Putting OOTI knowledge into practice

ir. Michiel Kamps

When OOTI started in September 1988, among the first group of students was ir. Michiel Kamps. After his graduation in September 1990 he started working for a software engineering company. He belongs to a minority of ex-OOTIs who have not pursued a career in research. In the following pages he looks back on his five years of experience as an OOTI and a software engineer on the commercial market.

Five years in the computing science masters programme at EUT

When I started my studies in computing science everything was new to me. I had never seen a computer or a computer program at close range. My choice for this study was based on my curiosity about this new field of research which made use of mathematics. During the years that followed I started to find out what computing science was about, and found that it certainly involved a great deal of mathematics, as was promised. Fortunately, it became clear to me that I had chosen a study which offered good prospects for an interesting job. The study itself became a routine of attending lectures and sitting exams. While a profusion of subjects came to my attention, there was no general framework supplied to connect the various fragments of information that I had accumulated. As my graduation drew closer I realized that I lacked any general insights into computing science and I began searching for relations between different subjects. I also wanted to know if these theories could be translated into practical use. These reflections led me to consider the post-masters programme OOTI as a more satisfying continuation of my education than starting out on a career in computer science hampered by a fragmented view of my field.

Five major points of OOTI

One of the things that struck me when I started OOTI was the small scale of the programme; there were only six participants, which was in sharp contrast with the masters programme I had just completed. This had an influence on the manner in which the courses for the new programme were designed. Due to the small size of group everybody had an input as to which direction the courses would go and in some cases a student even became a co-author of a syllabus.

The courses the students had to follow were divided into four blocks. There were three mandatory blocks and an optional block. The first block, Formal Specification Methods, concentrated on three particular formal specification methods: COLD, STATEMATE, and EXSPECT. As I remember it, it was more like three groups of people telling about their favorite specification method. It was useful to get a deeper insight into these formal specification methods, but I cannot say that I use any of them in my current job.

The second block was Software Engineering. On one hand, the subjects like software life cycle, project management, test methods, and CASE tools have much in common. But on the other hand, the same topics and, specifically, the software engineering project about the copier always left too much room for discussion. The third mandatory block, System Components, was more fragmented. Different aspects like parallelism, computer graphics, user interfaces, and system architecture did not have much in common. Generally, I found these subjects very interesting. The optional block allowed us to choose from a list of technical application fields. At the time that I followed the programme this list contained only two fields: VLSI Design and Discrete Manufacturing. We were not allowed to choose VLSI Design because this had too much in common with our major design project. This left Discrete Manufacturing, which was not too difficult, and which gave us a chance to see how CAD-CAM applications are being used to support other scientific domains. The fifth block of the OOTI programme was the major design project, to which we were allowed to dedicate a third of our time. I worked with three other students on the VOC project in the field of delay-insensitive circuits. The manner in which the design projects are done nowadays differs from the way we worked in the early days. Back then we had to start the project right at the beginning of the programme, and we were supposed to spend one day in the week working on the project. This proved to be difficult as we had to follow four to five other courses during the same trimester. Only when we were allowed to work on the VOCproject for more than one day a week could we make any significant progress; instead of spending much of our one day summarizing what we had done the week before. We found that with these large projects you could only make progress when you had the chance to work on it for at least three days a week. Luckily, the 'architects' of OOTI recognized the problem and adjusted the timetables of the programme.

Comparing OOTI and CAP Volmac; five remarks

On completing OOTI I found that I had achieved the knowledge that allowed me to place the fragments of information that I had learned during my masters studies into a wider context. I had also been able to apply theories for practical use. I had no precise idea in which direction I should go from this point. I liked the idea of joining a research institute because of the scientific challenge in a rather informal environment this offered. However, I also wanted to make my acquired knowledge concrete. So, I applied for jobs in both directions and the first offer I received was from CAP Gemini Pandata, the Dutch daughter of Cap Gemini Sogeti, the French company that had shortly before taken over Volmac. They named their new Dutch daughter company CAP Volmac. You will understand that there are several reasons why a business will have different priorities than a university. In general, new theories and techniques will become widely accepted among universities before they will be applied in businesses. In the business community the latest developments will be applied only after a considerable delay. Secondly, the companies that are clients of CAP Volmac rarely have information technology as their primary business process. Information technology always serves another, preferably profitable, business activity which relies on a stable information technology service. Investments are intended for the primary activities alone. Furthermore, it is a habit of software engineering companies to deliver what a client asks for in the most profitable manner. It should also be delivered in a manner which will ensure that the client will return to you again in the future. CAP Volmac tries to find the most suitable people to do the job. This principle is also true on a smaller scale; a client has a crucial voice in what you do and how you do it, and it is part of your job to make him feel secure that you are following his orders. When I started at CAP Volmac, I did not get a chance to do those tasks for which I had been trained. This was partly because the people at CAP Gemini Pandata had no idea what an OOTI graduate could do. I believe that it will take some time before OOTI graduates will be employed by companies that will allow them to perform designer's task immediately. Although I do some design tasks nowadays, I cannot state that I am a designer for software systems for technical applications. My current job is with the SEP (the cooperative electricity producing companies) and this is indeed an environment with technical applications including a decision support system (solving a unit commitment problem using Lagrange relaxation). It is my job to realize changes in the different applications that are consequences of physical or organizational changes in the national electricity network, changed user needs, or different hardware. My activities vary from solving data communication problems via coding and debugging to clarifying the information requirements of a department. It would be an exaggeration to state that I could not do this job without my OOTI qualifications, but I must say that the two years of OOTI provided a stable base to work from, and it has become easier to place new topics in a context, and I can react from a broader background.

Five reasons to do OOTI again

Although in my present job my knowledge acquired at OOTI is not mandatory, I do think that if I was presented with similar choices again that I would still choose to follow OOTI for several reasons. In the first place, it is necessary to study new materials regularly in order to keep abreast of new developments in the fast developing field of information technology. A university is an excellent environment to study, because there is time to study the broader context. In contrast, when one is trained on the job one must be fast and specific. Furthermore, as I mentioned above, even if no specific knowledge from OOTI is necessary it does provide a solid basis from which it is easier to do your job. Thirdly, I felt that my attitude to learning has changed because of OOTI. The small groups encouraged students to contribute to the lectures which had a positive effect on my rather 'passive' style of learning in the past. Another important reason why I would choose to do OOTI again was the cooperative atmosphere that existed amongst the students and staff, which was a great difference with my masters education. Finally, I believe that if OOTI continues to grow and manages to preserve its quality that OOTI will become a name that needs no further explanation to companies, which will make further advertising superfluous.



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Ex-OOTIs survey 1993

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was reviewed favorably. However, sometimes the supervision was insufficient and the subject could be more market-oriented (see above).

Conclusion

We hope that the OOTI programme will be able to take advantage of this report, and also, that this report will lead to discussion amongst ex-OOTIs. Nearly all the respondents indicated that they would be interested in attending a meeting about this subject. Perhaps XOOTIC could organize an evening around this theme!

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