|  |  |  |
| --- | --- | --- |
| **Rotation Matices** | | |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  | Rotation axis:  With cross product , tensor product | |
| Properties |  | |
| **Translation Matrices** | | |
|  | Transformation vector: | |

Cubic polynomial:

At :

At :

In matrix form:

Solve:

Result:

Quintic polynomial:

At :

At :

In matrix form:

Solve:

Result:

Linear Segments with Parabolic Blends *(2-1-2)*:

**Where *(acceleration phase)*:**

At :

At :

Therefore:

**Where *(linear phase)*:**

At :

At :

At :

Since :

Or:

Therefore:

**Where *(decelleration phase)*:**

Symmetrically derived:

Result:

Linear Segments with Quadratic Blends *(4-1-4)*:

**Where *(linear phase)*:**

At :

At :

Therefore:

**Where *(acceleration phase)*:**

At :

At :

At :

Result:

**Where *(decelleration phase)*:**

Lets :

At :

At :