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LIST OF SYMBOLS AND ABBREVIATIONS

Symbols

| | | |
|------------|---|---|
| B | - | Base rotation increment |
| E | - | Elbow rotation increment |
| T_e | - | End Effector Transformation Matrix |
| θ_i | - | Joint Angle |
| Q_i | - | Joint Angle in LabVIEW |
| a_i | - | Link Length |
| A_i | - | Link Length in LabVIEW |
| d_i | - | Link offset |
| D_i | - | Link offset in LabVIEW |
| S | - | Shoulder rotation increment |
| ${}_0T^5$ | - | Transformation Matrix |
| α_i | - | Twist Angle |
| W | - | Wrist rotation increment |
| a_x | - | X Component of Approach Vector |
| a_{xg} | - | X Component of Approach Vector of goal |
| n_x | - | X Component of Normal Vector |
| n_{xg} | - | X Component of Normal Vector of goal |
| o_x | - | X Component of Orientation Vector |
| o_{xg} | - | X Component of Orientation Vector of goal |
| p_x | - | X Component of Position Vector |
| p_{xg} | - | X Component of Position Vector of goal |
| a_y | - | Y Component of Approach Vector |
| a_{yg} | - | Y Component of Approach Vector of goal |
| n_y | - | Y Component of Normal Vector |
| n_{yg} | - | Y Component of Normal Vector of goal |
| o_y | - | Y Component of Orientation Vector |

| | | |
|----------|---|---|
| O_{yg} | - | Y Component of Orientation Vector of goal |
| p_y | - | Y Component of Position Vector |
| p_{yg} | - | Y Component of Position Vector of goal |
| a_z | - | Z Component of Approach Vector |
| a_{zg} | - | Z Component of Approach Vector of goal |
| n_z | - | Z Component of Normal Vector |
| n_{zg} | - | Z Component of Normal Vector of goal |
| O_z | - | Z Component of Orientation Vector |
| O_{zg} | - | Z Component of Orientation Vector of goal |
| p_z | - | Z Component of Position Vector |
| p_{zg} | - | Z Component of Position Vector of goal |

Abbreviations

| | | |
|-------|---|--|
| ACL | | Advanced Control Language |
| ADE | - | Application Development Environment |
| ANN | - | Artificial Neural Network |
| ANFIS | - | Adaptive Neuro-Fuzzy Inference System |
| ATS | - | Advance Terminal Software |
| CIKM | - | Complete Iterative Inverse Kinematic Method |
| CPU | - | Central Processing Unit |
| D-H | - | Denavit and Hartenberg |
| DDK | - | Driver Development Kit |
| DOF | - | Degrees of Freedom |
| EOAT | - | End of Arm Tooling |
| FKA | - | Forward Kinematics Analysis |
| FKM | - | Forward Kinematics Model |
| GPC | - | Generalized Predictive Control |
| GPCL | - | Generalized Predictive Control with learning |
| GUI | - | Graphical User Interface |
| IKA | - | Inverse Kinematics Analysis |
| IKM | - | Inverse Kinematics Model |
| ILC | - | Iterative Learning Control |

| | | |
|---------|---|---|
| ISO | - | International Standard Organization |
| LABVIEW | - | LABoratory Virtual Instrument Engineering Workbench |
| PA | - | Path Analysis |
| PAM | - | Path Analysis Model |
| PIIKM | - | Partial Iterative Inverse Kinematic Method |
| PTP | - | Point To Point |
| RA | - | Reachability Analysis |
| RAM | | Reachability Analysis Model |
| RBF | - | Radial Basis Function |
| RNN | - | Random Neural Network |
| TCP | - | Tool Center Point or Tool of Gripper |
| UCS | - | User Coordinate Systems |
| VI | - | Virtual Instrument |
| WA | - | Workspace Analysis |
| WAM | - | Workspace Analysis Model |
| WCS | - | World Coordinate Systems |
| XML | - | Extensible Markup Language |