Technical Committee
NEWSLETTER

IEEE Computer Society Technical Committee on
PATTERN ANALYSIS AND MACHINE INTELLIGENCE
December 1995

Contents

Membership in the Technical Committee on Pattern Analysis and Machine Intelligence is open to individuals who demonstrate willingness to actively participate in the various activities of the TC. A member of the IEEE Computer Society may join the TC as a full member. A non-member of the Computer Society may join as a participating member, with approval from at least one officer of the TC.

This newsletter is an irregular publication of the TC. Contributions are certainly welcome. Opinions expressed in contributions are those of the individual author rather tan the official position of the TC, the IEEE Computer Society, or organizations with which the author may be affiliated. Editor's address: Dmitry Goldgof, Department of Computer Science and Engineering, University of South Florida, Tampa, FL 33620 and Jill D. Crisman, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA 02115.

Notes from the TC Chair

In general.
The TC is continuing to grow and improve – the membership, meeting attendance, and other factors all seem strong. There is some continuing concern over meeting budgets and IEEE CS relations, but these are hopefully being addressed. Details about the TC budget and the minutes of the TC meeting at ISCV in November can be found elsewhere in the newsletter.

Follow-up on last issue's Ethics Column.
The ACM has taken legal action in the case that was featured in the last issue's Ethics Column. The December *CACM* has an editorial titled "Plagiarism on the web" on page 29. It describes how ACM has communicated, through its lawyer, with the person involved in the plagiarism.

Using the CS web page to search Trans PAMI abstracts.
Point your browser at `http://www.computer.org/` and click on "publications." Next click on "Transactions on PAMI." Now try clicking on "What's in the current issue?" or "what was in past issues?". You get a list of titles and authors and that the titles are hot-linked to the abstracts of the papers. Look carefully at the page you get from clicking on "what was in past issues?". Try clicking on "Abstracts of previous issues are on our gopher server." Note that you now have a menu consisting of "browse abstracts" and "search abstracts." Click on "search abstracts." You are now ready to search abstracts of published *PAMI* articles by keyword! This facility has not been widely publicized yet, and is still in development, looks like it will be quite useful.

"Journal Citation Reports."
The *Journal Citation Reports* is a publication of the Institute for Scientific Information (same people who produce the Science Citations Index). One figure listed in JCR is called the "impact factor," which is an estimate of the number of citations to the average article in a journal. It is computed as the total citations made over the last two years to articles published in that journal, divided by the number of citable articles in that journal in the last two years. There is room to to argue over what exactly this figure means: it effectively assumes a steady state of the same number of articles published each year, older journals may have an advantage, and so on. Still, the following figures from the 1992 and 1993 JCRs may be of some interest.

Next meeting of the PAMI TC.
The next meeting of the PAMI TC will be at *CVPR '96* in San Francisco. Proposals to organize *CVPR '98* (or *CVPR '99*, ...) could be discussed at this meeting. Proposals should at least include the location, a possible particular site (hotel) and its cost, and the names of the general chair(s) and program chair(s). This information should be available for circulation prior to the meeting. Please feel free to contact me if you are considering making a proposal.

Kevin W Bowyer, PAMI TC Chair, University of South Florida

journal name	1992	1993
Artificial Intelligence	2.06	2.47
Proceedings of the IEEE	1.99	1.88
Trans. on Pattern Analysis and Machine Intelligence	1.91	1.92
International Journal of Computer Vision	1.15	0.96
Trans. on Robotics and Automation	1.05	1.09
Trans. on Systems, Man and Cybernetics	0.66	0.68

Minutes of PAMI TC Meeting – Sunday, November 19, 1995
at International Symposium on Computer Vision; Biltmore Hotel, Coral Gables

The meeting was called to order at approximately 7:50 pm. Approximately 30 persons were in attendance. The items discussed were as follows.

1. Finances – K. Bowyer

   The TC budget ("entitlement" in IEEE CS terminology) for the 1995 calendar year is roughly $18,600. An exact figure will come with the closing of the books on the WACV '94 meeting. We are on track to spend all of this by the end of the year. Major expenditures for this year include the newsletter, IAPR dues, a diskette to support the PAMI TC www page, and an arrangement for one-time extra pages in *T - PAMI*.

   There was some discussion of how the TC gets its budget (the automatic entitlement is 1/3 of meeting surpluses), whether it was possible to spend beyond the entitlement (maybe), and how to keep meeting registration fees from becoming "too high."

2. Membership – K. Bowyer

   The current TC mailing list contains 1,277 IEEE CS members and 373 non-members. It is slowly growing. Q: How do you know if you are a member? A: If you have recently received a printed copy of the newsletter in the mail. Membership forms were passed out to several people in attendance who had not received the newsletter.

3. Newsletter report – D. Goldgof

   One has been out for a while now. There should be another issue in December, timed to be sent out with our forwarding of the IAPR newsletter. Send contributions or suggestions to Dmitry Goldgof (goldgof@csee.usf.edu) or Jill Crisman (crisman@ece.neu.edu). The newsletter is available in electronic form off the PAMI TC www page. The TC web page URL is:
   `http://www.cs.washington.edu/research/vision/pamitc.html`

4. Update on *T - PAMI* – R. Kasturi

   Kasturi could not attend the meeting, but left a fact sheet which was read by Bowyer. Some highlights: submissions through November 15 of 1995 are 30% above all of 1994; statistics on special issue submissions are being tracked as a separate subcategory, which they were not before; "rejected by EIC/AE" is being tracked as a separate subcategory, which it was not before; the accept/reject ratio does not appear to be changing substantially in the past few years.

   There is a goal of having 90% of papers get a first decision within 6 months, 90% get a final decision within 12 months, and publication within 18 months. The goals for first decision and final decision are generally being met. The goal for publication is not, due mainly to publication backlog (about 9 months).

   About 15% of submissions are being returned on the basis of review by EIC or AE. This could be due to poor writing, not within scope of PAMI, or other reasons. This has become necessary as the number of submissions to PAMI increases. Even with this, the reviewer community for the journal is getting a 15% or greater workload increase from last year.

   There is still a need for *good* tutorial/survey/experimental papers. There are a few in review, but more are needed. This is one of the "hot buttons" for IEEE CS in terms of improving the value of the transactions to the "practitioner."

   Page limits on accepted papers have become essential. They are 12 transactions pages for regular papers and 5 for correspondences. The need for this is due to the combination of (a) increased submissions, (b) no increase in page budget, and (c) no substantial change in rejection rate. This is a difficult situation. The need for strict page limits is unfortunate.

   The intent is to publish some of the statistics on reviewing time in the February issue of *T - PAMI*. Even though there has been great improvement, many people are not yet aware of it.

   Nandhukumar asked about the policy of relative number of regular papers versus correspondences. The answer is that there is no policy. The decision is made by the AE at the time of acceptance. The AEs in attendance did not know the rate of regular/corres for the papers that they handled or the transactions as a whole.

5. Report on ICCV 95 - E. Grimson

   Grimson was not able to come to ISCV, but sent basic data. In short, the meeting was wildly successful: roughly 600 submissions, roughly 500 attendees, continued the tradition of high quality within the distinct ICCV personality, approximately a $20,000 surplus. Eric, and all the others involved in the meeting organization are to be congratulated.

6. Report on ISCV 95 – G. Medioni

   There were approximately 210 submissions, approximately a 50% acceptance rate, and currently about 140 attendees (larger than projected). Those attending the TC meeting were happy with the quality of the first day's talks.

   The procedure of submitting papers in "final form" for review was discussed. An informal poll at the TC meeting showed that basically everyone liked this, as authors, attendees, and reviewers. This procedure should be recommended to other meeting organizers. Suggestions from improvement include (a) getting e-mail addresses of all authors with the submissions, (b) getting authors to submit titles and author list by e-mail to simplify bookkeeping, (c) turning the task of tracking the authors down for the copyright form over to CS Press, (d) allowing the authors to buy extra pages.

   Pat Flynn asked why the meeting became a "symposium" rather than a "workshop." The answer is just that "symposium" is the IEEE CS terminology for a meeting for over than 100 attendees, "workshop" is for under 100 attendees.

7. Report on CVPR 96 – B. Bhanu

   Bhanu was not able to come to ISCV. The papers were all submitted earlier and are being distributed for review. Program committee members in the audience indicated that they were to have reviews back to the program chairs in early January. There were apparently a large number of submissions. There was some discussion about the cost of the hotel; nearby hotels of lower cost are mentioned on the web page for CVPR 96 (can be gotten to via the TC web page).

   Q: Are there any tutorials scheduled for CVPR 96? A: No one was able to give an authoritative answer. The suggestion was to e-mail the general chair (Bhanu) or program chairs (Ikeuchi, Dyer).

8. Report on CAD-Based Vision Workshop at CVPR 96 – P. Flynn

   Paper submission date is coming up. Calls for papers are being distributed at the meeting. (Also, see the TC newsletter.) This meeting is the third in a series.

9. Report on Biomedical Image Analysis Workshop – A. Amini

   Amini could not attend ISCV. Copies of the call for papers were distributed by Bowyer. This meeting is the second in a series; the last one (in Seattle at CVPR 94) had 100+ attendees.

10. Comparison shopping on proceedings printing – K. Bowyer

    Amini did a comparison check on having the workshop proceedings done by SIAM or by CS Press. This should be of interest to meeting organizers who have speculated that CS Press was charging too much. In the case of this workshop (projected length of proceedings and number of copies), CS Press gave a better price.

11. Report on CVPR 97 – G. Medioni

    The site is chosen. Yes, it still exists after this hurricane season, but then there is another hurricane season before CVPR 97. The conference rate for the hotel is $125. Cheaper accomodations nearby may be possible; this is still being investigated.

    There are plans to hold a workshop/symposium on Visual Databases in conjunction with CVPR '97. Contact Roz Picard for details (picard@media-lab.media.mit.edu). Space is being held to allow other meetings before/after CVPR '97; coordinate through Ram Nevatia / Gerard Medioni.

12. Avi Kak's petition for the PAMI Society – K. Bowyer

    This originated at the ICCV in Boston. The background was summarized. The petition was circulated for signatures and will be in the registration area during the meeting.

13. NICROSP '96 – K. Bowyer

    The TC receives a fair number of requests for sponsorship or cooperation with various meetings. Sponsorship implies some level of financial responsibility. One workshop recently approved is NICROSP '96, a workshop dealing with neural nets in image analysis, to be held in Italy in August. Copies of the meeting announcement were distributed.

14. Other business –

    Q: What is policy for CS Press putting accepted papers on the web? A: This appears to be technically feasible now for CS Press, but it is not known when it will be economically feasible. Abstracts of papers that have appeared in PAMI are accessible now.

    Q: How does one access the PAMI abstracts? A: Through the IEEE CS web page.

    Q: This would be a good topic for an item in the newsletter. A: Yes.

Review of the International Symposium on Computer Vision

Nitin Vaidya and Kuntal Sengupta
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The International Symposium on Computer Vision was held on November 19-21, 1995, in Coral Gables, Florida. The program consisted of 104 papers, all of which were orally presented in a double track format. The following review of the symposium is, of necessity, non-comprehensive.

The sessions attempted to cover all the main areas of computer vision, although, if asked to pick the areas with the dominant representation, *motion* and *optical flow* come to mind. Three of the papers on optical flow sought to improve the efficiency of algorithms for flow computation. Negahdaripour and Lanjing considered the motion recovery problem under conditions of time-varying illumination. Fermuller, Cheong, and Aloimonos argued for using certain global spatiotemporal patterns for efficient visual servoing. Kundur and Raviv presented the so called visual threat cue that measures the relative change in range between a surface and a fixated observer in motion.

In the session on tracking, several papers tried to harness perceptual organization techniques to track structures in image sequences. Sarkar used Gestalt relationships to organize features in a composite image formed by overlaying several frames. Parvin and Vishwanathan used the mass-spring model to track perceptually organized line contours in the image sequences of deformable objects. Kumar *et al.*, on the other hand, posed the task of tracking points in non rigid motion as a bipartite graph matching problem.

In the sessions on object recognition, two papers demonstrated the application of the Hausdroff distance in line matching for recognition. The paper of Olson and Huttenlocher proposed the use of edge orientation information to reduce false positives, while the paper of Yi and Camps showed how the computational complexity in the Hausdroff distance based matching scheme can be reduced. On a different note, Costa and Shapiro described how geometric hashing can be used for recognition of relational models. Weinshall and Werman presented a theoretical framework for resolving ambiguities in the interpretation of 3D objects in 2D images.

In the session on CAD-based Vision, Devaux *et al.* presented an interesting system that interprets 3D objects from 2D engineering drawings. Sequeira *et al.* showed how multiple range images of an object can be fused to construct its 3D CAD model. In the session on Aerial Image Understanding, there were several papers describing the interpretation and extraction of 3D objects (aircrafts and buildings) in aerial images.

The paper of Hoover *et al.* presented a joint effort on developing a methodology for evaluating range image segmentation algorithms, and was commended for addressing a long-felt need of the community. Another work aimed at performance evaluation was that of Cho, Meer, and Cabrera – based on the statistical technique of bootstrapping. In fact, Peter Meer predicted that bootstrap methods could well generate the same level of interest in the vision literature that robust statistics once did.

There was more than one paper directed towards the analysis of satellite image of hurricanes – a subject taking on added interest considering the site of the symposium!

Copyrights and Author Responsibilites

Call for Papers

Special Issue of
Image and Vision Computing
on

Vision-Based Aids for the Disabled

Guest Editors:
John K. Tsotsos, University of Toronto
Jill D. Crisman, Northeastern University

Papers are solicited for a special issue of *Image and Vision Computing* that present novel applications of computer vision as aids for the disabled. These applications may be purely visual or may be visually-guided robots or other intelligent agents. Although point sensors such as ultrasonics, lasers and infrared are not excluded from consideration, they must be employed in conjunction with at least one two-dimensional imaging sensor (i.e., CCD cameras, imaging laser rangers, imaging sonar).

Topics targeted to some specific application relevant for the disabled may include (but are not restricted to):

visually-guided navigation	vision-based user interfaces
vision-based task execution	task-specific scene understanding
visually-guided manipulation	visually-guided robotic wheelchairs
innovative vision-based devices	vision aids for the blind

Only original papers, not previously published in nor currently co-submitted to archival publications, will be accepted. Check *Image and Vision Computing*'s "Authors Instructions" for details on paper formats. The only exception to those instructions is that papers may be up to 30 pages in total length.

All papers will be reviewed following the guidelines of the journal. Please submit 5 copies of your contribution by November 1, 1996 to:

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CFP: Workshop on Mathematical Model in Bimedical Image Analysis

CFP: IEEE International Conference on Image Processing