Society Summer School needs to submit a proposal to the Summer School Subcommittee, and the applicants **MUST** be IEEE CIS members when the proposal is submitted.

Section 2. *Dates and Length*. The summer schools are held not only in summer but all year around. The length of each event is expected to last from 1 day to 1 week.

Section 3. *Format*: Summer Schools usually consist of lectures, seminars, discussions, and visits to local academic organizations or industries. Lectures will be given by international scholars working in computational intelligence and interdisciplinary areas from fundamental theory to applications.

Section 4. *Funding*. The IEEE CIS will provide a fund to co-finance approved summer schools, and the amount is determined according to the event content and proposal quality. The other expenses will be partially covered by the organizing institution, and the participants may need to partially contribute with the registration fee to compensate the expenses of local living and inviting lectures. Part of the budget can be dedicated to support the institution that holds the school. If it is a local chapter that holds the school and invites Distinguished Lecturers through the CIS DL Program, then SS program can help covering the local expenses of DLs since the DL program covers the traveling expenses only. Please note that the use of CIS fund must be crystal clear, in particular it should **NOT** be used to pay honorarium to speakers (to anyone) **NOR** IEEE membership dues.

Section 5. *Benefits of Participants*. Summer Schools will provide accommodation to speakers and meals to registered participants. The participants will be given a chance to meet peer researchers, international scholars (especially young scientists), to discuss hot topics and on-going research, and also to experience local industry and culture.

Section 6. *Process and Applications*. To hold a CIS summer school, interested applications need to submit a proposal to the Summer School Subcommittee. The proposal should have the following items:

1. Location, Date and Duration;
2. Scientific objectives or theme;
3. Courses and lecturers;
4. A tentative schedule;
5. Potentials for financial support;
6. Certificate of applicant's IEEE CIS membership.

Applicants should address the following aspects in writing their proposals:

- Aim and target.
- Courses and lecturers.
- Tentative program.
- Local organizer(s).
- Registration and accommodation.
- School budget, financial sponsor(s) and requested co-finance from CIS.

Each year we have a unified deadline for submissions generally at the end of April. Further individual submissions after the deadline are accepted if there is rest budget. The proposals should be submitted to the Summer Schools Subcommittee Chair of that year, which can be found at IEEE CIS Summer School webpage.

Section 7. *Review.* IEEE CIS Summer School Subcommittee is responsible for evaluating proposals in the aspects of (a) quality of the proposed technical program and topic balance; (b) length of the school; (c) geographical balance of the proposals; (d) other comments and suggestions. The candidate list should be finally approved by IEEE CIS Vice President for Education and the IEEE CIS VP for Finances.

Section 8. *Notification*. The results should be publicized on the CIS Website and all the applicants be notified of the results. The Summer School Subcommittee chair should also notify IEEE CIS Administrative Manager of the approved summer schools.

Section 9. *Completion and Deadlines*. The event must be completed by the end of the year (for winter schools in Southern Hemisphere it can be extended to the end of next February), and each summer school must provide a report to Summer School Subcommittee within one month after the event.