General

G.W.M. Rauterberg

IPO, Center for User-System Interaction

IPO is a research institute of Eindhoven University of Technology. As several external market studies have confirmed, IPO is the largest and most well-known academic research centre in The Netherlands, specialized in the domain of User-System Interaction.

IPO has a long research tradition. Originally IPO was founded in 1957 as a research institute of Philips Research Laboratories and Eindhoven University of Technology. The main focus of research was the domain of perception and cognition. Early in 1997 this focus changed and so did the name of the institute: Center for User-System Interaction. The organizational structure changed too and IPO became an autonomous university research institute. In 1999 the directorship of IPO changed. Since 1st May 1999 Prof. dr G.W.M. Rauterberg has been the new director of IPO with an integral mandate. IPO would like to thank the former scientific director Prof. dr T.M.A. Bemelmans and the managing director Ing. J.J.C.M. Ruis for all their valuable contributions to IPO in the past. Since early January 2000 IPO has been completely independent of Philips. IPO wishes to thank Philips for all the substantial support given for more than 40 years.

It is IPO's mission to be an international centre for multidisciplinary scientific research and design in the field of User-System Interaction. In close cooperation with industry and the government, IPO will work on the design and realization of user-friendly, innovative interaction styles and user-centred design methods.

Quality assessment IPO

The Association of Universities in the Netherlands (VSNU) is in charge of regular quality assessment of education and research at Dutch universities. Every five years an institute is assessed by the aforementioned association. The most recent assessment of IPO research was conducted in 1996. In its final report the visiting committee concluded that IPO is a laboratory of very good, and in some areas even excellent, scientific quality, by international standards. The institute comprises a large community of interdisciplinary researchers of high quality, with specialists in engineering, computer vision, human language sciences, sensory perception, cognition, industrial design, and ergonomics.

Work Programme

IPO's research is organized into four problem-based research themes:

1. User-Centred Design
2. Information Access and Presentation
3. Multimodal Interaction
4. Spoken Language Interfaces

Each research theme is described in greater detail in the following sections of this Annual Progress Report.

J.F. Schouten Institute for User-System Interaction Research

The graduate school 'J.F. Schouten Institute for User-System Interaction Research' was officially recognized by the Royal Dutch Academy of Arts and Sciences. This very important milestone was a result of the outstanding performance in the past years in the area of PhD projects. The J.F. Schouten Institute is attracting international interest from graduate research fellows. In 1999 two graduates received their PhD degree.

N. Belaïd, 'Perceptual linearization of soft-copy displays for achromatic images'. Supervisors: Prof. dr J.A.J. Roufs, Prof. dr ir P.F.F. Wijn and Dr ir J.B.O.S. Martens. Eindhoven University of Technology, May 17.

T.J.W.M. Janssen, 'Computational image quality'. Supervisors: Prof. dr A. Kohlrausch, Prof. R.J. Watt (University of Stirling, UK) and Dr ir F.J.J. Blommaert. Eindhoven University of Technology, November 2.

The postgraduate school for User-System Interaction Design

On September 1st, 1998, Eindhoven University of Technology started an international two-year design programme for 'User-System Interaction'. The programme consists of a first year course curriculum, followed by a second year that is almost completely reserved for design thesis work. The latter is based on practical assignments in industry.

All courses are held in English and are organized in a strict sequence of two to three weeks for each course. Participants in this programme have to apply for admission. After being selected, they are appointed as research assistants at the university. The postgraduate students are paid for participating in the design programme. The programme itself leads to an internationally recognized diploma: Master of Technological Design.

The next course will start in September 2000 with 20 student positions, after which in March 2001 the next cohort will be admitted. Details about this extensive and innovative design programme can be found on the web (http://www.tue.nl/ipo/usi/index.html).

Organizational issues and programme initiatives

In 1998 the Executive Board of the University nominated the working domain of User-System Interaction as a strategic research area for the university. In that context a process was started to involve the Faculties of Mathematics and Computing Science, Electrical Engineering, and Technology Management in 'User-System Interaction'. The short-term goal is to formulate a strategic interfaculty research programme in which the faculties mentioned and IPO will be involved.

Since 1977 the funding programme SOBU (Samenwerkings Orgaan Brabantse Universiteiten) has supported cooperation projects between Tilburg University (Katholieke Universiteit Brabant, KUB) and Eindhoven University of Technology (TUE). In 1999 IPO ran five projects under this programme: 'The prosodic realization of text structures', 'Machine learning algorithms for linguistic aspects of speech synthesis', 'Context controlled language generation in multimodal human-computer interaction', 'Context con-

trolled dialogue management for spoken language interfaces', and 'The user perspective on electronic commerce'.

In 1998 a large applied Innovation Oriented research Programme (IOP) was started in The Netherlands on 'Man-Machine Interaction' (IOP-MMI), sponsored by the Dutch Ministry of Economic Affairs. This 20 million guilder programme will enable several research institutes to do research on selected areas, in close cooperation with industry. The duration time of this special IOP-MMI programme will be six years. In 1999 IPO had two projects approved: 'Multimodal access to transactions and information services', and 'Interaction and dialogue structure in user interfaces'.

In 1999 a third important funding programme 'ToKeN 2000' was launched in the context of the National Action Programme (NAP Elektronische Snelweg), sponsored by the Dutch Ministry of Economic Affairs, the Dutch Ministry of Education, Culture and Sciences, and the Netherlands Organization for Scientific Research (NWO). This programme will bring together researchers in the fields of computing sciences and cognitive sciences. IPO is contributing with a project called 'Flexible interfaces for dialogues in a multimedia world'.

The fourth large and interesting programme is the Information Society Technologies (IST) part of the 5th Framework Programme of the European Commission. IPO also intends to make substantial contributions to this programme. In 1999 IPO contributed in the workpackage 2 'Evaluation of new entertainment media and display technologies' of the ACTS project TAPESTRIES.

In 1997 the European Commission launched a network of I3 projects in the framework of the Esprit Long Term Research programme. I3 stands for Intelligent Information Interfaces. It aims to stimulate research projects that explore and prototype radical new human-centred systems and interfaces for the interaction with information. IPO is participating in the I3 project COMRIS (Co-habited mixed-reality information spaces).

Another project funded by the European Commission in which IPO was participating was VODIS (Voice-operated driver information system). This project, funded within the fourth framework ESPRIT programme, was completed successfully in 1999.

Conferences and workshops

On 2nd February 1999 the annual meeting of the Dutch Audio Engineering Society took place at IPO. The Topic was 'Intermodal aspects of vision and sound'. About 90 experts in this field participated.

From 5th to 9th April 1999 IPO was involved in the organization of the 2nd International Workshop on 'Presence' at the University of Essex, Colchester (UK). This workshop was part of the ACTS TAPESTRIES project activities.

On 23rd April 1999 one of the two speakers at the 'Dies Natalis' ceremony of Eindhoven University of Technology was Prof. dr G.W.M. Rauterberg. The title of his presentation was 'User-system interaction: A challenge for the present and the future'.

On 25th June 1999 a meeting of the Dutch Society of Phonetic Sciences took place at IPO. Several researchers intensively discussed upcoming issues in this field.

In association with Eindhoven University of Technology (TUE) and the European Speech Communication Association (ESCA), IPO organized a 3-day Workshop on Dialogue and Prosody from 1 to 3 September 1999. This workshop took place near Eindhoven. The workshop brought together researchers representing theoretical, empirical, computational, and experimental approaches to exchange research findings and ideas about the interplay between dialogue and prosody.

On 2-3 December 1999 the first 'Symposium on User-System Interaction' (SUSI) was held at Carlton De Brug, Mierlo (The Netherlands), which was completely organized and financed by IPO. This symposium attracted about 50 participants, primarily from different faculties of Eindhoven University of Technology and IPO.