

Visiting Report

by

Laurent Kott

In 1985, I went to Tokyo and met ICOT's people. It was the very beginning of the collaboration initiated by french and japanese governments who instructed ICOT and INRIA to be in charge of.

It was the beginning of the intermediate stage of tthe FGCS project too. We attended several meetings where presentations were made by our japanese colleagues.

In that time, I thought ICOT's people got a quite ambitious research program : design and build a workstation dedicated to knowledge information processing, design a dataflow machine, study natural language understanding, design logic programming languages, and so forth. Indeed, I was wondering if all these research areas could be covered successfully. On the other hand, I was already impressed by some facts :

-a bunch of young and brilliant researchers, leaded by Dd. Fuchi, wanted to work together;

-the clear willingness to develop large-scale applications,

-the quality of the dedicated hardware designed at ICOT with the support of companies involved in FGCS project.

Seven years later, it is possible to give some comments.

First of all, some topics were abandoned : namely dataflow machine, natural language understanding, ... Indeed, others topics were emphasized. They could be gathered into two groups. Logic p[rogramming and all related domains : concurrent logic programming, constraint logic programming, theorem proving, deductive databases, knowledge representation, ... Not only theoretical results were achieved but a lot of software were developed by ICOT's people to experiment their own theories and others researchers' ones.

The second group is related to distributed memory multiprocessors machines, their operating system and the design of suitable programming languages. It is enough to mention Multi-PSI, PIM machines, PIMOS, KL/1, GHC, FGHC, ... to realize how much work has been done. Furthermore several large-scale applications were developed. To point out the amount of all these works, it is worth to noticing that around one million lines of KL/1 have been written!

As far as these topics are concerned, the goals of FGCS project were achieved. However the main drawback is dedicated hardware, say PSI processor, to build these machines and, by the way, dedicated programming language, say KL/1. This raises some difficulties to disseminate all the results and experiences obtained at ICOT. Nevertheless, to be fair we have to remember that many people believed in dedicated machines for artificial intelligence in the beginning of 80's. All these machines disappeared now but the PSI machine is still and alive!

Conclusions

Year after year, ICOT's people were able to focus on some topics and to move ICOT in a world famous laboratory devoted to knowledge information processing. In my opinion, ten years and big money are not too much to achieve such a result.

I would recommend there will be a follow-up to the FGCS project for three reasons at least :

- to avoid the group of high quality and well known researchers will be scattered and to ensure their skill and knowledge will be disseminated;

- to port all the logic programming systems, say CAL, MGPI, Quixote, .. on standard machines (Unix workstations or servers). Actually standard processors could (or will in a near future) run them with enough memory and efficiency;

- to save all the experience on designing and experimenting and programming distributed memory multiprocessors machines. It is obvious now such machines will be used widely in industry and business (sometimes instead of so-called "number crunchers"). The design of good OS and programming environment will become a key issue to be adressed. I am confident japanese computers manufacturers will bring such machines on the market and take advantage of ICOT's researchs.

Acknowledgement

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ETUDES ET DIPLOMES

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1971 : Licence de Mathématiques à l'Université Paris 6.
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1976 : Doctorat de 3ème Cycle de Mathématiques, spécialité Informatique,
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1970-1974 : Elève Professeur à l'ENS de Cachan.

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RESEARCH INTERESTS

My work on parallelism are related to semantics of CCS-like calculi, with an observational viewpoint and a stress on the notion of fair behaviour. These considerations request studies about infinite rational languages [1,2,3,4]. I'm also concerned by synchronous programming of reactive systems.

I'm always interested by program transformations, program proof systems and term rewriting systems [5,6,7].

MAIN PUBLICATIONS (depuis 1982)

- [1] *On the Observational Semantics of Fair Parallelism*, in *Proc. of 10th ICALP*, Barcelone, LNCS 154 (1982).