

Vladimir Lukanin

## **Special Aspects of Motion Planning for Industrial Robots**

### **Theses**

#### **1. Thesis**

##### **Development of the control system for new 3-DOF parallel manipulator TRIPOD**

- The mathematical model of manipulator kinematics
- The PC-based control system for TRIPOD
- The software of trajectory planning for TRIPOD

#### **2. Thesis**

**Analysis of the kinematics of 3-DOF parallel manipulator with S-P-R joint structure. I solved the inverse and forward kinematics for it. I modified the S-P-R structure by adding a “normal column” and solved the inverse and forward kinematics for the modified structure.**

- The Inverse Kinematics Task Solution
- The Forward Kinematics Task Solution
- Manipulator of S-P-R joint structure with column

#### **3. Thesis**

**Development of an original method for Working Space (WS) determination for parallel robots. I determined the WS for the S-P-R manipulator using this method.**

#### **4. Thesis**

**Development of the Automatic Trajectory Planning System (AUTRAP). This is one of the software modules of OSA control device for PUMA-560 robot.**