

numjobs

Outstanding achievements in the engineering industry have something in common: they always result from superior performance, exceptional technology and a high degree of creativity. In that way NUM has built up an outstanding reputation in the tool and machinery industry. We develop complex, customized CNC automation solutions that guarantee the machine manufacturers as well as users with a high degree of added value.

NUM's successes are achieved essentially through the know-how and personal commitment of our employees.

And we now offer you the opportunity to actively contribute to this success at the NUM office in Cuggiono (MI) we are proposing the following six months internship:

Internship Projects

Study and development of algorithms based on dual quaternions for industrial applications

This project is mainly focused on RTCP function (Rotating Tool Center Point) that is a standard function in 5 axis milling for CNC machine.

The project will roughly follow the steps below:

- Study of the state of the art on quaternions and dual quaternion and their applications in theoretical and practical fields;
- Study of the characteristics and issues of 5 axis machining with RTCP: position correction, interpolation of rotational axis (in axis space or in tool vector space), speed and acceleration profiles, singularity management, etc.
- Development of an algorithm for RTCP function based on dual quaternions;
- Comparative analysis between the standard RTCP and the new algorithm about computational efficiency and machining result;
- Import of the new algorithm in the NUM CNC code;
- Test on machine.

Study and development of algorithms for SCARA/antropomorphic robot movement

This project is mainly focused on the development of algorithms for robotic arm movement. First will be considered the simplest case of a SCARA robot, then the more interesting antropomorphic arm.

The project will roughly follow the steps below:

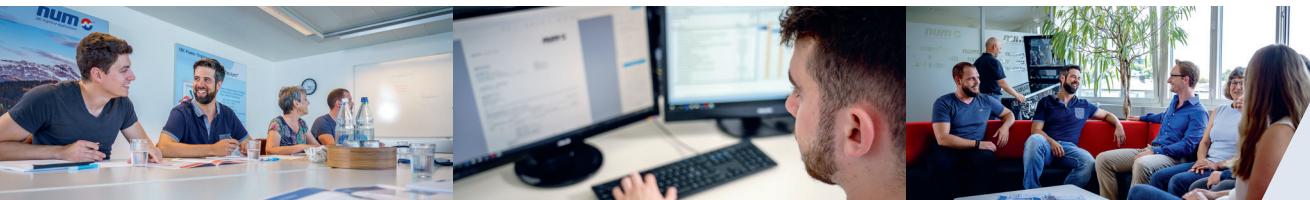
- Study of the state of the art on mathematical models and methods to represent and move a robotic arm
- Study of the characteristics and issues of the application context (milling, welding, pick and place)
- Development of an algorithm for SCARA/antropomorphic robot movement (program in joint space or position/orientation space) that will consider weight load and the characteristic of speed and acceleration;
- Comparative analysis between machining with a robotic arm and a 5 axis machine about computational efficiency and machining result;
- Import of the algorithms in the NUM CNC code;
- Test on machine and robotic arm.

Contatto:

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NUM 
CNC HighEnd Applications



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What we are looking for

We are looking for a flexible and highly motivated person with a strong mathematical and geometrical background. You will be integrated in an international development team spread in 3 different countries: Switzerland, France and Italy. You will report to the embedded software development manager.

Your background:

- University courses in Engineering, Mathematics or Physics
- Knowledge of English language
- Ability to collaborate with senior engineers
- Experience in Drive and/or CNC development would be a plus
- Knowledge of the programming languages such as: C, C++ would be a plus

Your personality:

- Strong solution oriented and conceptual thinking skills
- Team player with good communication skills
- Independent working attitude
- Pragmatic and solution-oriented working methodology

What we offer

- An international, dynamic, growing company with the whole value chain from R&D to sales and manufacturing
- Pleasant working atmosphere with flexible working hours
- Free internal canteen service
- Payment of an allowance at the end of the internship

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