

The Jura takes up the CAD-CAM challenge

In 1982 Jean-Pierre Bendit founded Jinfo SA. Armed with his experiences of programming Numerical Control machine tools, he first developed a Computer Aided Design (CAD) program called Chantal, and the another for Computer Aided Manufacturing (CAM) by the charming name of Sylvie. These softwares have been sold more than 200 times, mostly in Switzerland, but also throughout the Jura region via companies specialised in the sale of machine tool products.



After several years of activity in the programming industry of CAD and CAM for Numerical Control machine tools, the company began to commercialise programs from other software houses. Aware of the technical evolution of the last few years, the Jurassian company was motivated to attempt a “grand coup”. The company is actually putting the final touches on a radical innovation, with the help of several regional partners, including the Jurassian Ecole Technique. A challenge that doesn't scare Jean-Pierre Bendit, director of Jinfo SA and one of the proponents of this new approach to CAD-CAM. His enthusiasm is contagious. We couldn't resist trying to find out more. Interview.

After developing your own CAM softwares, more than twenty years ago, and then distributing third-party programs throughout the Swiss market, you are returning to the development of CAM softwares. Can you explain why?

The crisis of the years between 1990 and 1994 prevented us from investing in the development of Sylvie Plus, which was planned to replace the Chantal and Sylvie programs. In order to replace these obsolete products, we developed a range of customised services (installation, customisation, training, customer support)

for the European CAD-CAM houses. It is noteworthy however that some customers still use Chantal and Sylvie for some simple applications. For the CAD, fifteen years ago we started offering CoCreates OneSpace Solution Suite. This Suite has a dynamic surface and volume modelling module, a technical data management module and another module that allows real-time collaborative development via the Internet or internal networks. With a few customisations, these standard products become fully satisfactory for customers in the mechanical, micro-technical and watch-making industries.

This is not enough for CAM products, where the standard softwares quickly run up against their limits. The products that we offer today are amongst the most competitive in the market, and are well suited to standard machining on lathe or milling machines. On the other hand these solutions are not designed to run some modern NC Machine Tools, or the multi-spindle, multi-turret lathes. These latest-generation NC Machines handle multiple channels and multiple axis simultaneously.

In this case, the classic CAM solutions have great difficulties resolving the problems linked to these types of machines, as they were not foreseen back during the programs development phases. Also, it is exactly this type of machine that a customer spends hundred of thousands of francs on in the hope of the maximum possible reduction of set-up time. With this latest program for handling this type of NC Machines, we provide the answer to the needs of manufacturers and our customers.

Aren't there already softwares of this type on the market? How does your software differ from the others?

After research and analysis, we have discovered that most of the solutions actually on the market are specialised for either controlling simple standard NC Machines (2 ½ or 3 axis) or for particular NC Machines such as wire EDM, engraving machines, 3D mould makers or simultaneous 5-axis milling.

From this sprang the idea of creating a new company, Jurasoft SA, to insure the development of a new CAD-CAM program called SylvieXpert.

I estimate that the lifespan of a high-tech software such as a CAD-CAM solution is between 10 and 15 years



The Jinfo development team, creators of the new SylvieXpert software in partnership with the Engineering school of the Jura region

This product must meet immediately all the performance criteria demanded for the future controlling and simulation of complex NC Machines such as swiss type and mill-turn machines. I think that, given the creation of more and more complicated machines of even greater specialisation in individual tasks, the future of CAM lies in multiple programs of ever-greater performance within their specific domains. In my opinion, in the future, it will be not uncommon to find several CAM solutions within any one company, even small companies, for any given application (one for wire-EDM, one for the engraving, one for milling-turning, etc). The standardisation and the performance of data-exchanges between CAD (enhanced by the machining data) and CAM is no longer an obstacle to the use of several CAM.

Why is this product truly innovative?

The software is designed to work uniquely with 3D models. The importing of components is handled via standard interfaces such as SAT, STEP or IGES, as well as native formats to the most widespread CAD softwares in our domain. By working with volumes the system has all the information required for the actual machining – which is not the case with 2D solutions.

Starting with a new core, we plan to offer a structure that allows the handling of NC Machines for milling or turning. It can control multi-channel machines with infinite linear and rotary axis. Also planned is the running of machining projects involving multi-component reworking with intermediary fixture. In order to permit the precise elaboration of programs for multi-channel NC Machines we have integrated into the program a realistic simulation that takes into account the modifications of the ISO codes requested by the user. Here also, our solution is entirely innovative. Add to this ongoing improvements developed in collaboration with TT-Novatech and the Engineering schools of the Jura region that allows the automatic proposal of machining parameters (feedrate, spindle speed, feedrate / tooth, machining strategies, etc). The program will be the object of a “grand opening” demonstrations at the SIAMS exhibition at Mouthier in May 2004.

How much time have you invested in this development?

The Jurasoft SA company was created in April 2003 after several months of preliminary study to define the ideal program. Following this, a team composed of engineers, computers technicians, micro-mechanical engineers and technicians, and a mathematician began the development of the application with a target date of spring 2004.

A CAM software such as this evolves constantly to meet customer demand. A development and customisation team is planned to handle this over the next few years, as well as a customer training team, and a customer technical support unit. Version 2 is planned for the middle of 2005.

Did you obtain any financial aid for this project?

Yes, this development was supported by the Jura Canton Economic Promotion initiative, and is co-financed by the Commission for Technology and Innovation (CTI) of the Federal Office for Professional Training and Technology.

You decide to base your program on a pre-existing core?

Our application is based on working with 3D models. From the very beginning I dismissed developing my own volume modeller when I could obtain a turn-key modeller. It is an application in it's own right. After study and comparison of the other 3D CAD CAM softwares we selected the Spatial Corps' Acis modeller. Developing outwards from this core gave us a common data-exchange standard with many of the current CAD programs, and a stable precise and effective core, as well as saving several man-years of development work.

Does your software need to be specifically adapted to the different types of machines it is intended for?

For a CAM system to be truly effective in all its aspects the customisation is very important, for this is where the user can make major productivity improvements. The Jurasoft SA company, with its computer programmers, adapts the program to each individual NC Machine and each user – something a standard program could not achieve. The first version of the software already possesses several post-processor functions adapted to several types of complex milling and turning NC Machines.

Have you already developed a catalogue of modules, for different types of components?

Yes, the database delivered with the program contains a series of standard tools and operations that allow an operator to rapidly and intuitively understand the program's operation

For a software to have any chance to carve out a place in the market, it must have an international-level distribution.

How do you plan to promote the program internationally?

The market policy of Jinfo SA has always been to listen to the customers, and to become a true business-partner via a strong customer support. We will follow this principle during the marketing of our latest product. Therefore we will begin marketing SylvieXpert in the precision NC Machines sectors we know best, even if this means renouncing a sale or recommending a more appropriate selection from the Jinfo SA product range.

For its marketing, we will profit from the company's reputation in French-speaking Switzerland and France.

Partnerships are being developed in German-speaking Switzerland, Germany, Austria and Italy. Further on, the other European countries will be covered by third-party sales agencies.

Finally a special effort will be invested in Internet marketing and services, for downloading demo versions or training programs.

How many units must you sell to break even?

As I mentioned earlier, the sale of the first version of SylvieXpert will not stop the program's development, in what is called "perpetual improvement". It could be generally estimated however that the start-up to the second version's launch will cost approximately 2 million Swiss Francs. The anticipated returns indicate a return on investment during 2006, once account is taken of licensing, solution rental (a new concept which includes maintenance) and the supply of services.

How many do you expect to sell in the next few years ?

It all depends on the world economical recovery. If, as expected, the recovery kicks in around the first part of 2005, our software will arrive on the world market at exactly the right time. Then it will be up to us to spread awareness of the advantages of our product via an aggressive marketing and to face up to our competitors with competitive pricing. The structure of the development and marketing are conceptually flexible enough to overcome any demand.

What developments are planned, or on the way, for your newest program?

Version 2, planned for the middle of next year, will contain a module for automatically proposing machining parameters. The other functions will depend on what the customers request, according to our principal of offering a leading-edge solution in specific areas, as opposed to wide-based but superficial solutions.

(Interview by Pierre-Henri Badel)

The development techniques



Jerôme Conus, Information Technology HES Engineer and project chief at Jurasoft SA

"For a small team like our own", explains Jérôme Conus, Information Technology HES Engineer and project chief at Jurasoft SA, "It is crucial to use the most effective tools". The reason why the SylvieXpert program was developed with the object-based language C++: "Apart from the Acis 3D engine, we use Trolltech's Qt development library", he adds. "This product considerably simplifies the development of multi-platform graphics applications, takes care of the programs translation problems and the database use, etc. Thus, the use of such tools allows us to concentrate our efforts on our software's functionalities, power and flexibility"