< 덤벨로우 준비 자세 >

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 순서 | 좌표축 | 부위 | Euler Angle | Rotation Matrix |
| 0 |  | World |  |  |
| 1 |  | Hips | = (, ) | = , |
| **=** | | | |
| 2 |  | Hips | = (, ) | = , |
|  | Spine | = , | = , |
|  | Left Upper Arm | = (,),  = (, ) | = , ,  = , |
| **=** | | | |
| 3 |  | Hips | = (, ) | = , |
|  | Spine | = , | = , |
|  | Right Upper Arm | = (,),  = (, ) | = , ,  = , |
| **=** | | | |
| 4 |  | Hips | = (, ) | = , |
|  | Right Upper Leg | = , | = , |
|  | Right Lower Leg | = (,) | = , |
| **=** | | | |

< 덤벨로우 동작 >

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 순서 | 좌표축 | 부위 | Euler Angle | Rotation Matrix |
| 0 |  | World |  |  |
| 1 |  | Hips | = (, ) | = , |
|  | Spine | = , | = , |
|  | Left Upper Arm | = (,),  = (, ) | = , ,  = , |
|  | Left Upper Arm | = (, 0,0), | = , |
| **=** | | | |
| 2 |  | Hips | = (, ) | = , |
|  | Spine | = , | = , |
|  | Left Upper Arm | = (,),  = (, ) | = , ,  = , |
|  | Left Upper Arm | = (, ), | = , |
|  | Left Lower Arm | = (, ), | = , |
| **=** | | | |
| 3 |  | Hips | = (, ) | = , |
|  | Spine | = , | = , |
|  | Left Upper Arm | = (,),  = (, ) | = , ,  = , |
|  | Left Upper Arm | = (, 0,0), | = , |
|  | Left Upper Arm | = (, 0,0), | = , |
| **=** | | | |
| 4 |  | Hips | = (, ) | = , |
|  | Spine | = , | = , |
|  | Left Upper Arm | = (,),  = (, ) | = , ,  = , |
|  | Left Upper Arm | = (, ), | = , |
|  | Left Lower Arm | = (, ), | = , |
|  | Left Upper Arm | = (, 0,0), | = , |
|  | Left Lower Arm | = (, ), | = , |
| **=** | | | |