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Theme: Frontiers of Computer Technology

22 - 26 August, 1994
Singapore

Edited by
Tony KY Chan
Nanyang Technological University

VOLUME 1

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School of Applied Science,
Nanyang Technological University

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IEEE Computer Society

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With the support of :
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MESSAGE FROM THE CONFERENCE CHAIRMEN

On behalf of all the IEEE TENCON'94 committees, we would like to express a warm welcome to all delegates to Singapore and the annual IEEE Region 10 conference. The IEEE TENCON conference is the major IEEE event of the region. It has been 10 years since the IEEE TENCON conference was last hosted in Singapore.

The theme "Frontiers of Computer Technology" is most appropriate for the conference as Computer Technology has affected all our lives especially over the last 2 decades. The importance of computer technology has been recognised in most of the countries in the region, with many countries having national computerisation plans.

Tony TY Chan and his technical programme committee deserve a special mention for putting together an interesting program for both practitioners and academics. It covers a wide range of topics: Parallel Processing, Multimedia communication , Management of Information Technology, etc..

We hope that you would take advantage of this opportunity to make new friends, to share ideas and information.

Associate Prof. Lawrence WC Wong
Co-General Chairman.
IEEE TENCON'94 Organising Committee

Dr. Francis BS Lee
General Chairman
IEEE TENCON'94 Organising Committee

MESSAGE FROM THE TECHNICAL PROGRAMME CHAIRMAN

On behalf of the Technical Programme Committee, I bid a warm welcome to all participants of TENCON'94, IEEE Region 10's Ninth Annual International Conference. "Frontiers of Computer Technology" has been chosen as the theme this year to emphasize the growth and impact of computer technology on almost every aspect of society - industry, government and academia.

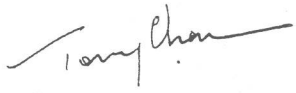
Over 200 papers, coming from all parts of IEEE's Region 10, which covers Asia and Australia, as well as further afield from Europe and the Americas, will be presented during the three days of the conference. Technical sessions cover a wide spectrum of topics, both in the hardware and software aspects of computer technology.

Of special interest are the Special Sessions on Computer Graphics and Applications, Computer Networks, Management of Information Technology, Manufacturing in an Information Age, Multimedia Communications, and Parallel Processing Technology and Applications, which have been organised by researchers and practitioners in their respective field of expertise. May I express my appreciation to them for their efforts.

We are fortunate to have three special speakers to give us the keynote address and deliver the invited papers. Each delegate would also find something of interest and relevance from one or more of the tutorials in the wide-ranging programme.

I take this opportunity to thank the International Advisory Panel for their support, the authors of all the papers for their valuable contributions, and the many who have assisted in the work of reviewing the submissions. I would like to express my appreciation to the Chairmen of the 50 Technical Sessions for their assistance in ensuring the smooth running of the conference. Finally I want to acknowledge with thanks the members of the Technical Programme Committee for their untiring efforts.

With the active participation of all, I am sure this will be an edifying and memorable conference. Thank you and welcome to Singapore.



Dr Tony KY Chan
IEEE TENCON '94

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To Singapore Federation of Computer Industries for their financial sponsorship.

To all the reviewers of IEEE TENCON '94 for their time and effort in ensuring the high quality and standard of the papers accepted.

To the following people and their respective organisations for organising special sessions:

1. Professor Robert KL Gay, GINTIC Institute of Manufacturing Technology, Nanyang Technological University, Singapore

2. Dr YM Teo, Department of Information Science and Computer Studies, National University of Singapore

3. Dr LL Tung, Information Management Research Centre, Nanyang Technological University, Singapore

4. Dr Robert HS Chin, Information Technology Institute, National Computer Board, Singapore

5. Associate Professor KR Subramanian, Network Technology Research Center, Nanyang Technological University, Singapore

6. Dr M Damodaran, Computer Graphics and Imaging Technology, Nanyang Technological University, Singapore

To all the session chairmen for their effort in ensuring a lively discussion in their sessions.

Finally to all who have helped in one way or another in the organisation and running of the conference.

LIST OF REVIEWERS

Hiroki Akaboshi
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IEEE TENCON '94
CONFERENCE PROGRAMME OVERVIEW

TIME/DAY	ROOM	DAY 1 - 24 AUGUST 1994, WEDNESDAY	DAY 2 - 25 AUGUST 1994, THURSDAY	DAY 3 - 26 AUGUST 1994, FRIDAY
9.00am - 10.30am	Bras Basah Mercury Minto Indiana Bencoolen A	8.00am - 9.00am Registration 9.00am **WELCOME ADDRESS** 9.35am **OFFICIAL OPENING** 9.45am **KEYNOTE ADDRESS** **Room :** Padang	**S16** Parallel Processing Technology and Application - I **S17** Computer Networks - I **S18** Computer Architecture - I **S19** Database - I **S20** Digital Signal Processing - I	**S34** Multimedia Communications - I **S35** Vision/Image Processing - II **S36** Software Engineering - I **S37** Fuzzy Logic/Neural Networks - I **S38** Logic/VLSI Circuits - I
11.00am - 12.30pm	Bras Basah Mercury Minto Indiana Bencoolen A	**S1** Computer Graphics and Applications - Visualisation I **S2** Management of Information Technology - I **S3** Distributed Systems - I **S4** Parallel Computing - I **S5** Artificial Intelligence - I	**S21** Parallel Processing Technology and Application - II **S22** Computer Networks - II **S23** Computer Architecture - II **S24** Database - II **S25** Digital Signal Processing - II	**S39** Multimedia Communications - II **S40** Vision/Image Processing - III **S41** Software Engineering - II **S42** Fuzzy Logic/Neural Networks - II **S43** Logic/VLSI Circuits - II
	Canning	LUNCH	LUNCH	LUNCH
1.30pm - 3.00pm	Bras Basah Mercury Minto Indiana Bencoolen A	**S6** Computer Graphics and Applications - Visualisation II **S7** Management of Information Technology - II **S8** Distributed Systems - II **S9** Parallel Computing - II **S10** Artificial Intelligence - II	**S26** Parallel Processing Technology and Application - III **S27** Communication Systems - I **S28** Real-Time Systems **S29** Fault Tolerant Systems **S30** Digital Signal Processing - III	**S44** Manufacturing in an Information Age - Concurrent Engineering **S45** Pattern Recognition **S46** Software Engineering - III **S47** Fuzzy Logic/Neural Networks - III **S48** Logic/VLSI Circuits - III
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COMPUTER GRAPHICS AND APPLICATIONS - Visualisation I

Organised by Centre of Graphics and Imaging Technology, Nanyang Technological University, Singapore

SESSION S2

MANAGEMENT OF INFORMATION TECHNOLOGY - I

Organised by Information Management Research Centre, Nanyang Technological University, Singapore

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