Preface

Biomolecular computing has emerged as an interdisciplinary field that draws together chemistry, computer science, mathematics, molecular biology, and physics. Our knowledge on DNA nanotechnology and biomolecular computing increases exponentially with every passing year. The international meeting on DNA Based Computers has been a forum where scientists with different backgrounds, yet sharing a common interest in biomolecular computing, meet and present their latest results. Continuing this tradition, the 8th International Meeting on DNA Based Computers (DNA8) focuses on the current theoretical and experimental results with the greatest impact.

Papers and poster presentations were sought in all areas that relate to biomolecular computing, including (but not restricted to): algorithms and applications, analysis of laboratory techniques/theoretical models, computational processes in vitro and in vivo, DNA-computing-based biotechnological applications, DNA devices, error evaluation and correction, in vitro evolution, models of biomolecular computing (using DNA and/or other molecules), molecular design, nucleic acid chemistry, and simulation tools. Papers and posters with new experimental results were particularly encouraged.

Authors who wished their work to be considered for either oral or poster presentation were asked to select from one of two submission "tracks":

  – Track A - Full Paper
  – Track B - One-Page Abstract

For authors with late-breaking results, or who were submitting their manuscript to a scientific journal, a one-page abstract, rather than a full paper, could be submitted in Track B. Authors could (optionally) include a preprint of their full paper, for consideration *only* by the program committee.

We received 49 submissions in Track A, and 17 submissions in Track B. These submissions were then reviewed by the program committee members, and by some other, external reviewers. In principle, three committee members were allocated for each submission. In considering the returned review reports, all discussions pertaining to the final decisions were made online by the program committee members. The program committee wishes to thank the external reviewers, who spent much valuable time reading submissions.

We finally selected 16 oral presentations from Track A. They have been included as full papers in the preliminary proceedings. Note that the competition was extremely tough for Track A submissions. We selected only one third of the submissions for oral presentations. In addition to the 16 oral presentations, we judged that 12 additional submissions in Track A were of good quality and relevance, and therefore decided to include these full papers in the preliminary proceedings. These papers were also selected for presentation as posters, during the conference. As for Track B, we selected 7 oral presentations.

The meeting was held on June 10–13, 2002, in Hokkaido University, Japan. On the first day of the meeting, we had four tutorials in two tracks: one track on computer science and the other on biotechnology. Both tracks consisted of a basic tutorial held in the morning and an advanced one in the afternoon. The basic computer science tutorial was given by Takashi Yokomori (Waseda University) and was titled "Introduction to Natural Computing." The advanced one was given by John A. Rose (University of Tokyo) and was titled "Nucleic Acid Sequence Design." The basic biotechnology tutorial was given by Toshikazu Shiba (FUJIREBIO Inc.) and was titled "Introduction to Biotechnology." The advanced one was given by Nadrian C. Seeman (University of New York) and was titled "DNA Self-assembly."

The next three days were for invited plenary lectures, and regular oral and poster presentations. Invited plenary lectures were by Willem P.C. Stemmer (Maxygen, Inc.), Tomoji Kawai (Osaka University), Akira Suyama (University of Tokyo), Tom Head (Binghamton University), and Bernard Yurke (Lucent Technologies). We were very honored to have these prominent researchers as plenary speakers.

It is also our great pleasure to mention here that Tom Head, one of the invited speakers of the meeting, received the award *The DNA Computing Scientist of 2002.* The award ceremony was held at the banquet of the meeting. A paper by Tom Head, related to his invited lecture, is included in this volume.

After the meeting, the full papers in the preliminary proceedings were revised by the authors and reviewed again by the program committee members and the external reviewers. The program committee thanks those reviewers again. This volume contains the final versions of the papers after the second review.

Finally, the program committee wishes to thank all those who submitted papers and abstracts for consideration.

November 2002   Masami Hagiya

Organization

DNA8 was organized by Hokkaido University and CREST JST (Japan Science and Technology Corporation) in cooperation with NovusGene Inc. and the European Association for Theoretical Computer Science (EATCS).

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