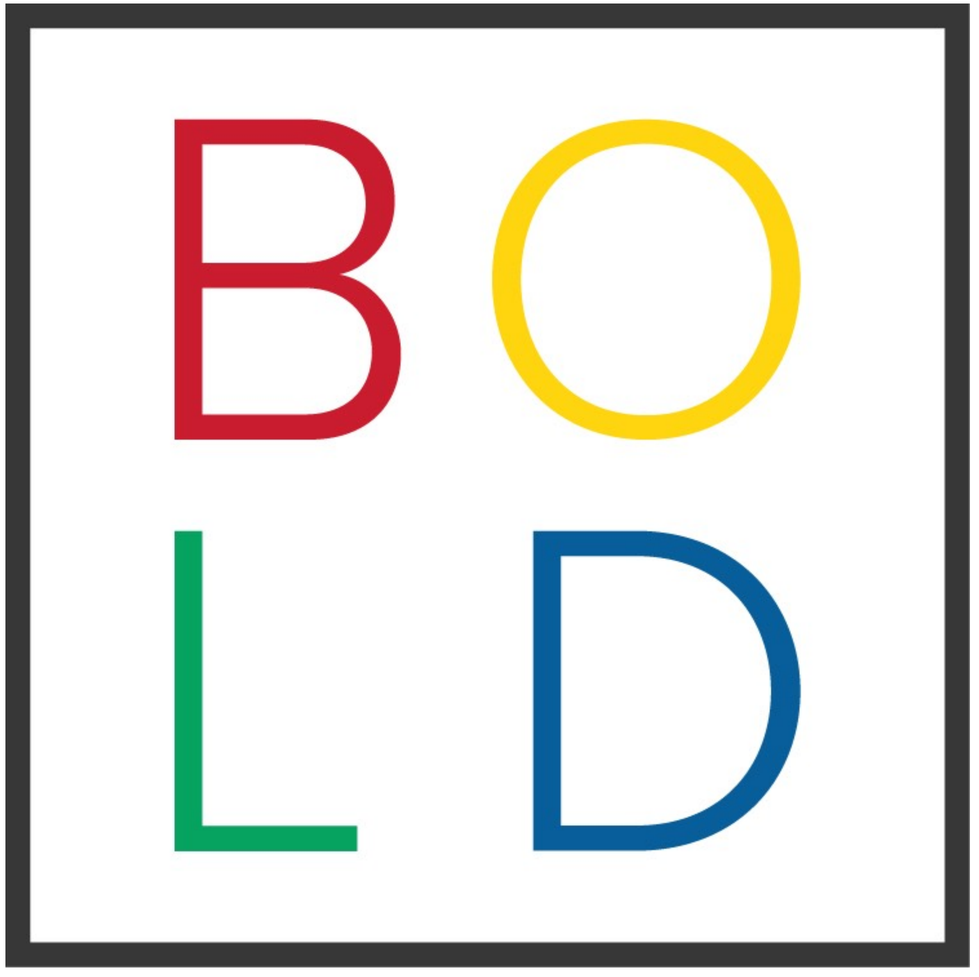
THE PROFESSIONAL GOLFERS' ASSOCIATION OF ITALY
PGA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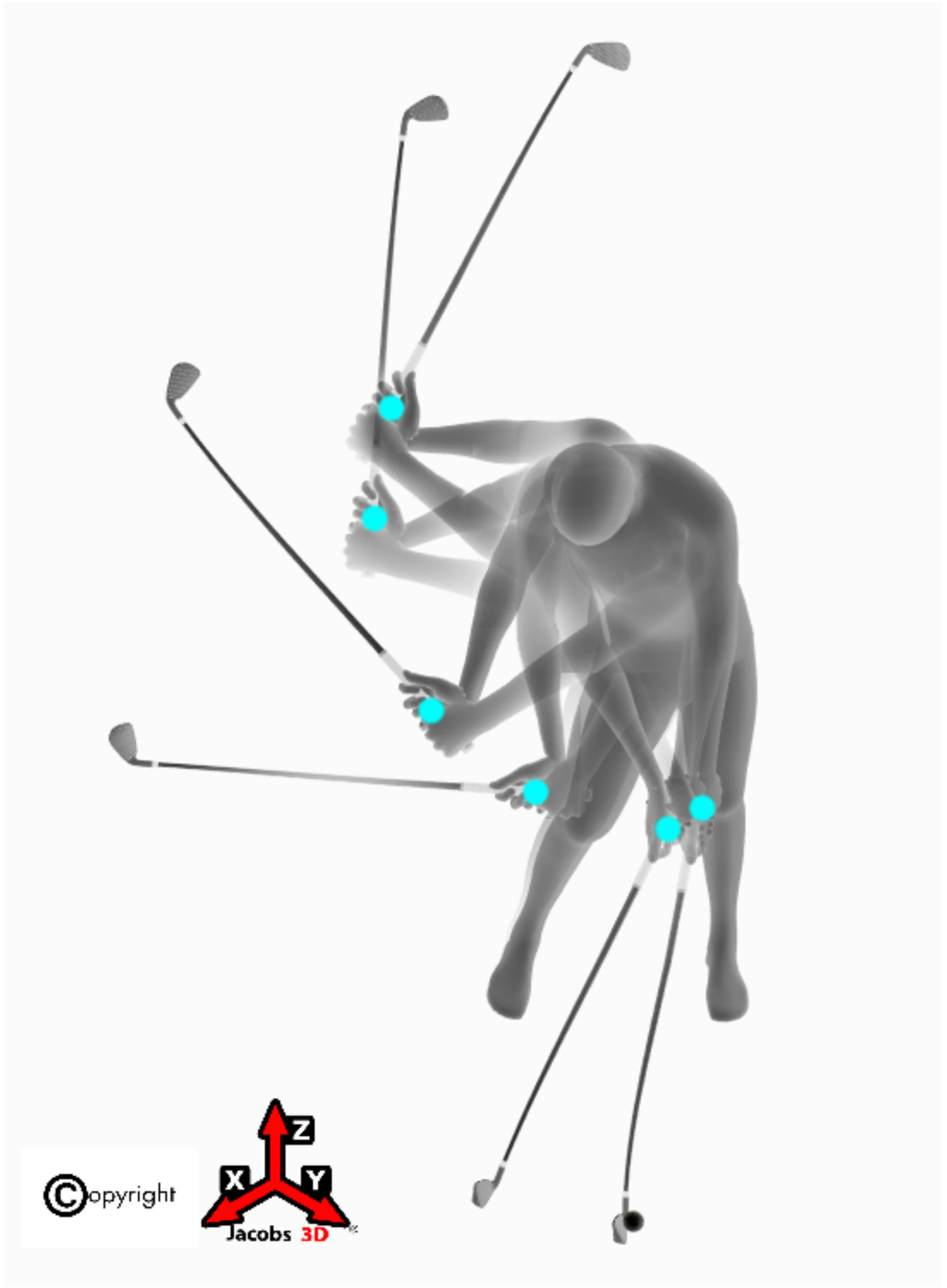
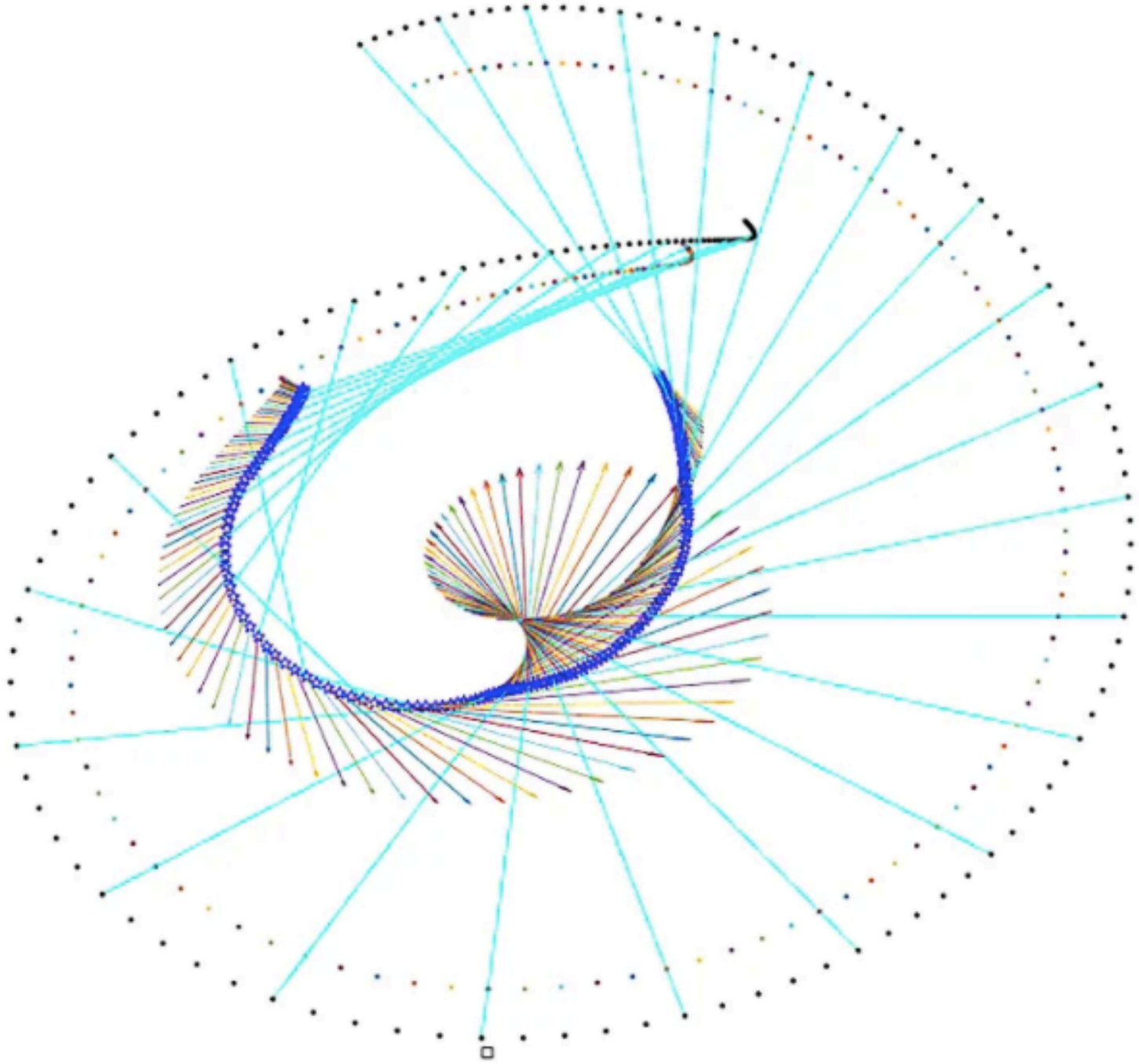
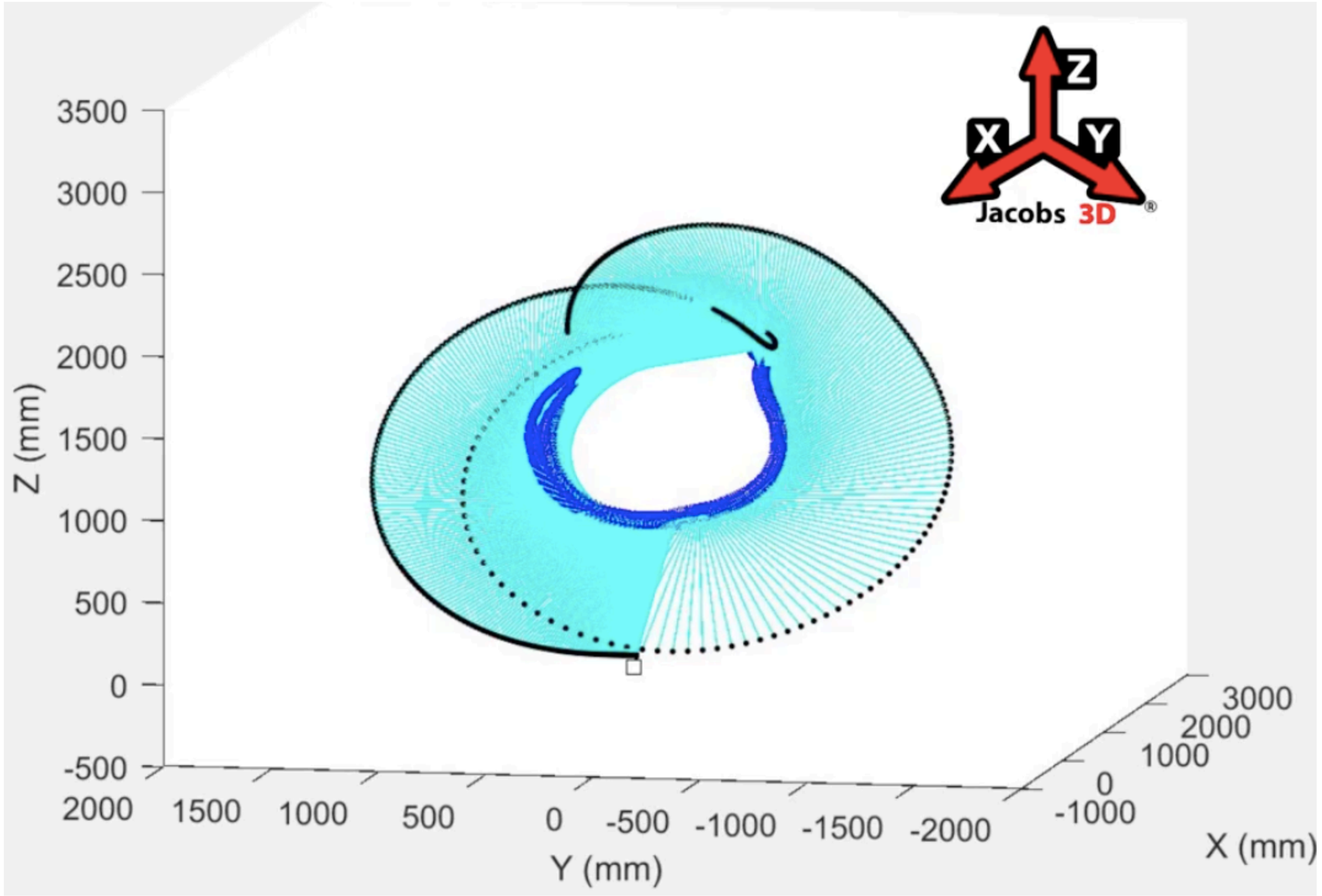


HUB PATH

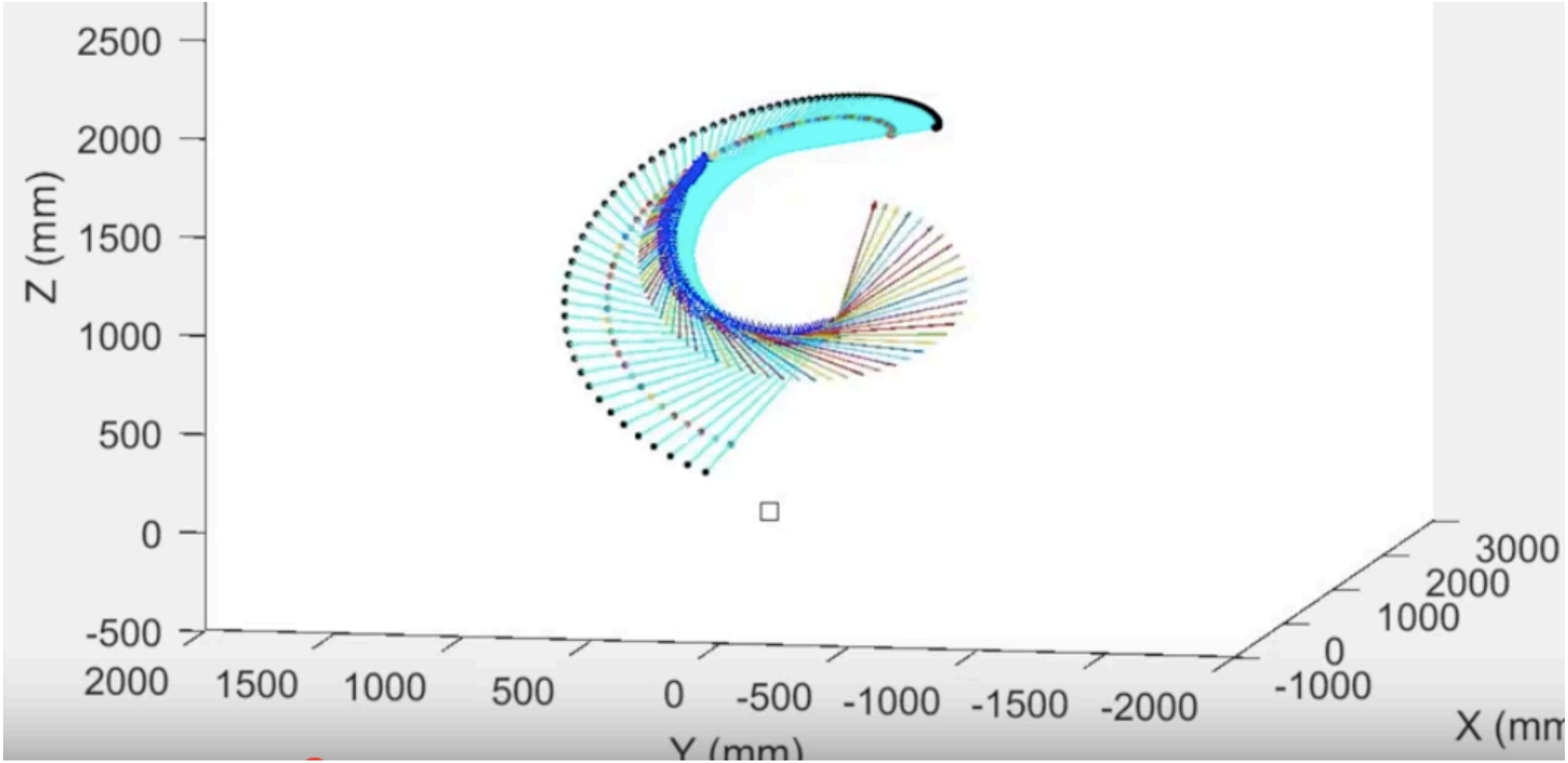


LA TRIDIMENSIONALITÀ DELLO SWING

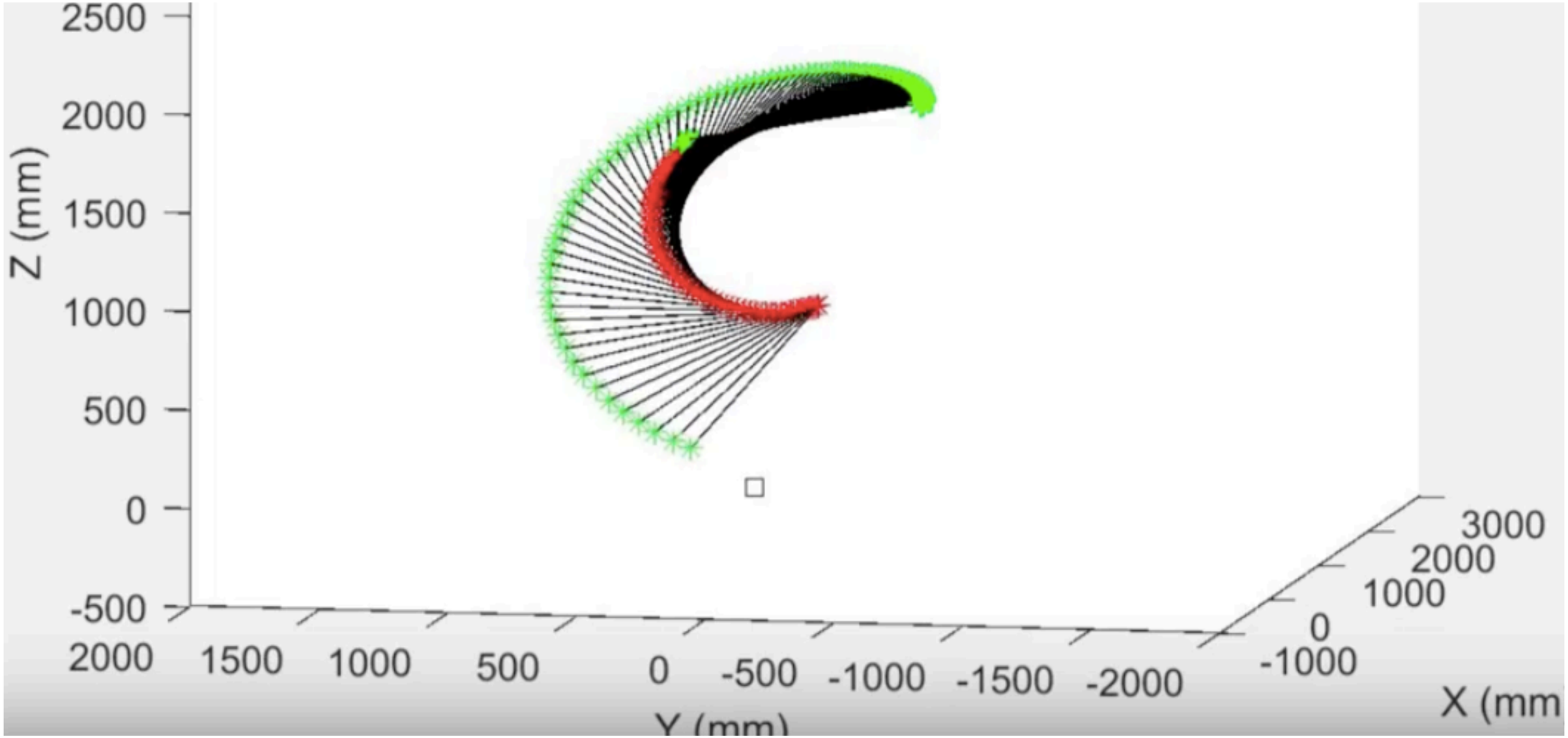

Z
X
Y
Jacobs 3D
3500
3000
2500
2000
1500
1000
500
0
-500
Z (mm)
2000
1500
1000
500
0
-500
-1000
-1500
-2000
Y (mm)
3000
2000
1000
0
-1000
X (mm)

HUB PATH

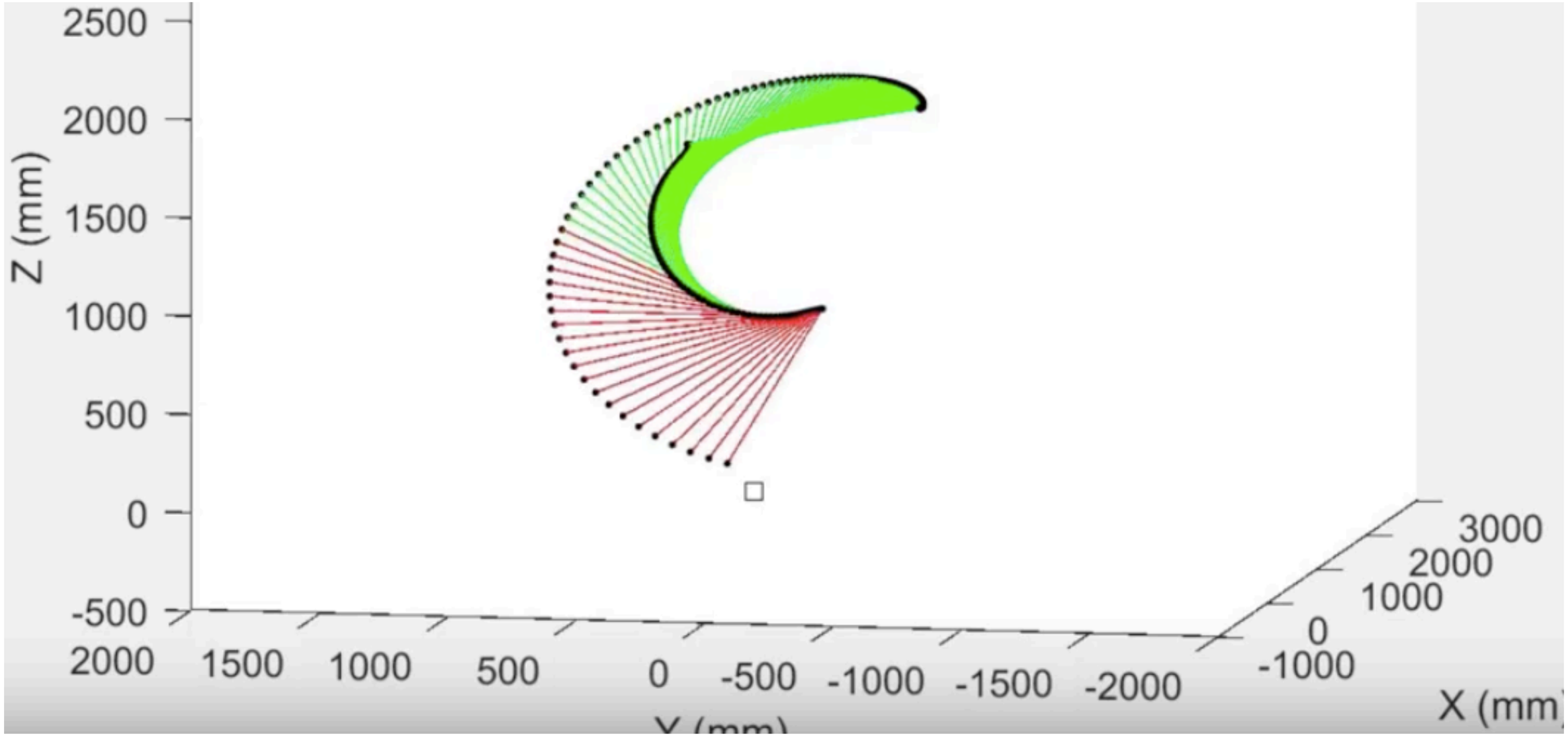
FORZE LINEARI

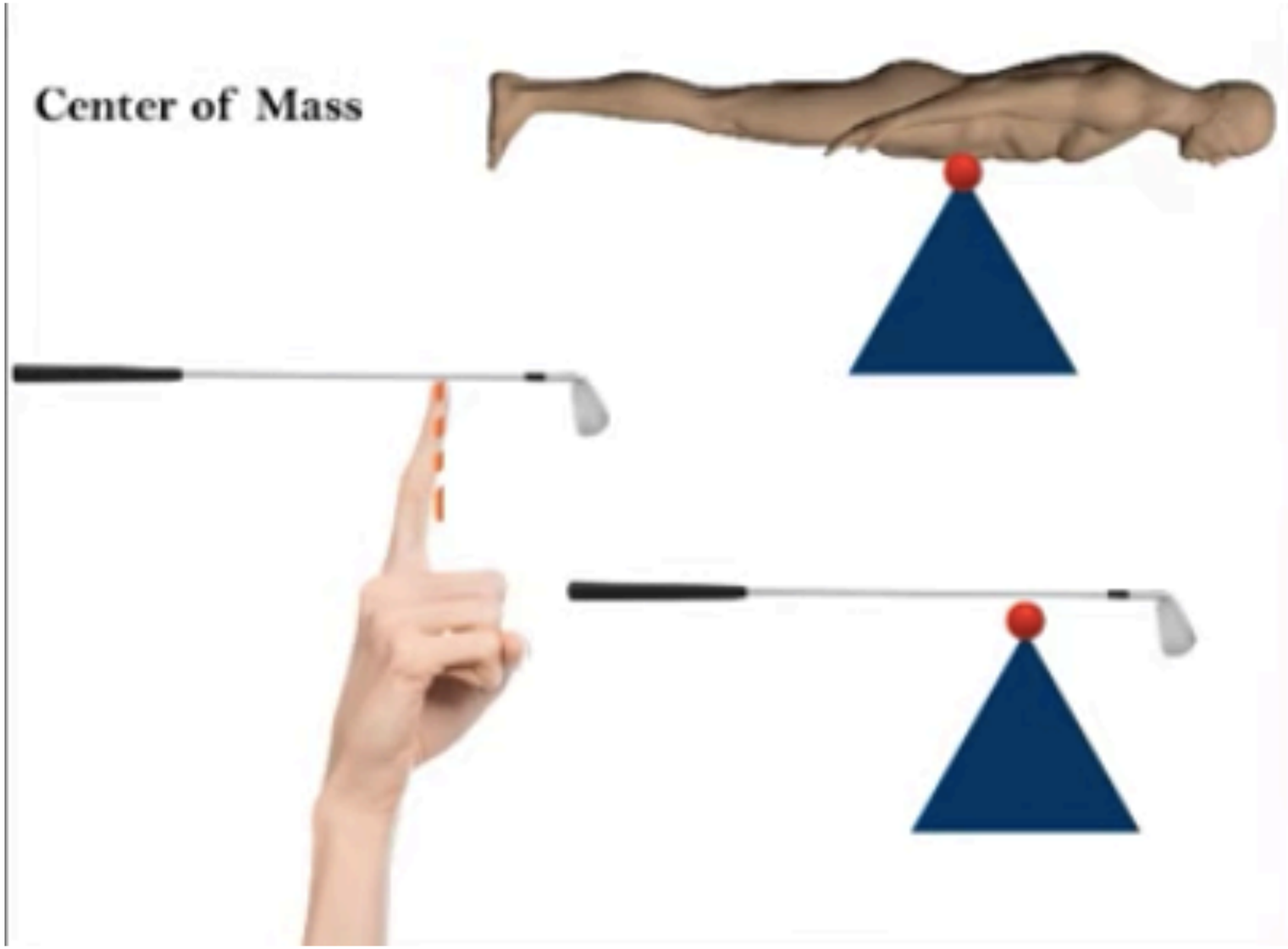


SPOSTAMENTO HUB

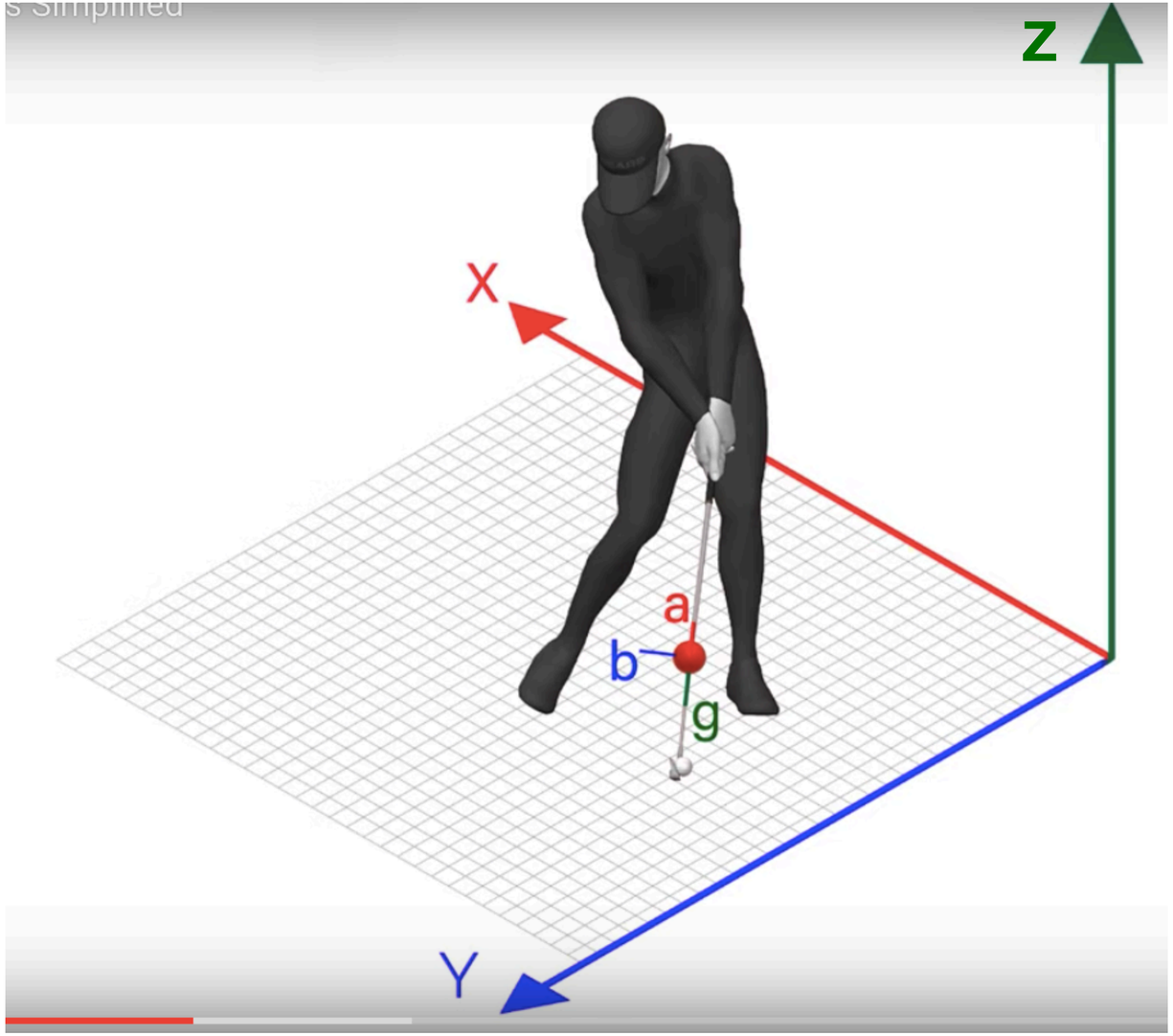


ENERGIA TRASFERITA

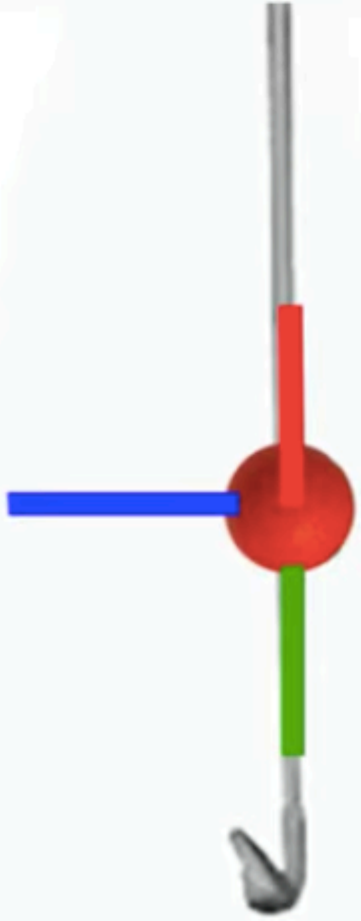




IL COM DEL BASTONE



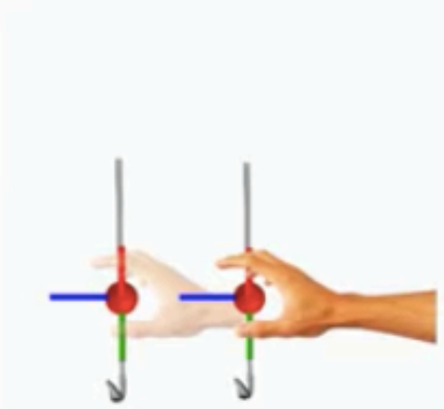
IL COM DEL BASTONE SI MUOVE SUI 3 ASSI



Alpha

Beta

Gamma

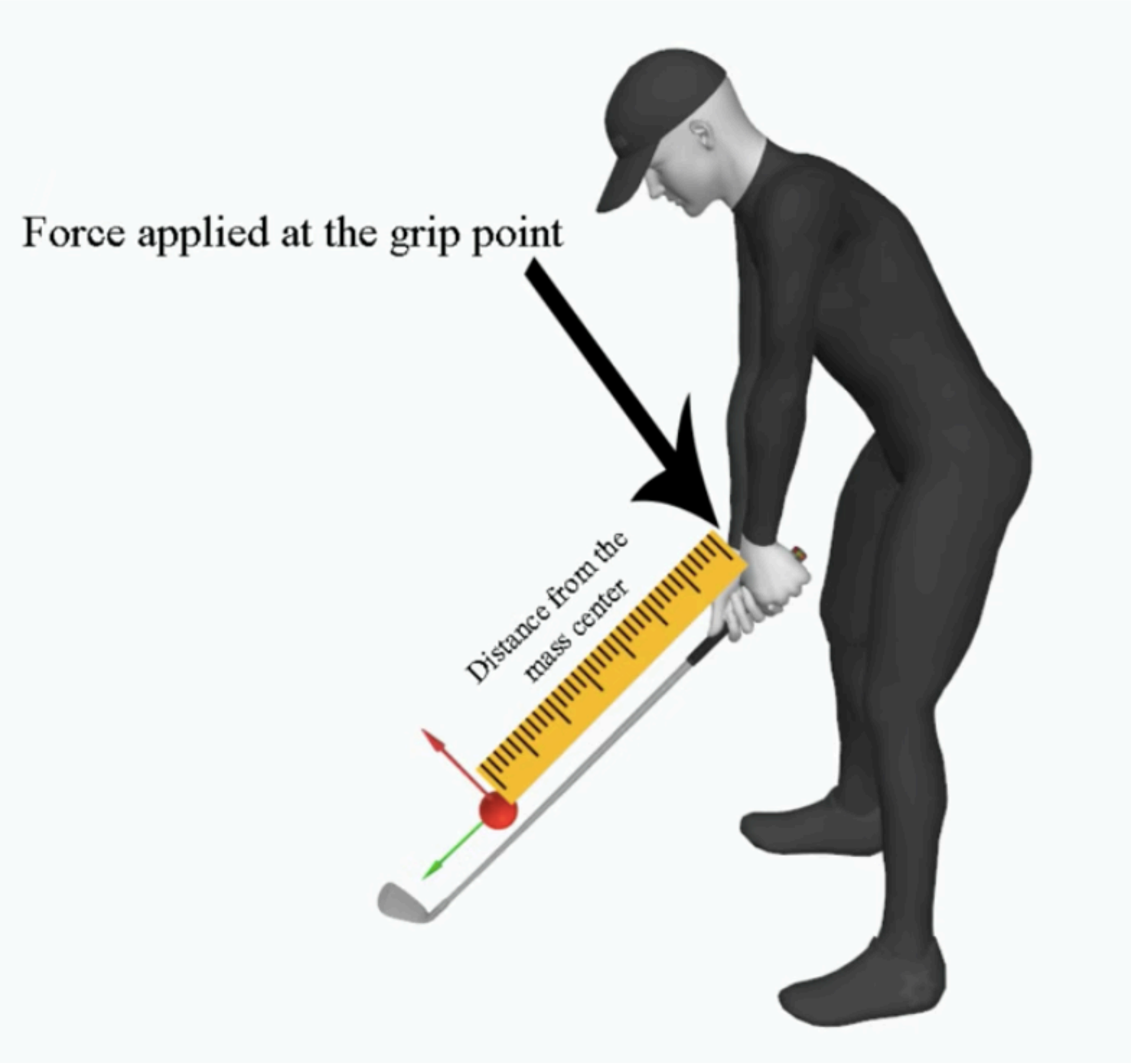


Creating A Torque (Moment)

$T = F \times MA$

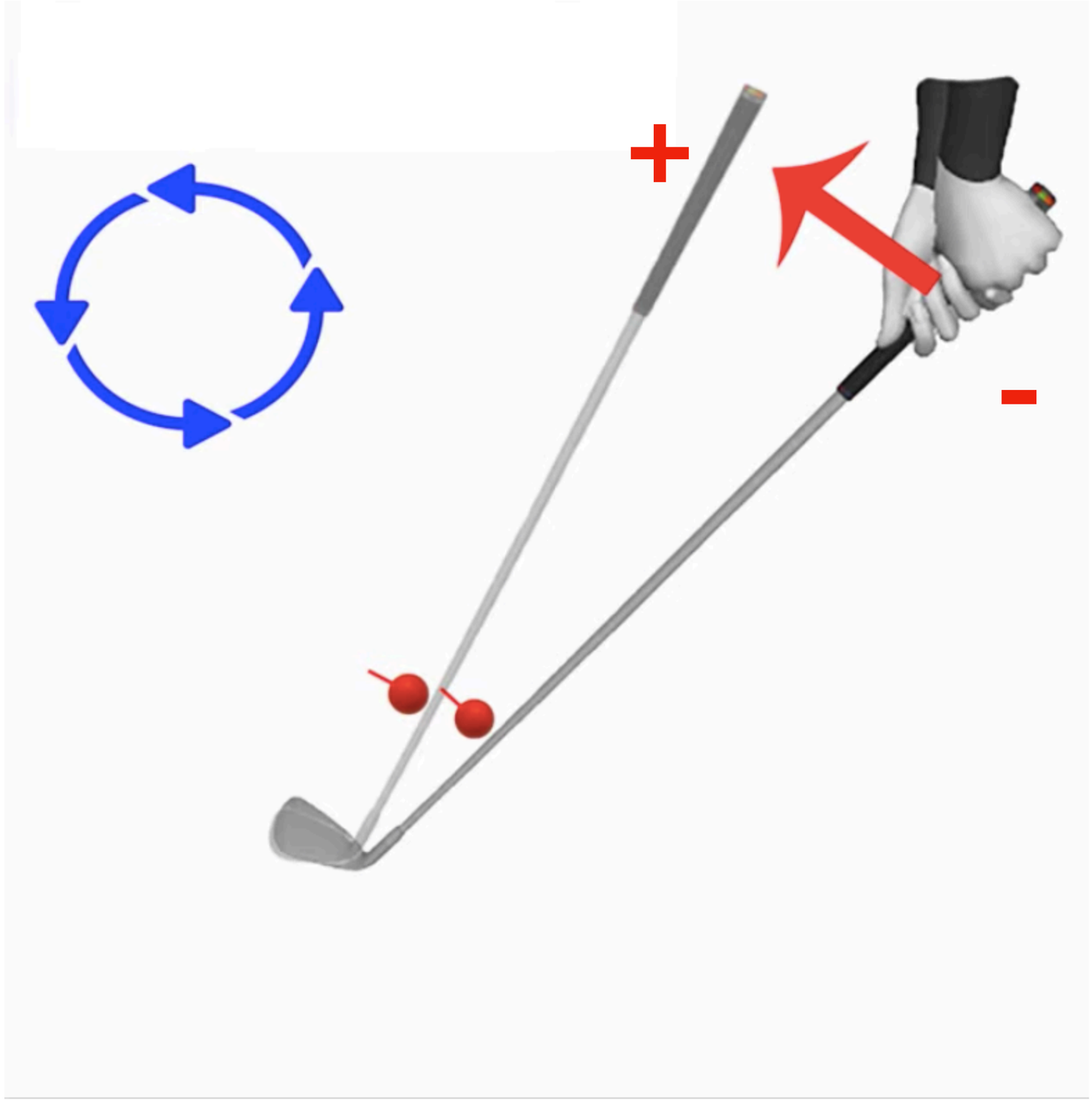
Force

Moment Arm (distance)



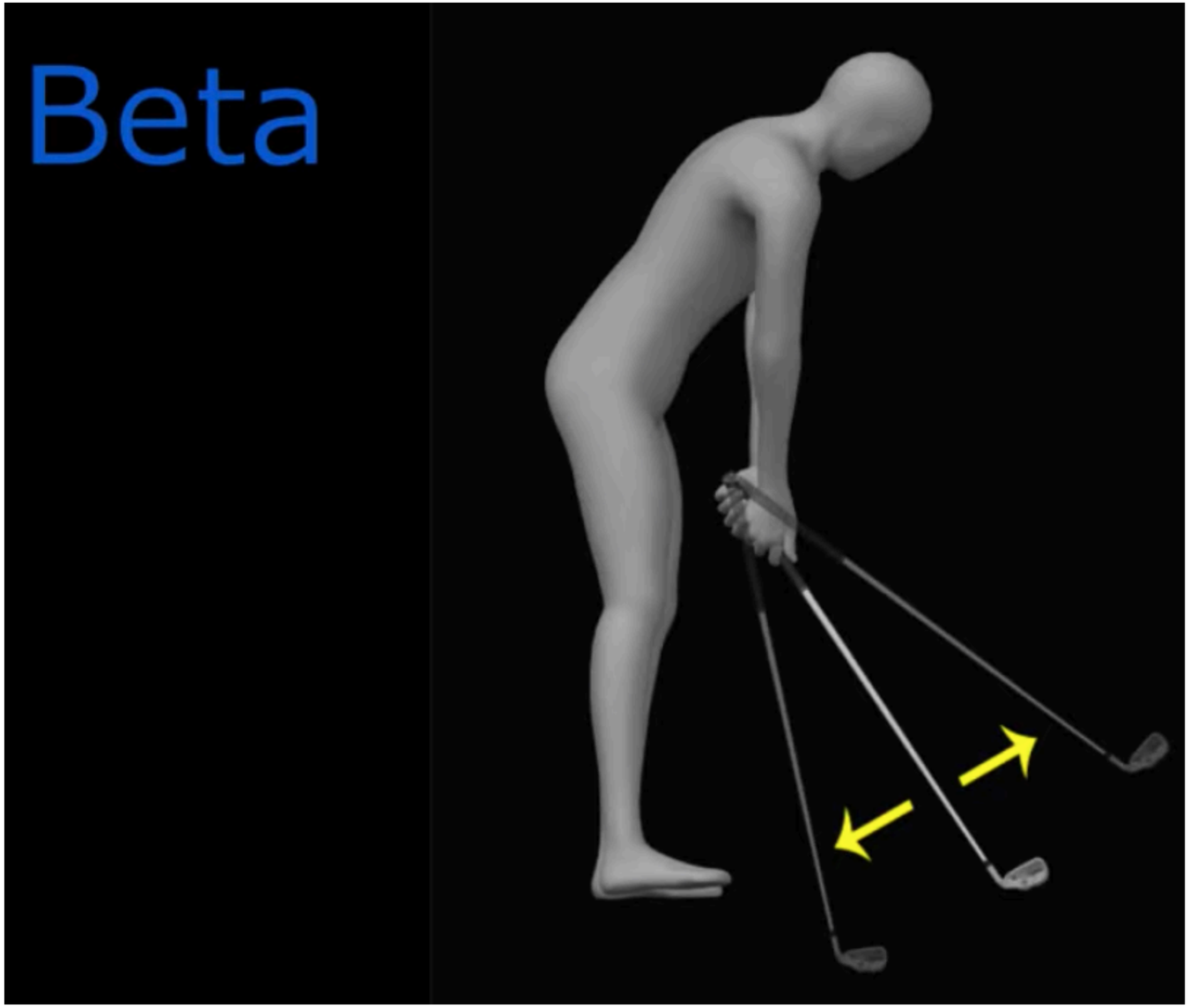
ALPHA FORCE

- **ALPHA FORCE APPLICATA SUL COM**
- **ALPHA FORCE APPLICATA SUL GRIP**



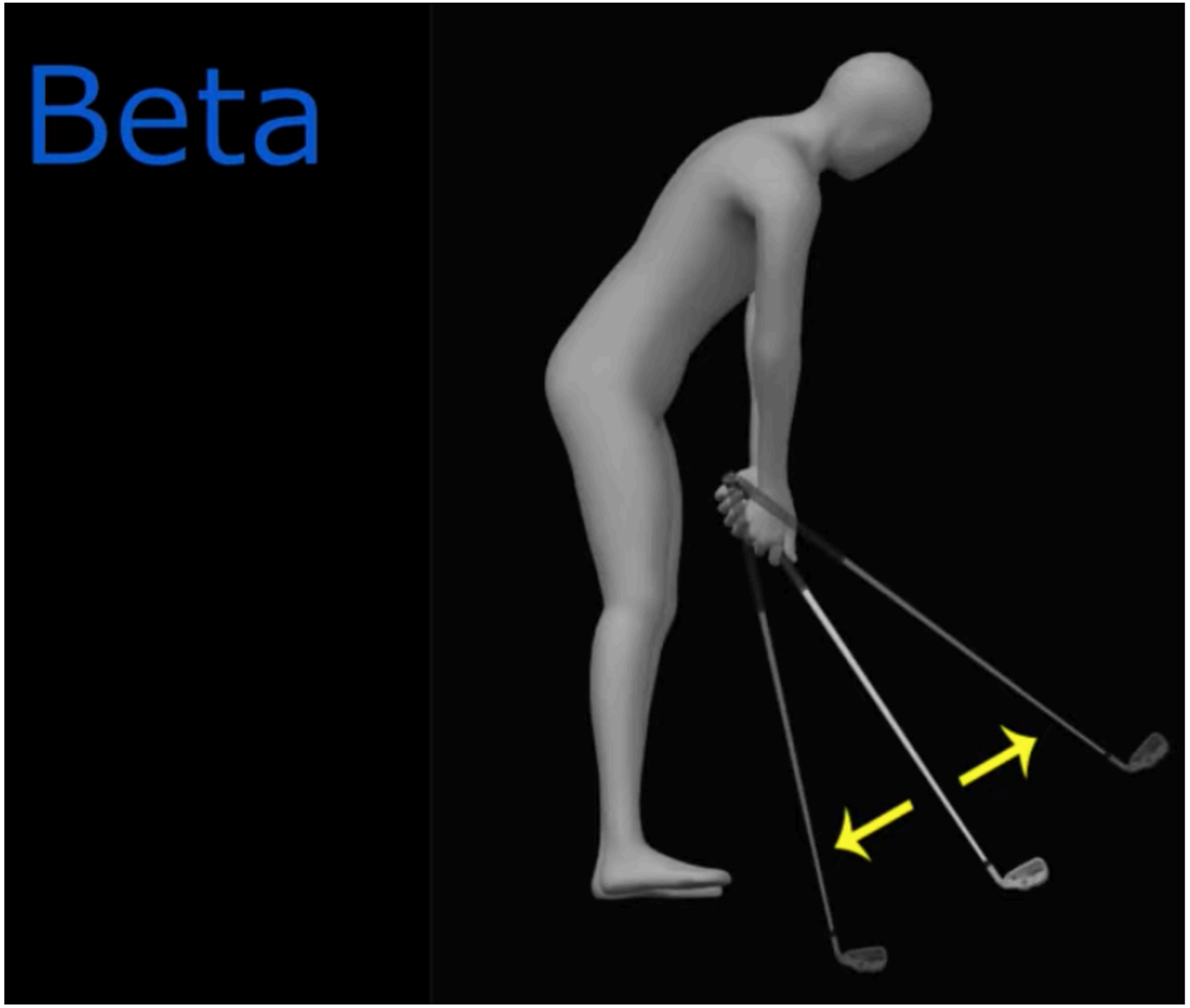
ALPHA FORCE

- **SE APPLICO ALPHA FORCE SUL GRIP GENERO UNO SPOSTAMENTO DEL COM**
- **AVREMO DUE DIREZIONI POSSIBILI**
  - **POSITIVO VERSO L'ALTO**
  - **NEGATIVO VERSO IL BASSO**



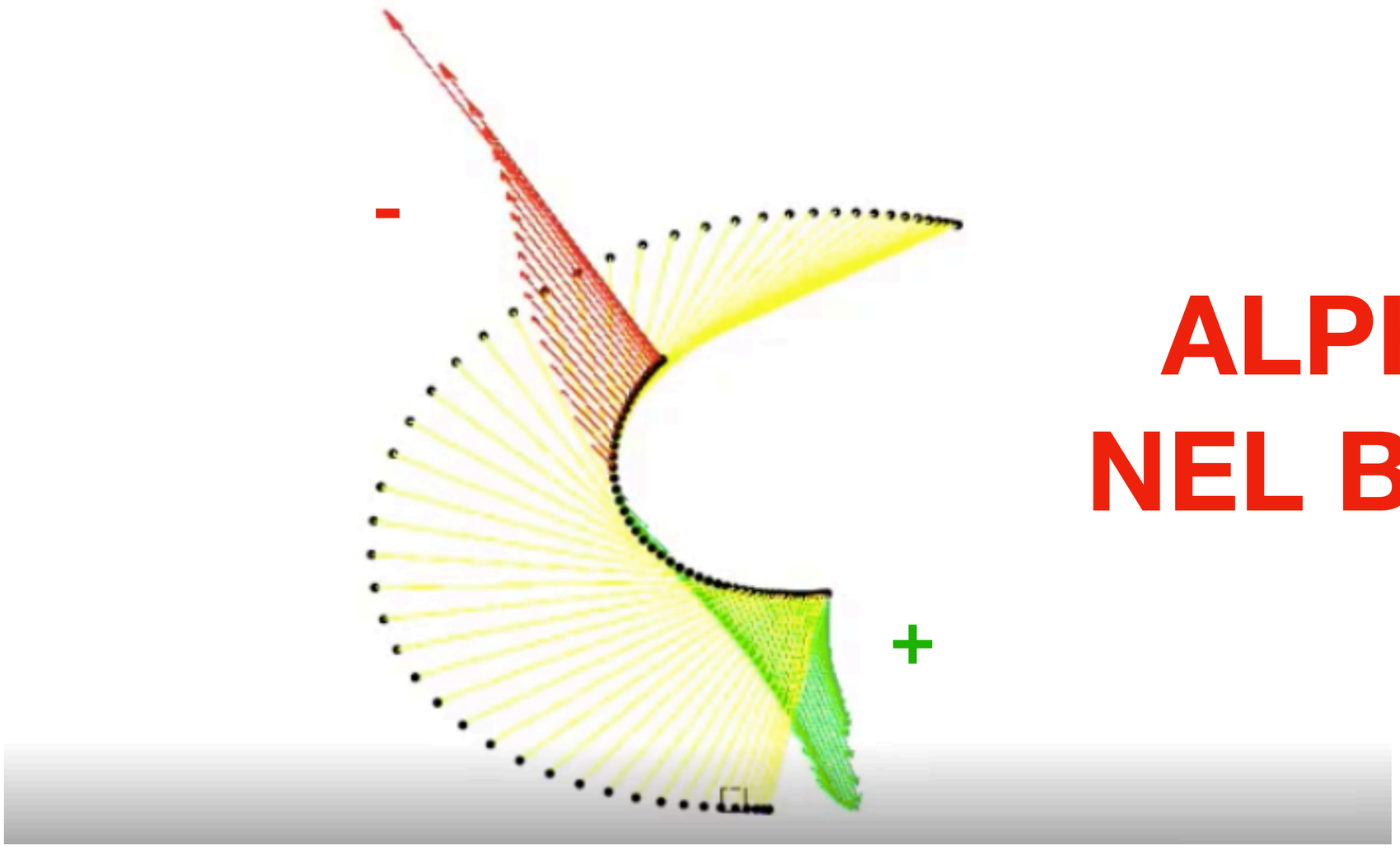
BETA TORQUE

- SE APPLICO ALPHA FORCE SUL GRIP GENERO UNA ROTAZIONE DEL COM
- ROTAZIONE ASSE BETA
- SEGNO = ALLA FORZA

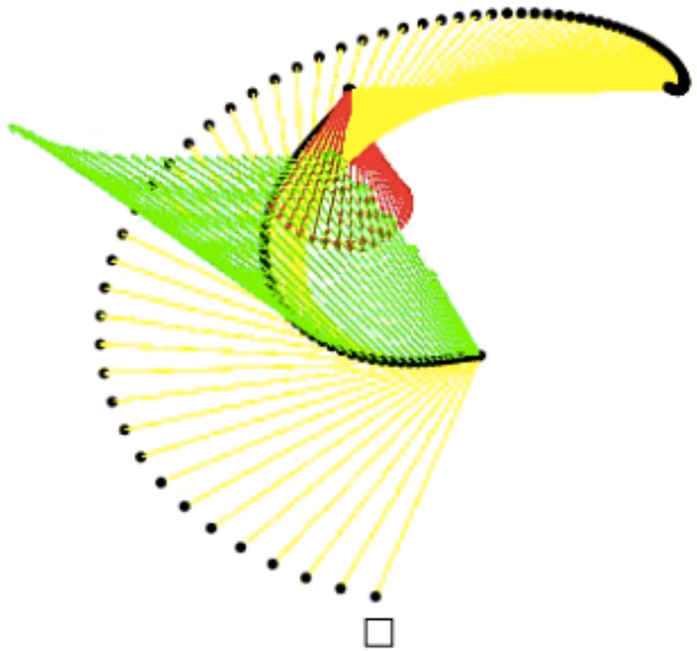


BETA TORQUE RESPONSE

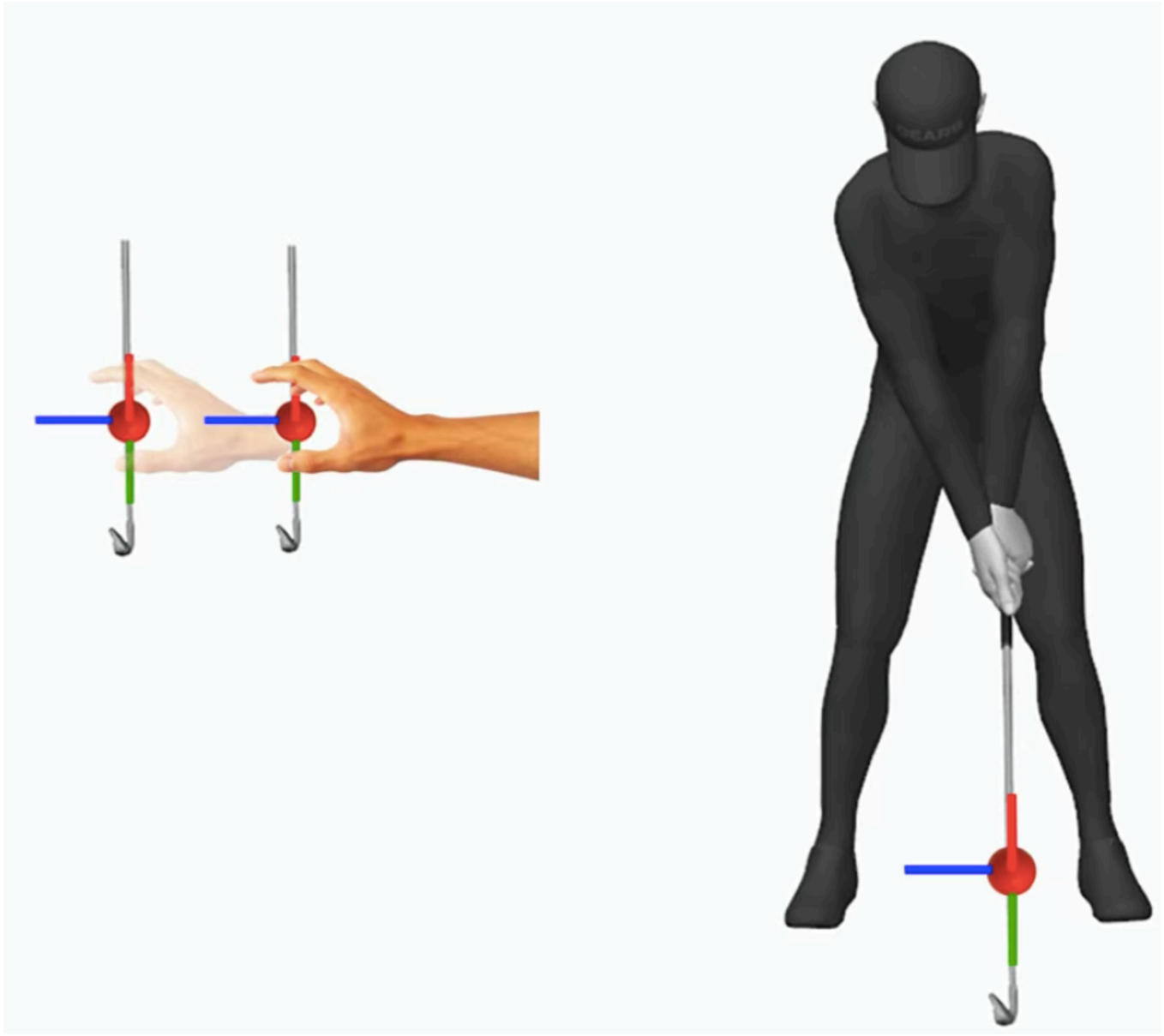
- SE APPLICO ALPHA FORCE SUL GRIP GENERO UNA CONTRO TORQUE DEL COM
- SEGNO OPPOSTO RISPETTO ALLA FORZA
- PERMETTE DI STABILIZZARE IL BASTONE



ALPHA FORCE
NEL BACKSWING



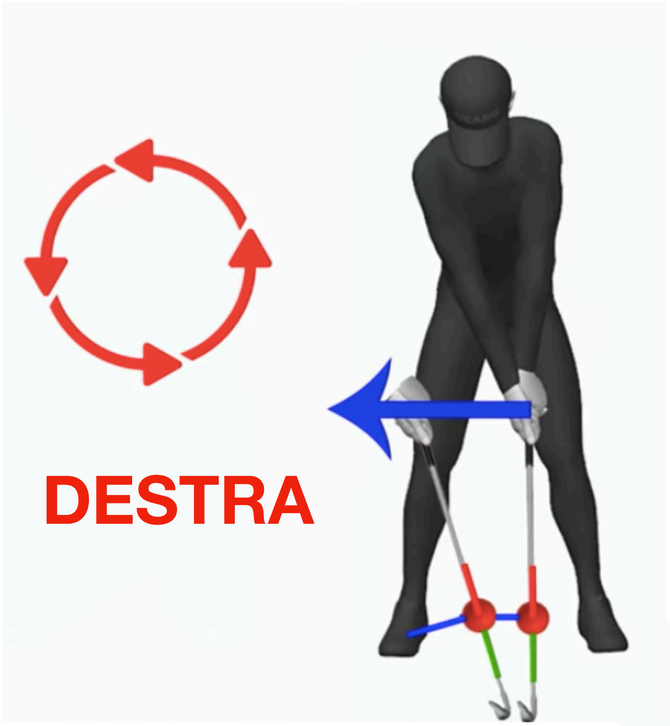
ALPHA FORCE
NEL DOWNSWING

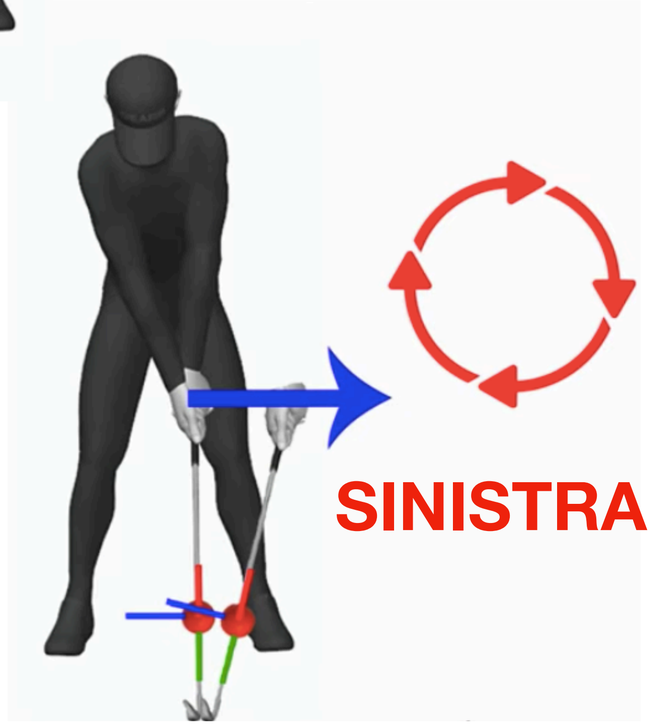


BETA FORCE

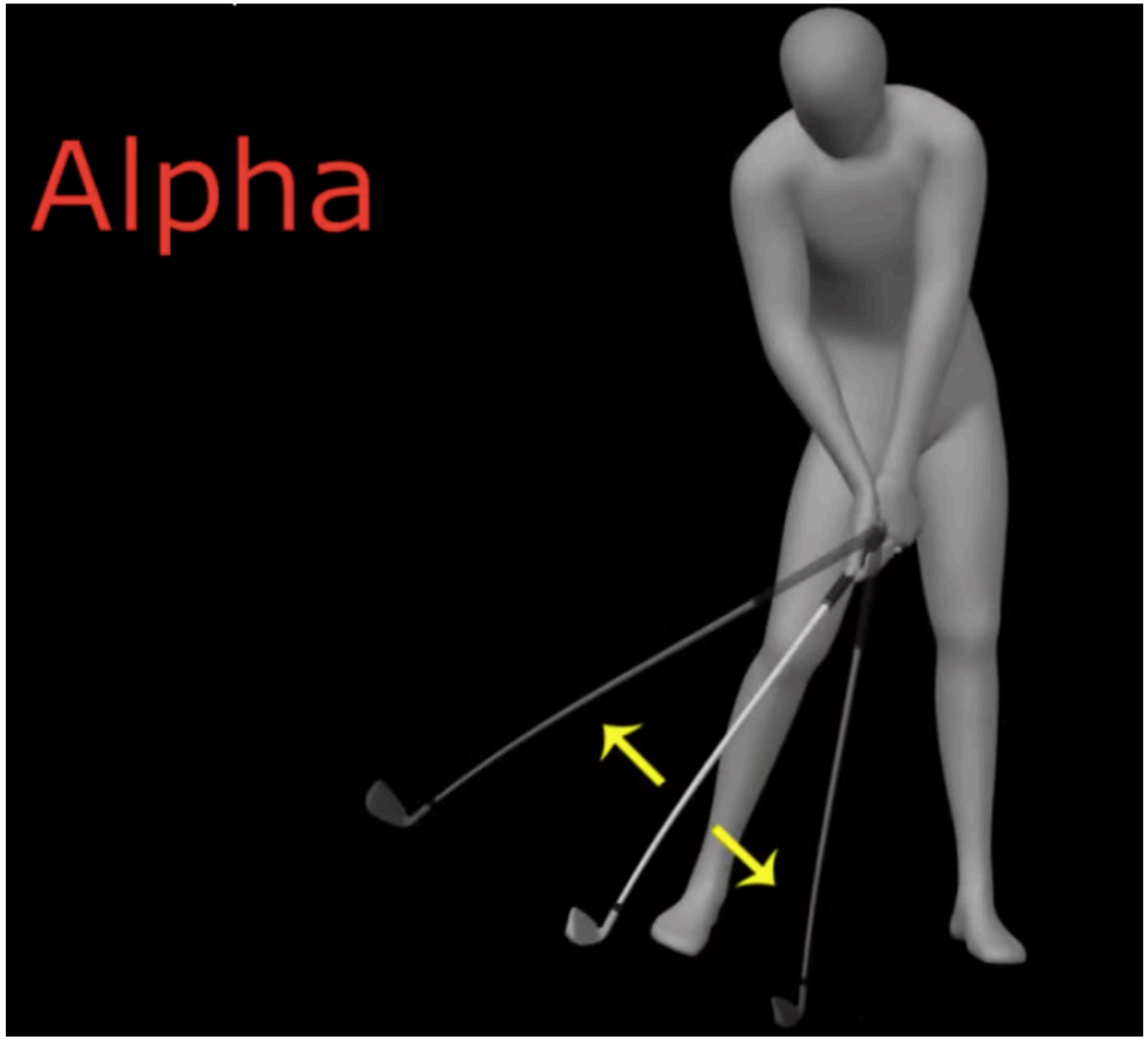
- **BETA FORCE APPLICATA SUL COM**
- **BETA FORCE APPLICATA SUL GRIP**

BETA FORCE



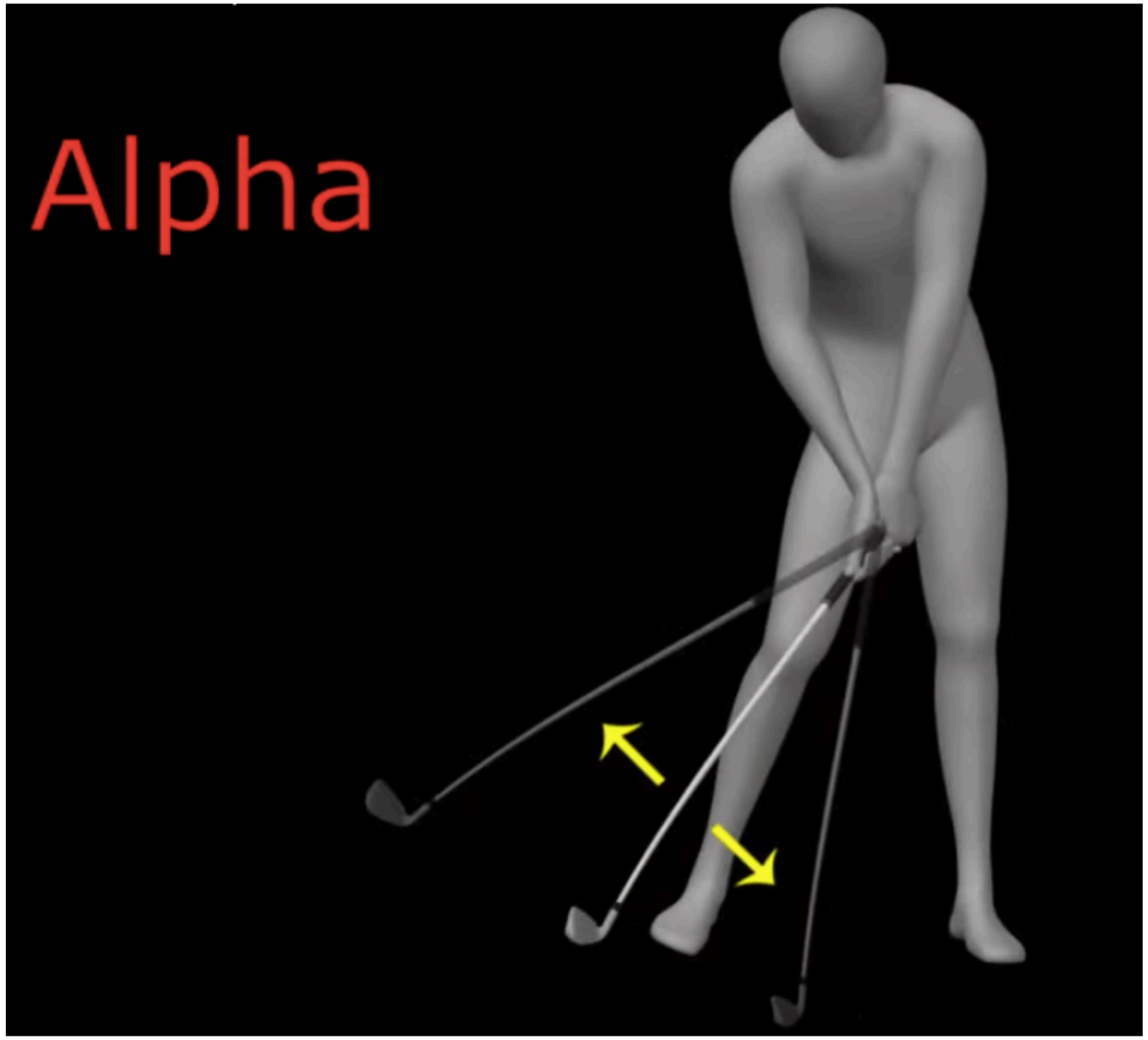


- SE APPLICO BETA FORCE SUL GRIP GENERO UNO SPOSTAMENTO DEL COM
- AVREMO DUE DIREZIONI POSSIBILI
  - POSITIVO VERSO DESTRA
  - NEGATIVO VERSO IL SINISTRA



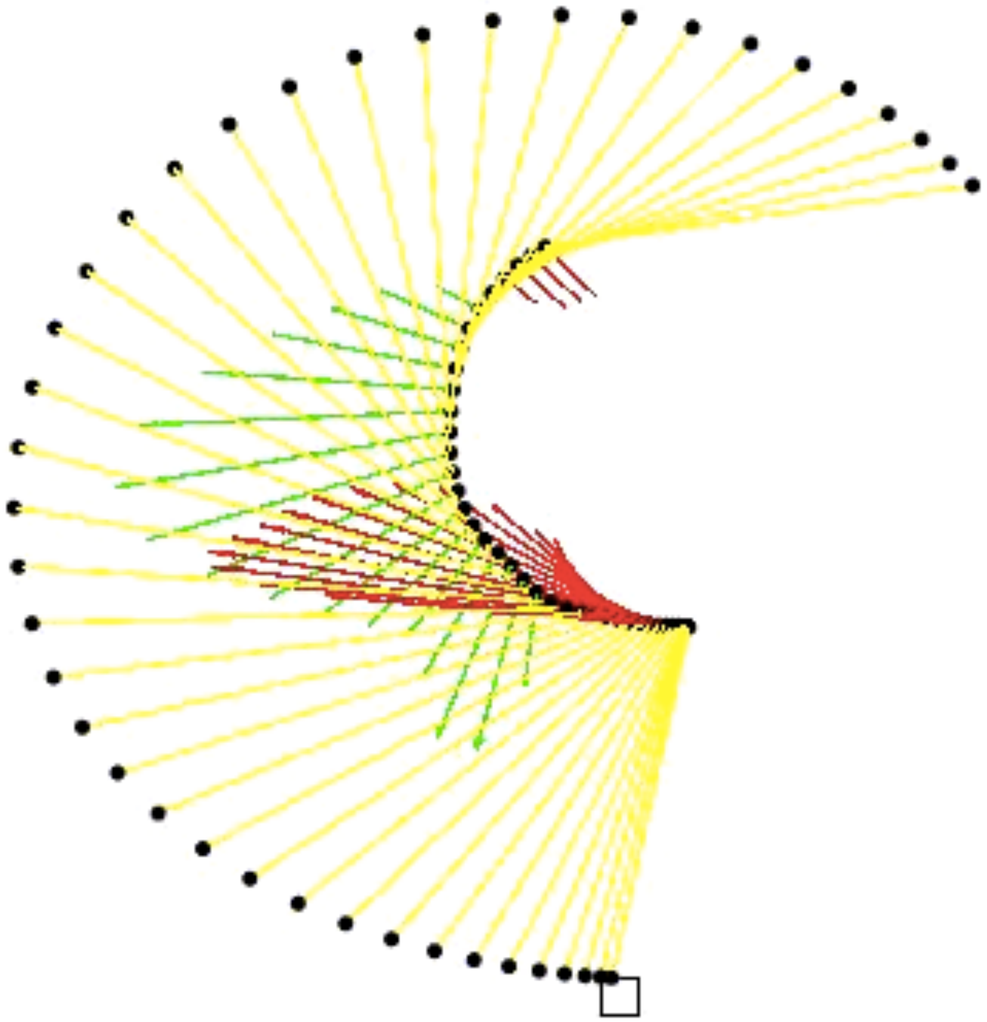
ALPHA TORQUE

- SE APPLICO BETA FORCE SUL GRIP GENERO UNA ROTAZIONE DEL COM
- ROTAZIONE ASSE ALPHA
- SEGNO = ALLA FORZA

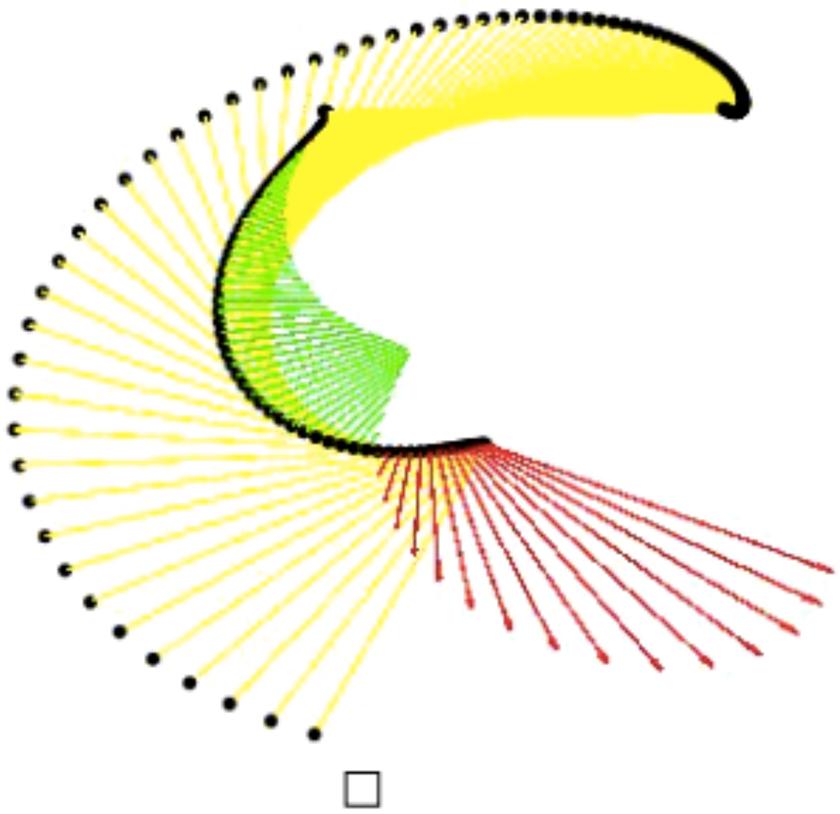


ALPHA TORQUE RESPONSE

- SE APPLICO BETA FORCE SUL GRIP GENERO UNA CONTRO TORQUE DEL COM
- SEGNO OPPOSTO RISPETTO ALLA FORZA
- PERMETTE DI STABILIZZARE IL BASTONE

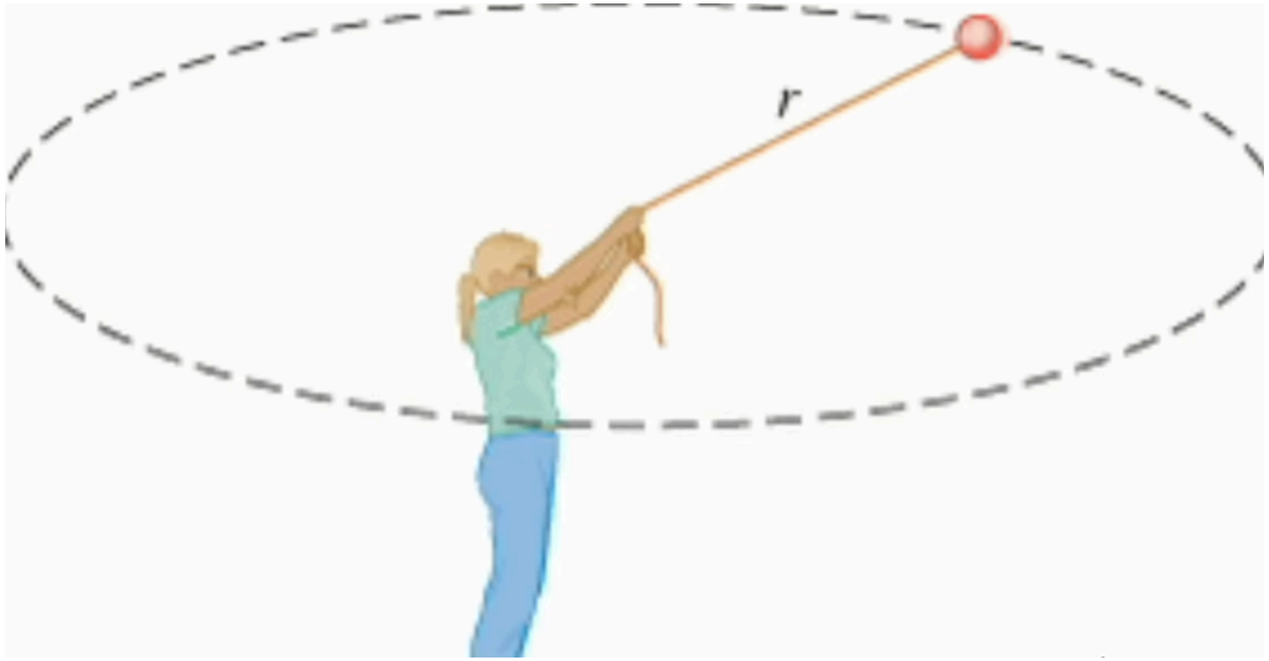


BETA FORCE NEL BACKSWING

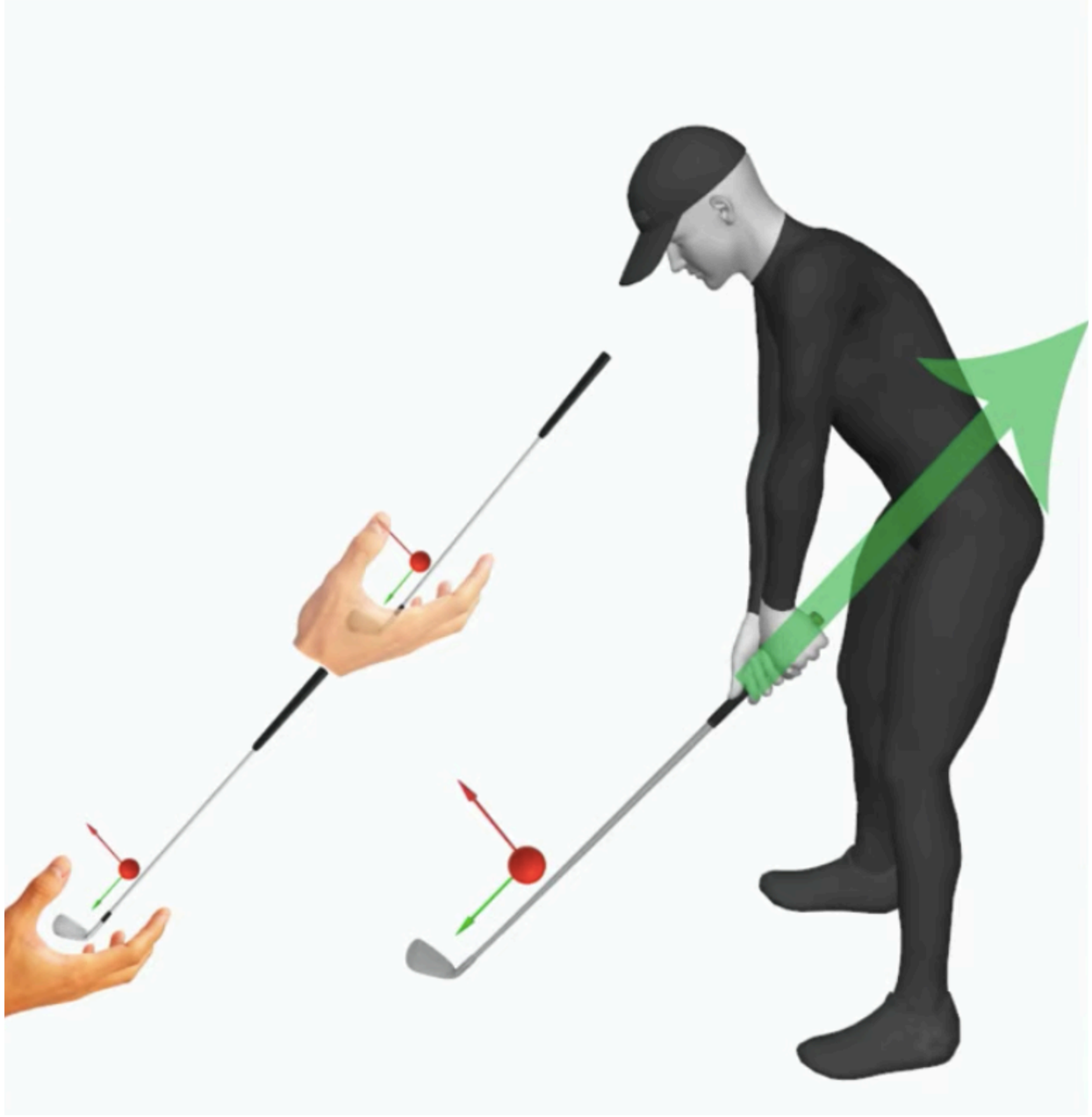


BETA FORCE NEL DOWNSWING, TIPICO ERRORE

GAMMA FORCE



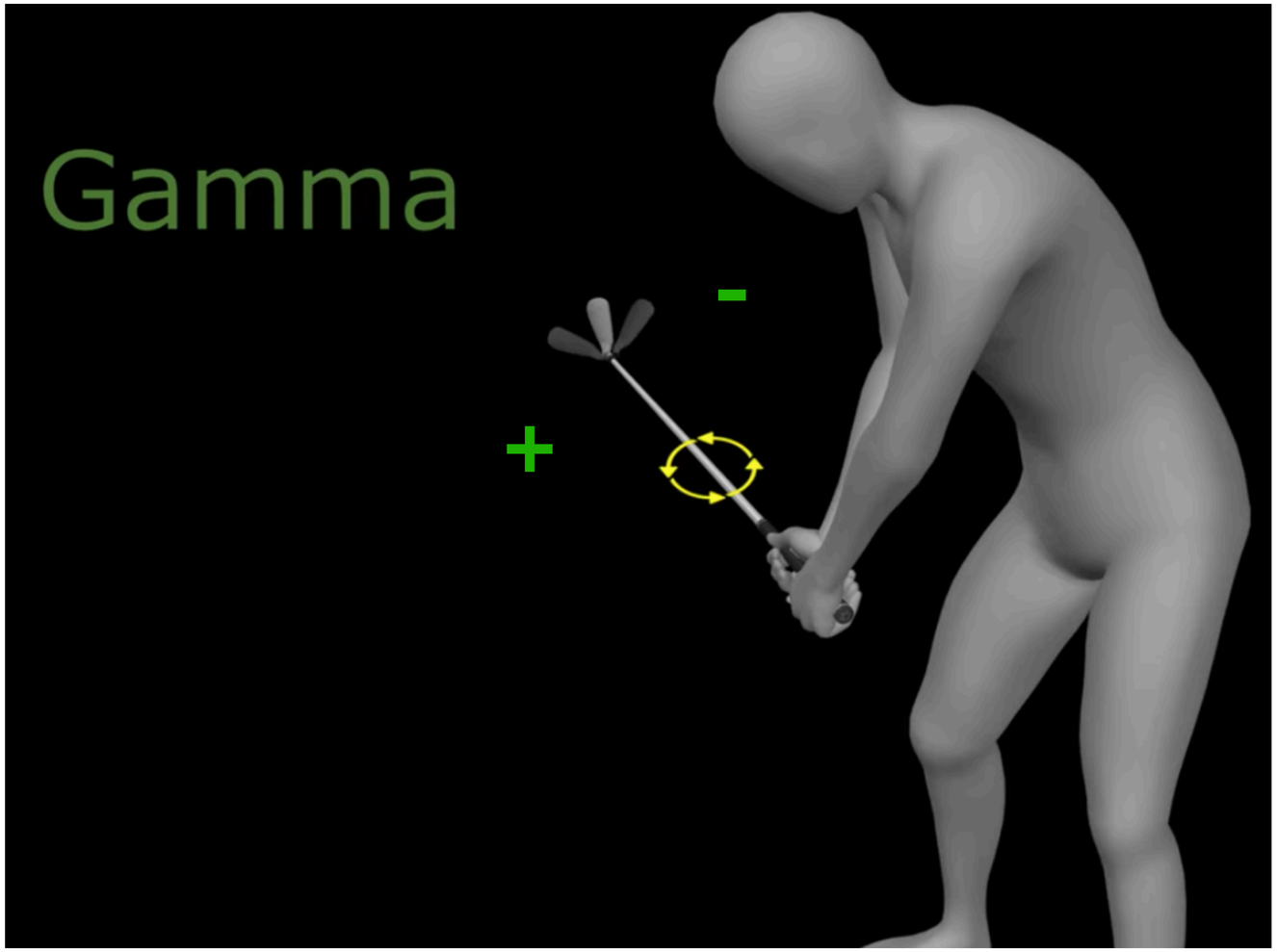
- **PUÒ ESSERE COMPARATA ALLA FORZA CENTRIPETA**



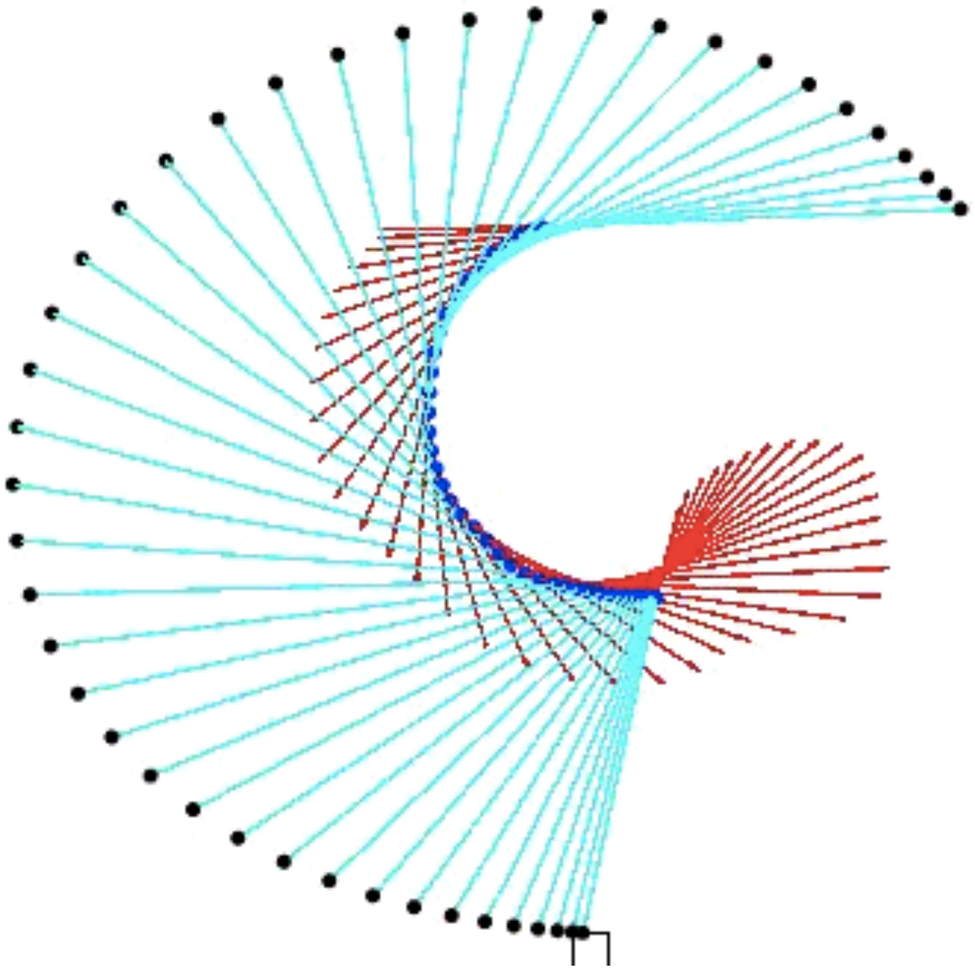
GAMMA FORCE

- **GAMMA FORCE APPLICATA SUL COM**
- **GAMMA FORCE APPLICATA SUL GRIP**

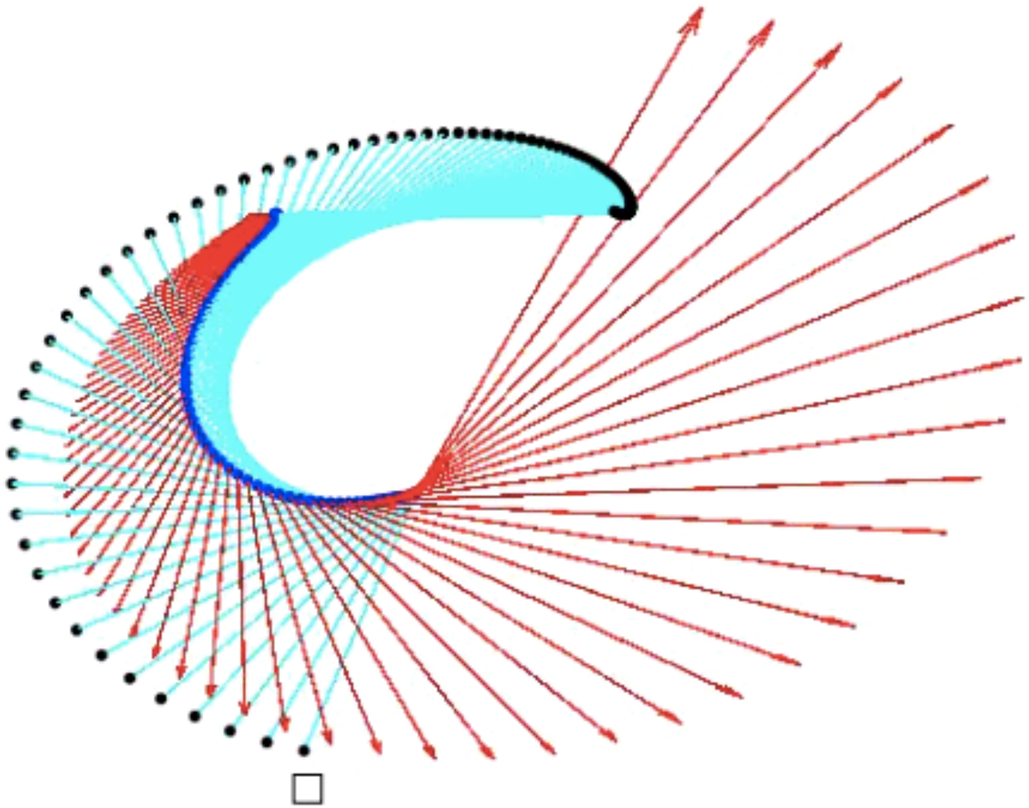
GAMMA TORQUE



- GAMMA FORCE APPLICATA SULL'ASSE GAMMA GENERA TORQUE
- POSITIVO = FACCIA CHIUSA
- NEGATIVO = FACCIA APERTA



GAMMA FORCE
NEL BACKSWING



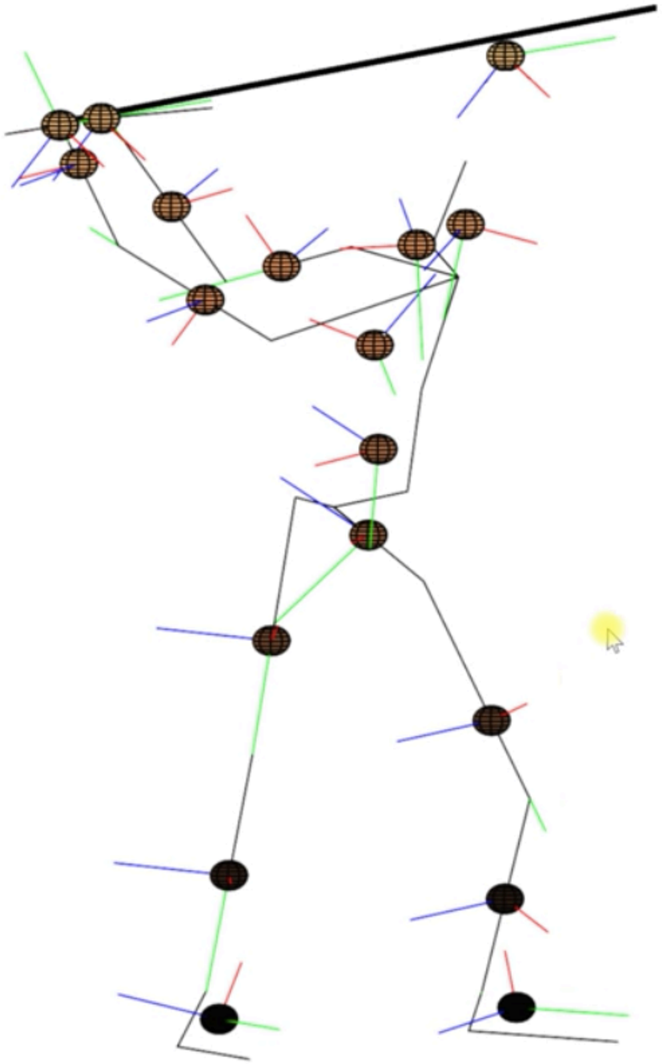
GAMMA FORCE
NEL DOWNSWING

RIASSUMENDO

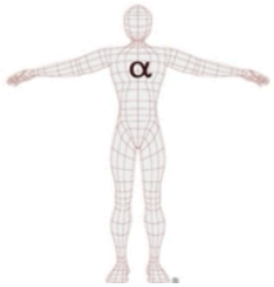
Alpha Force	Linear Response
Beta Force	Angular Response
Gamma Force	
Alpha Torque	Angular Response
Beta Torque	
Gamma Torque	

Jacobs 3D

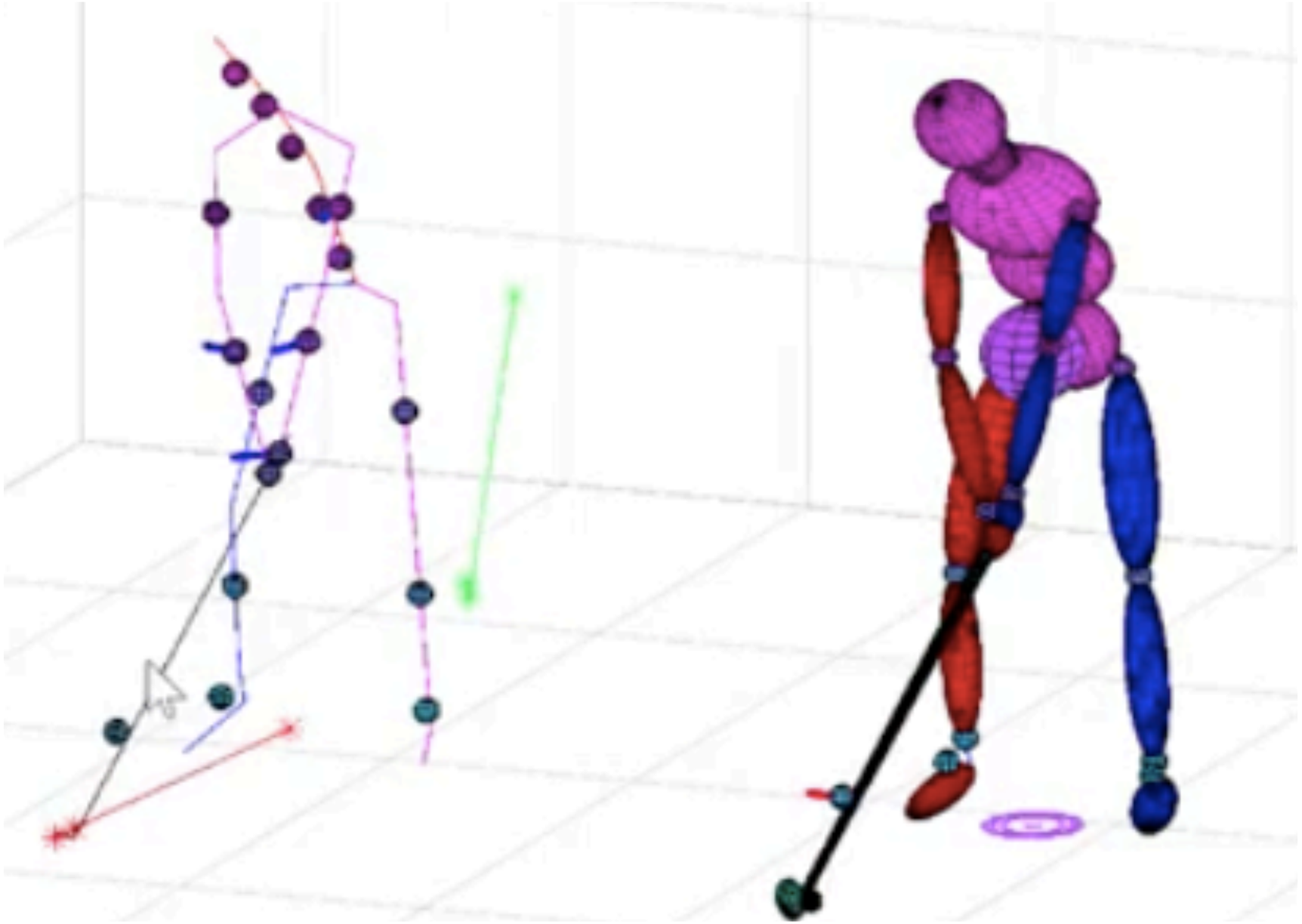
Ending the search for the perfect swing.



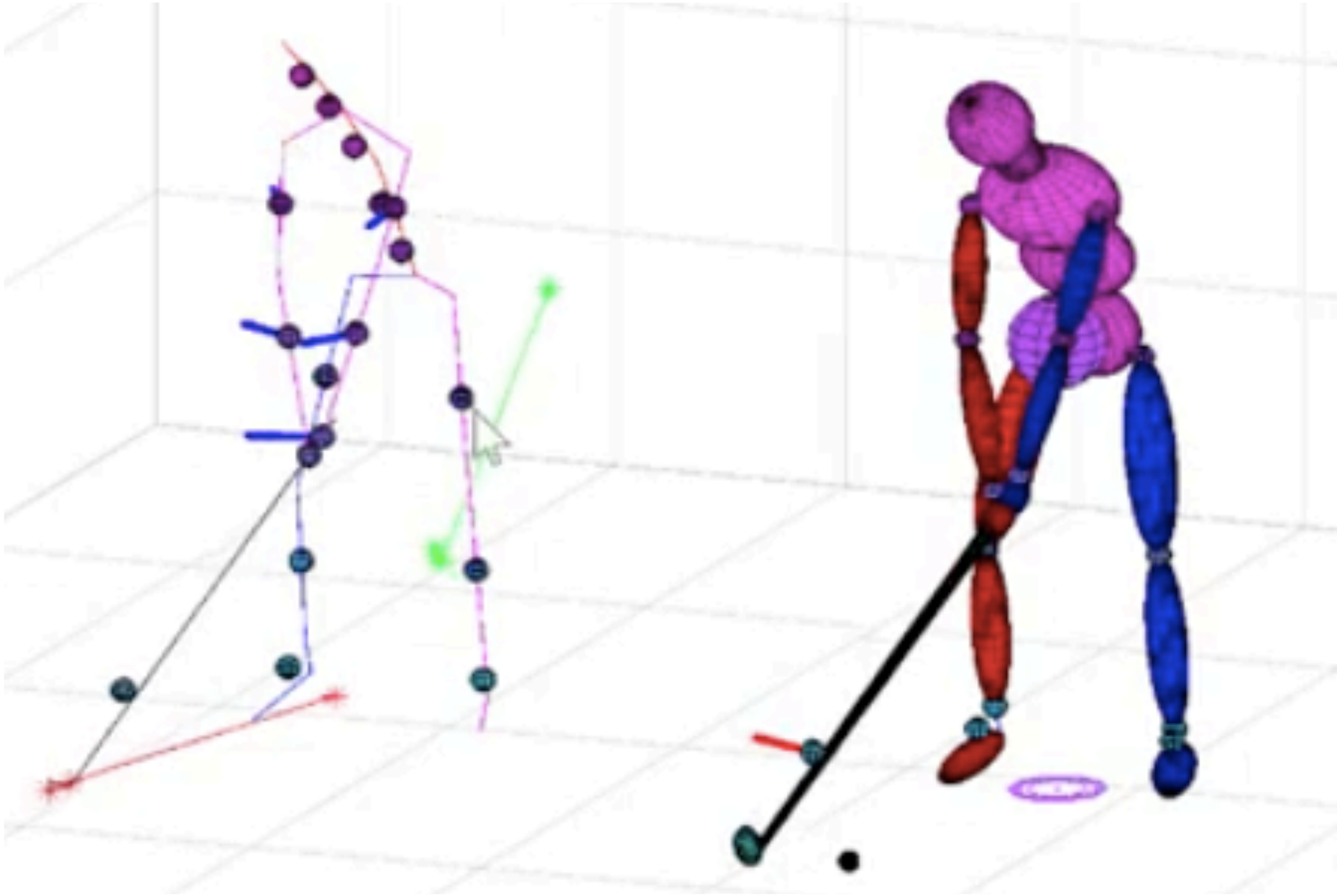
THE ALPHA MAN



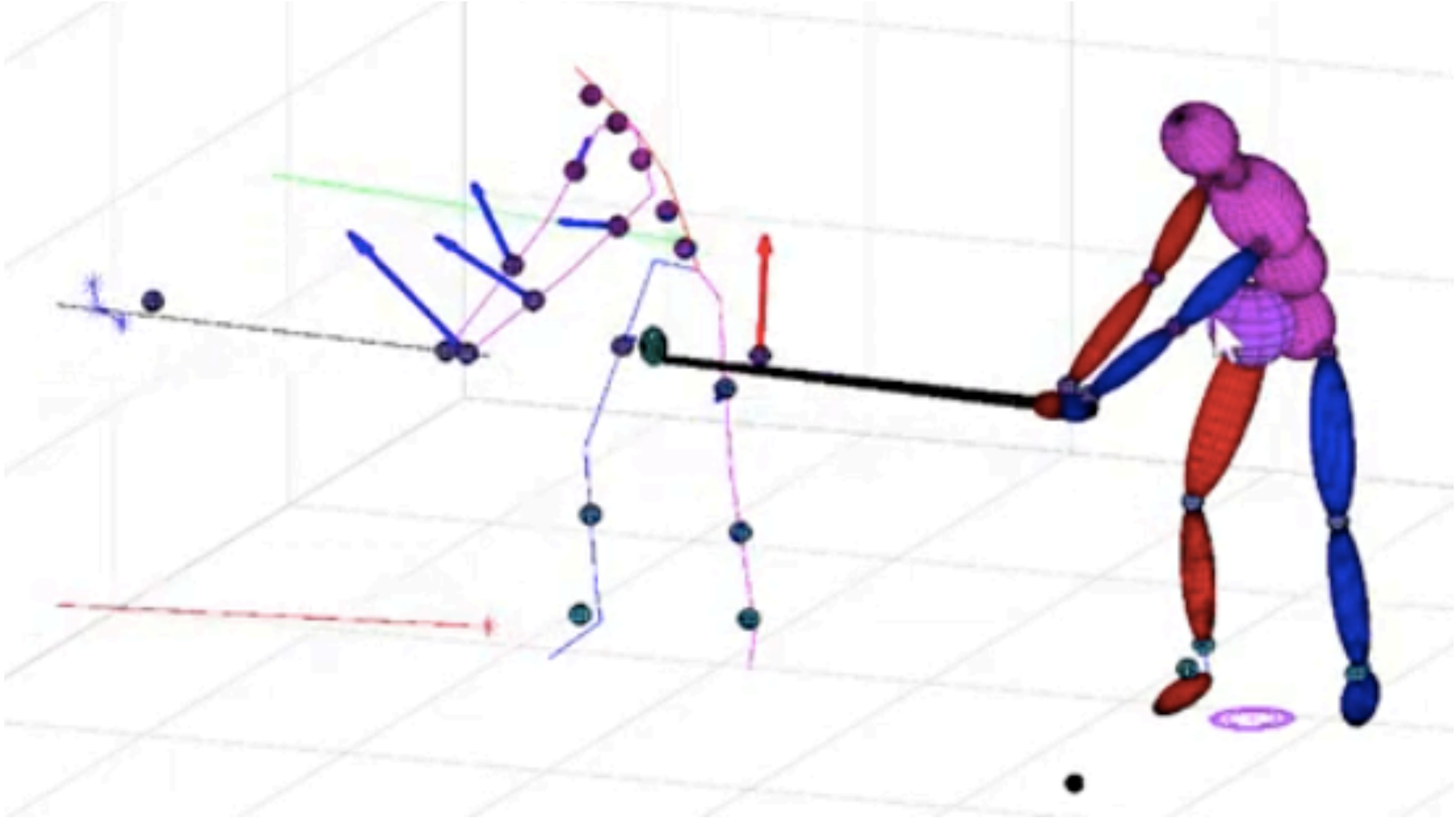
SET UP



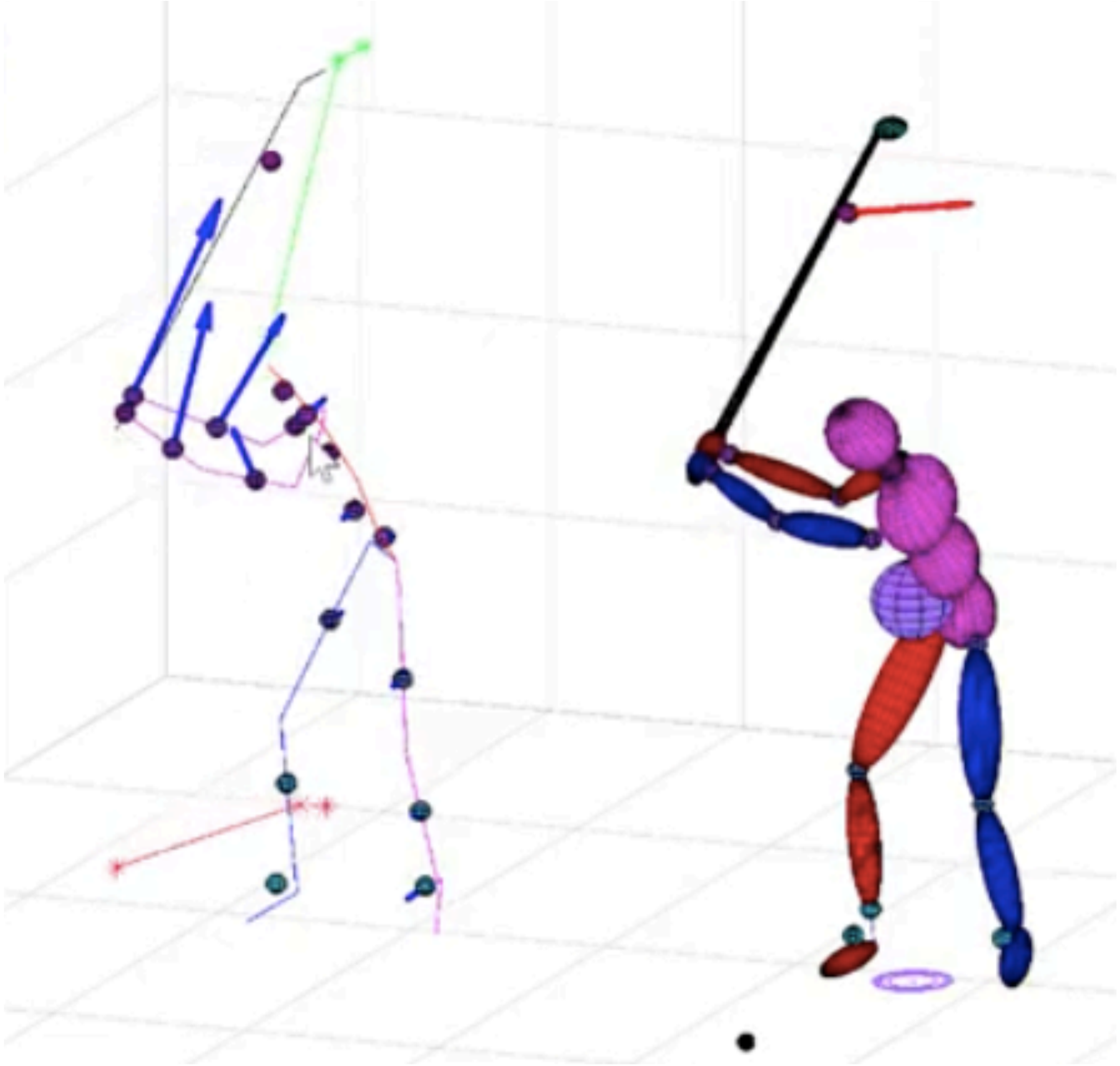
STACCO



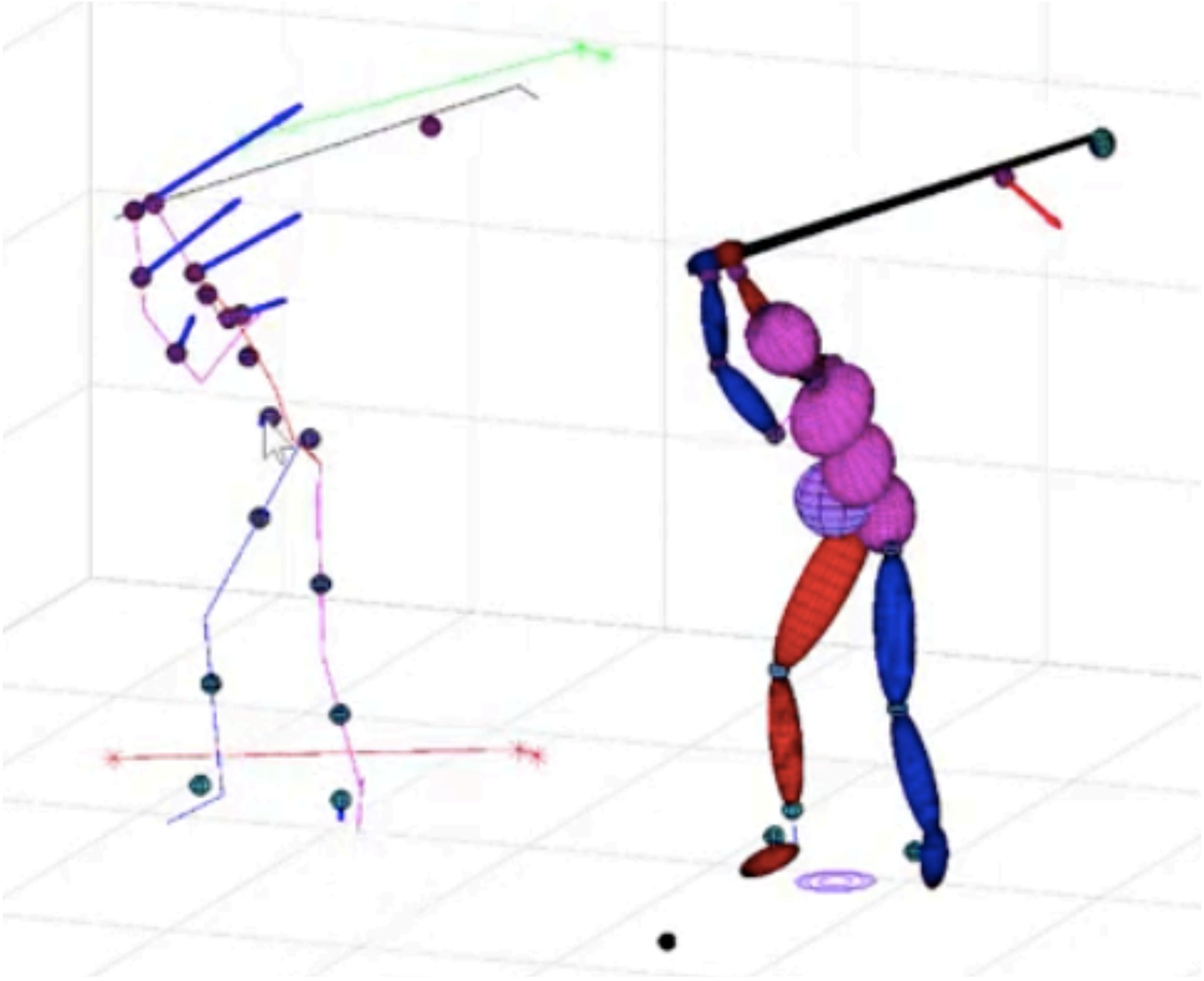
CLUB PARALLEL



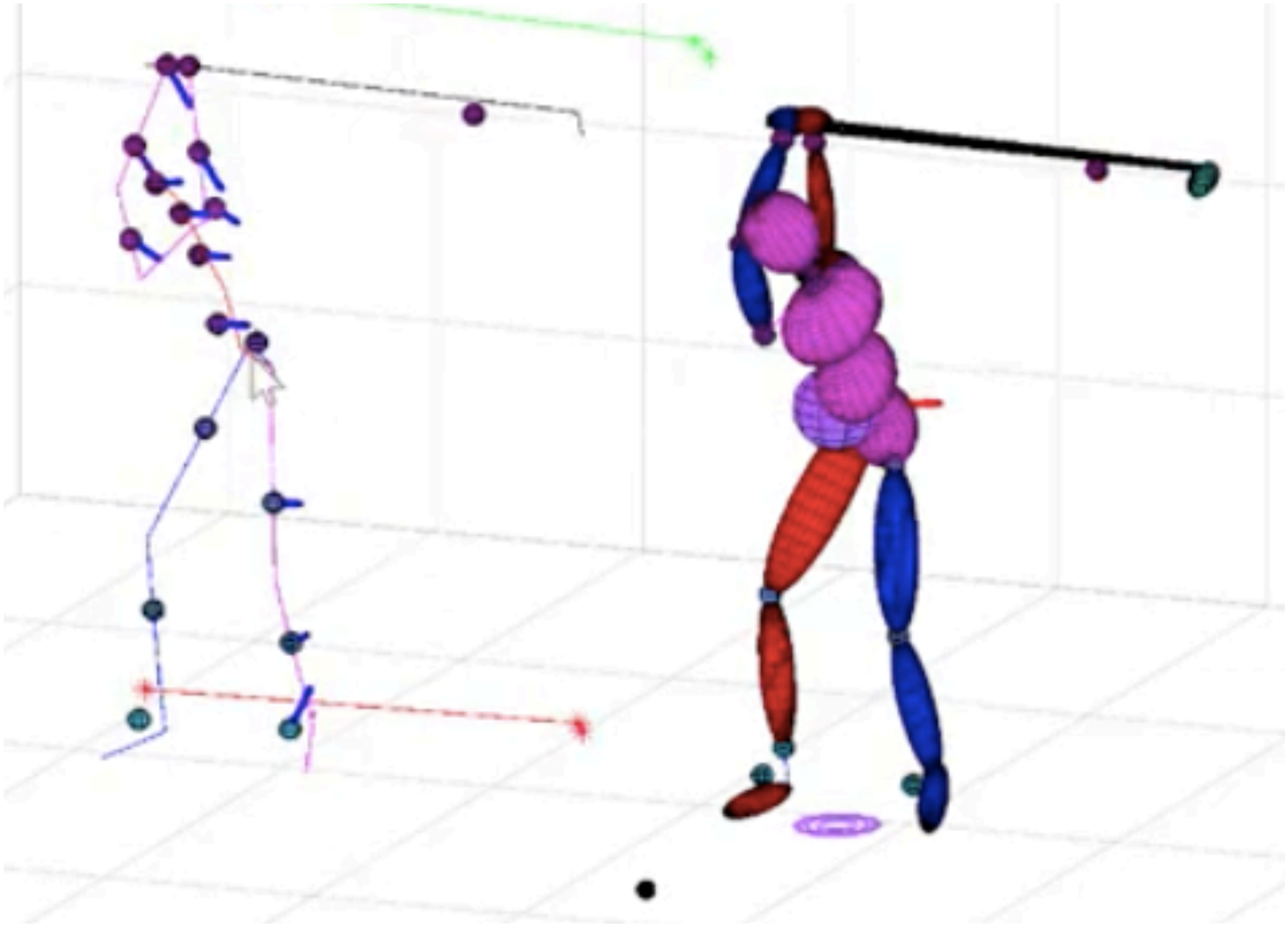
ARM PARALLEL



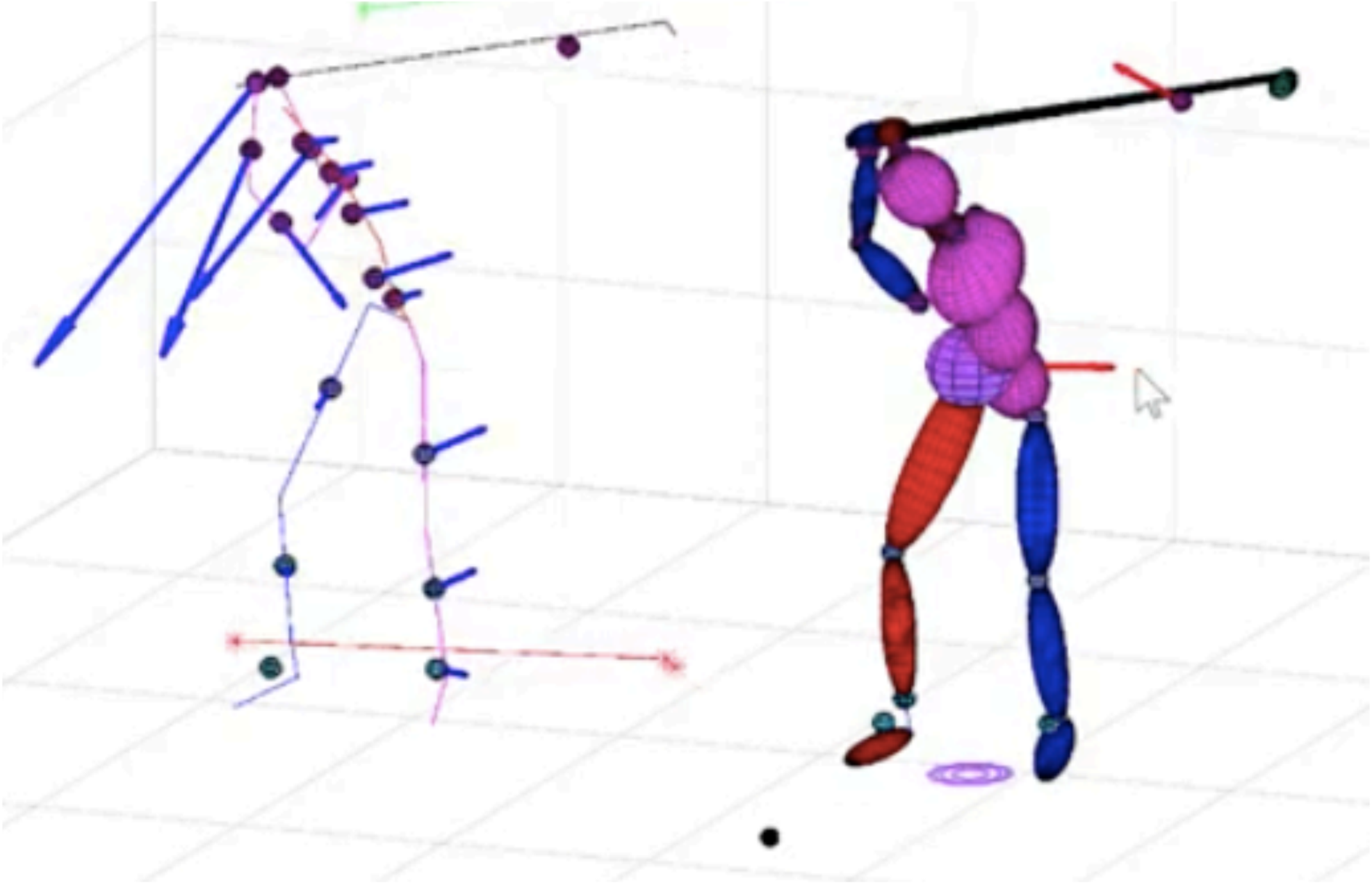
TOP BACKSWING



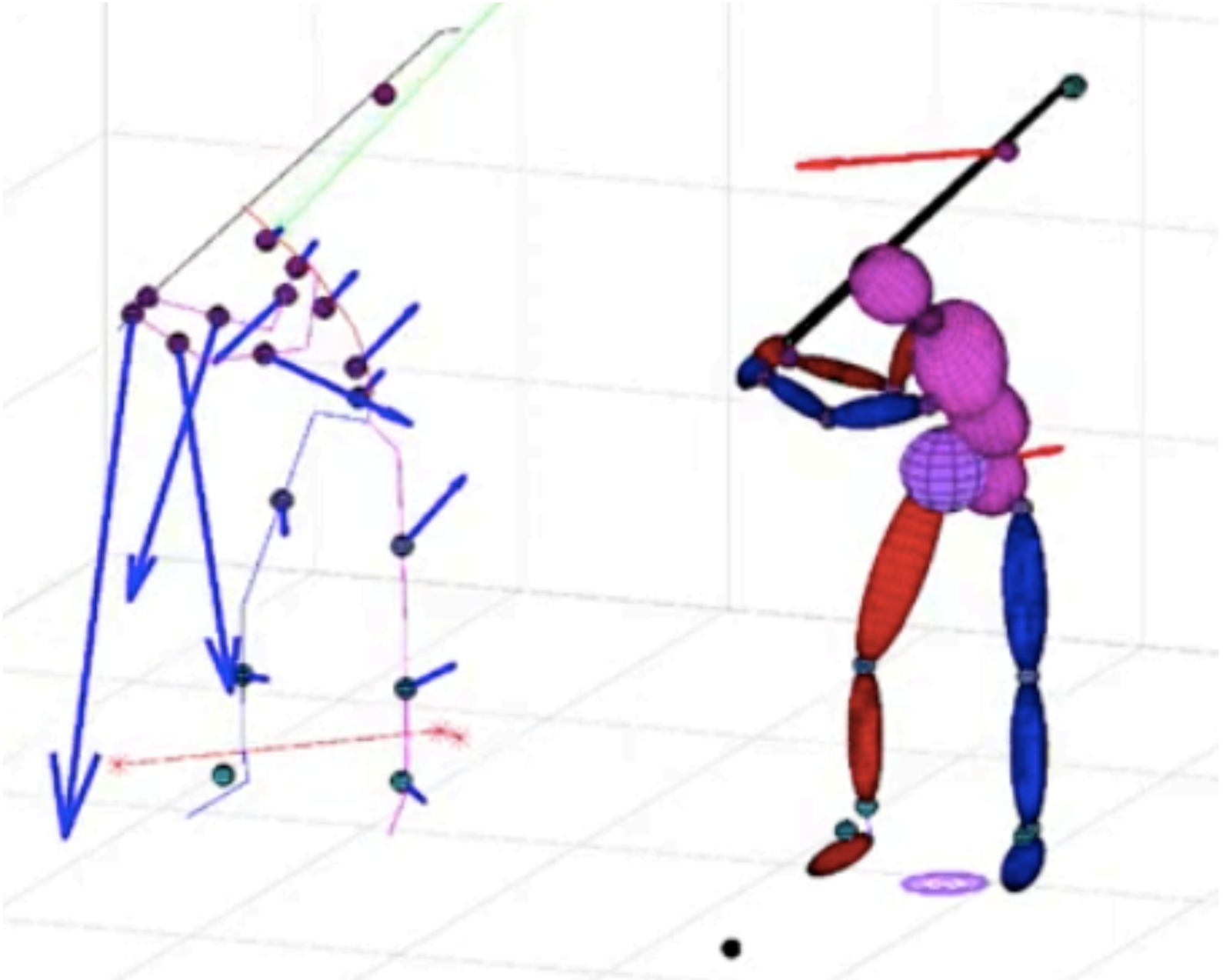
TRANSITION 1



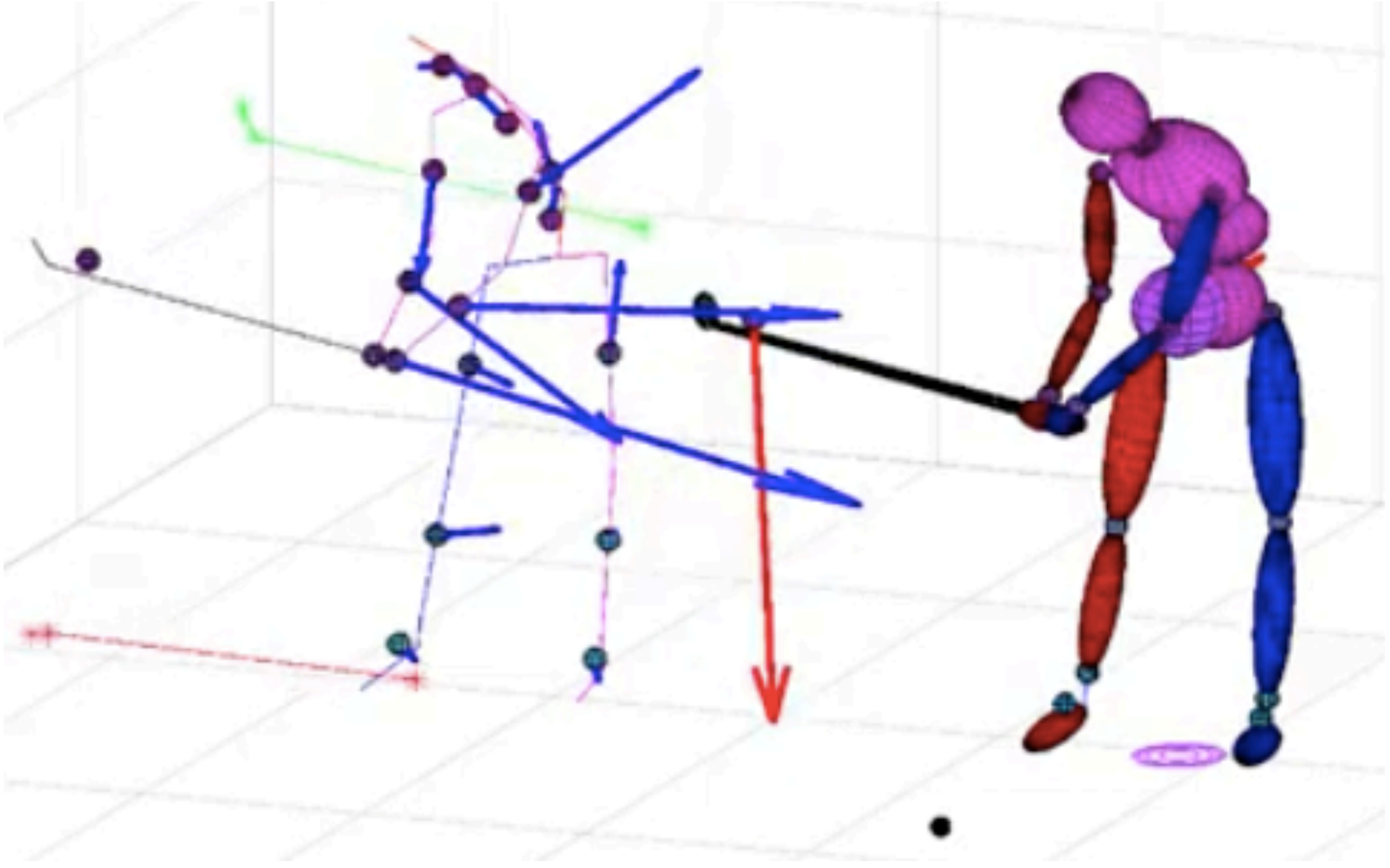
TRANSITION 2



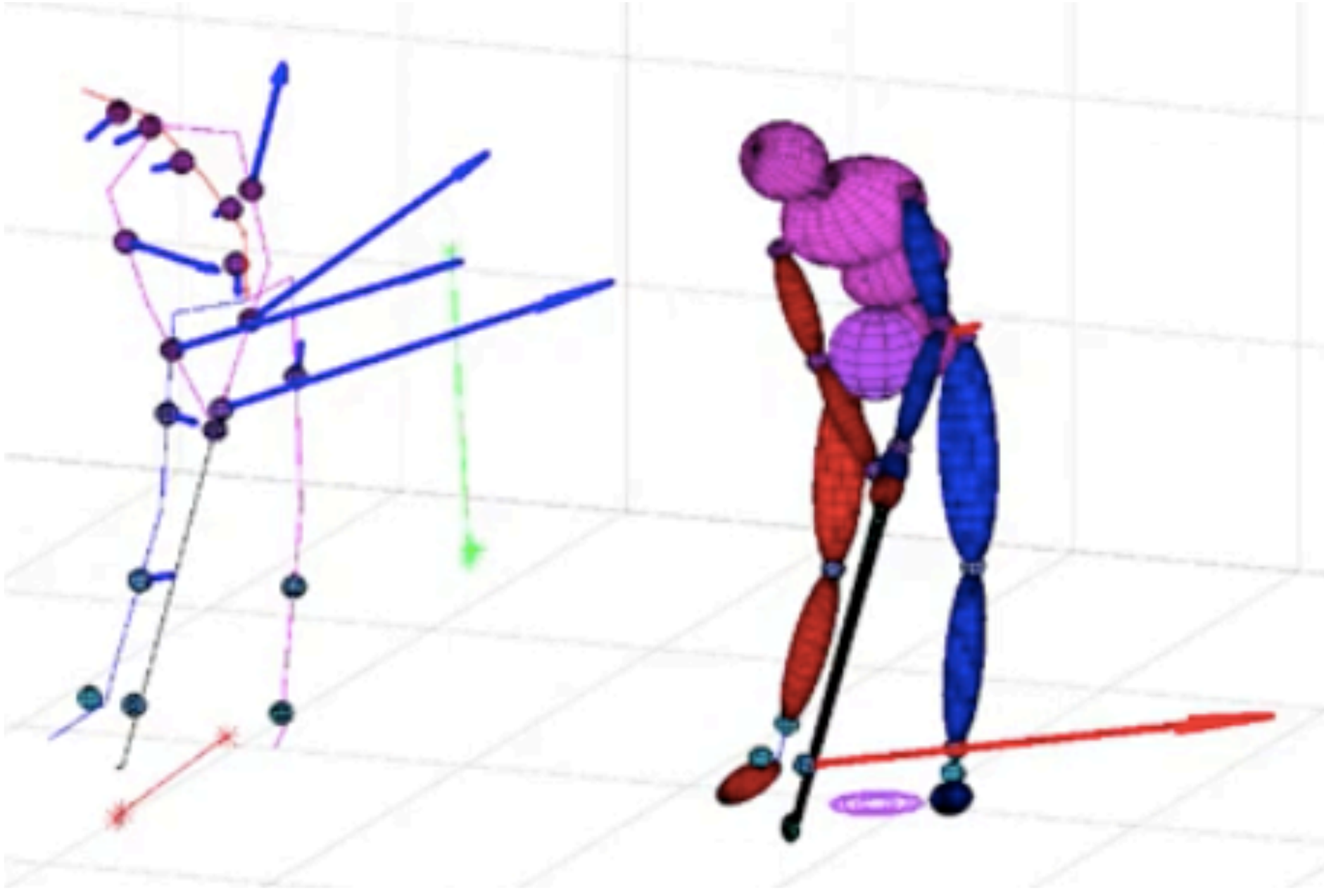
ARM PARALLEL



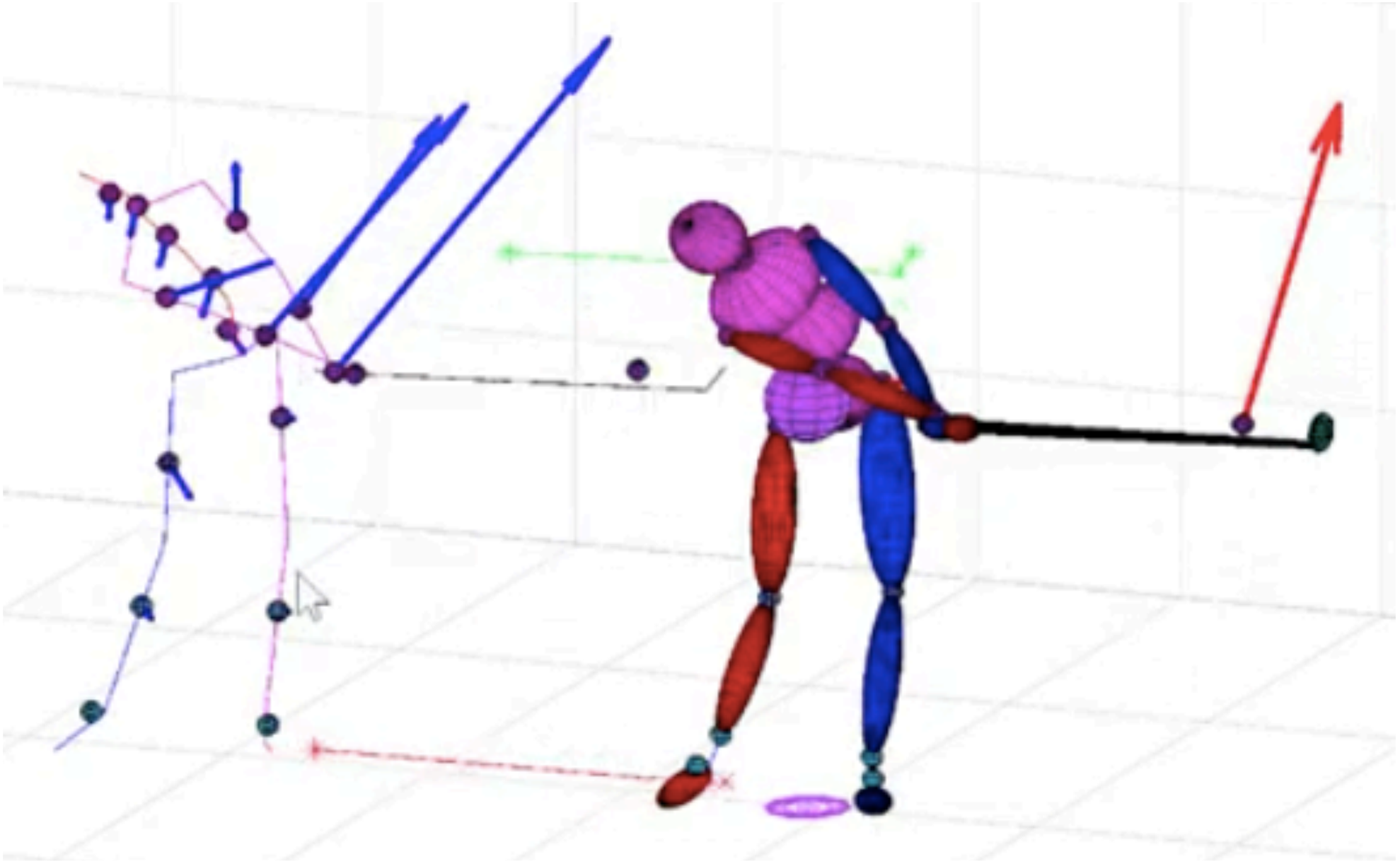
CLUB PARALLEL



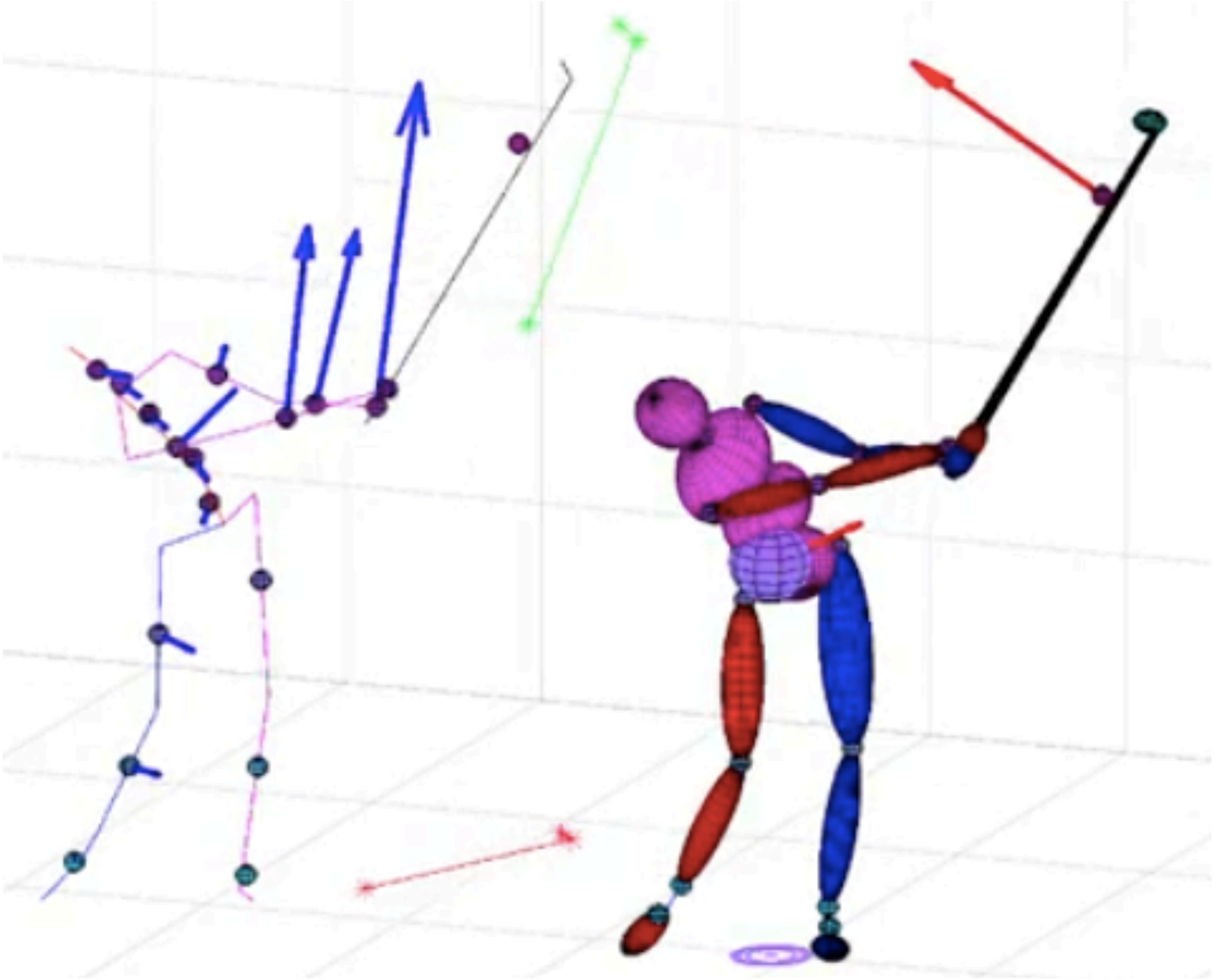
IMPATTO



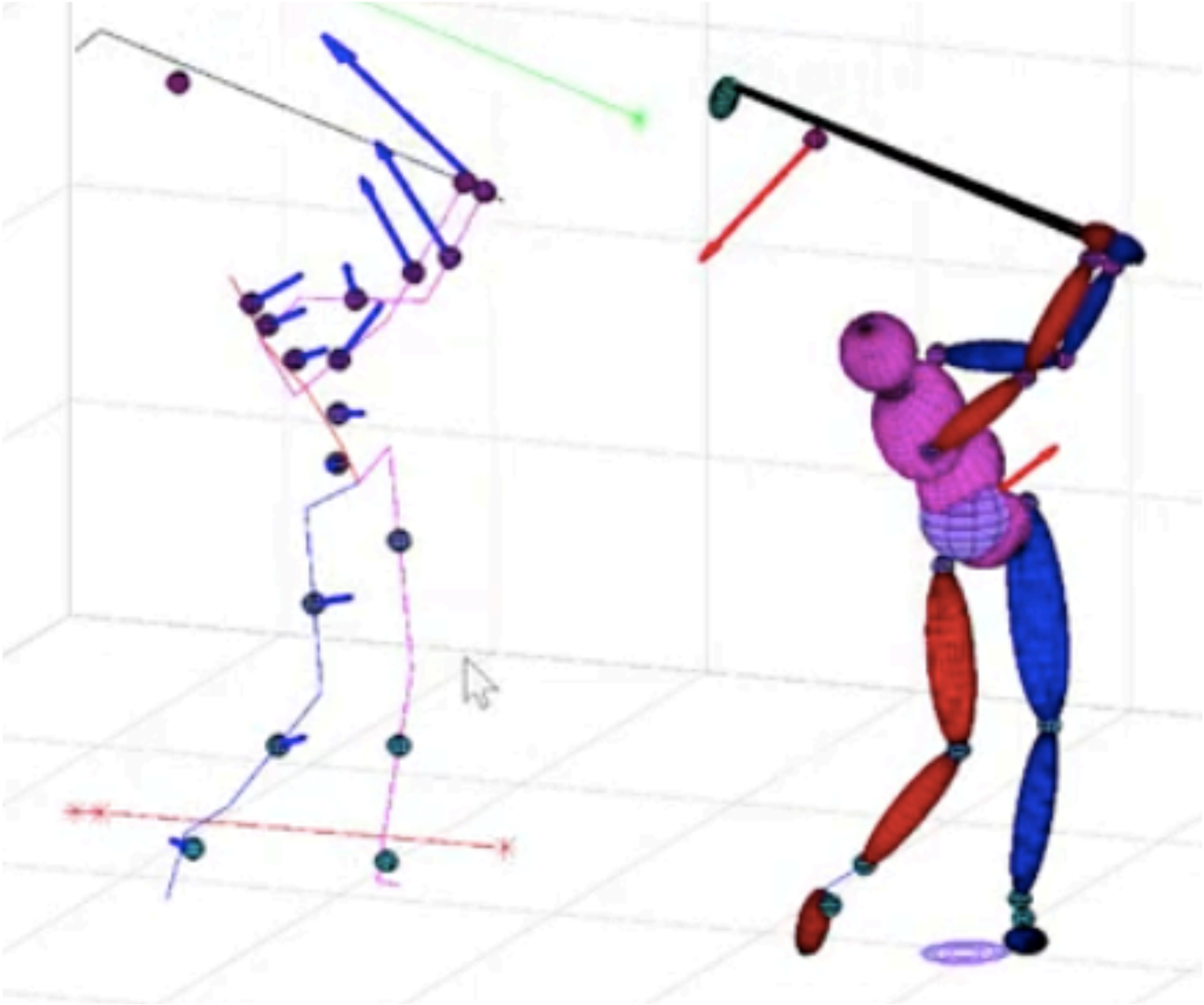
FOLLOW THROUGH



FOLLOW THROUGH

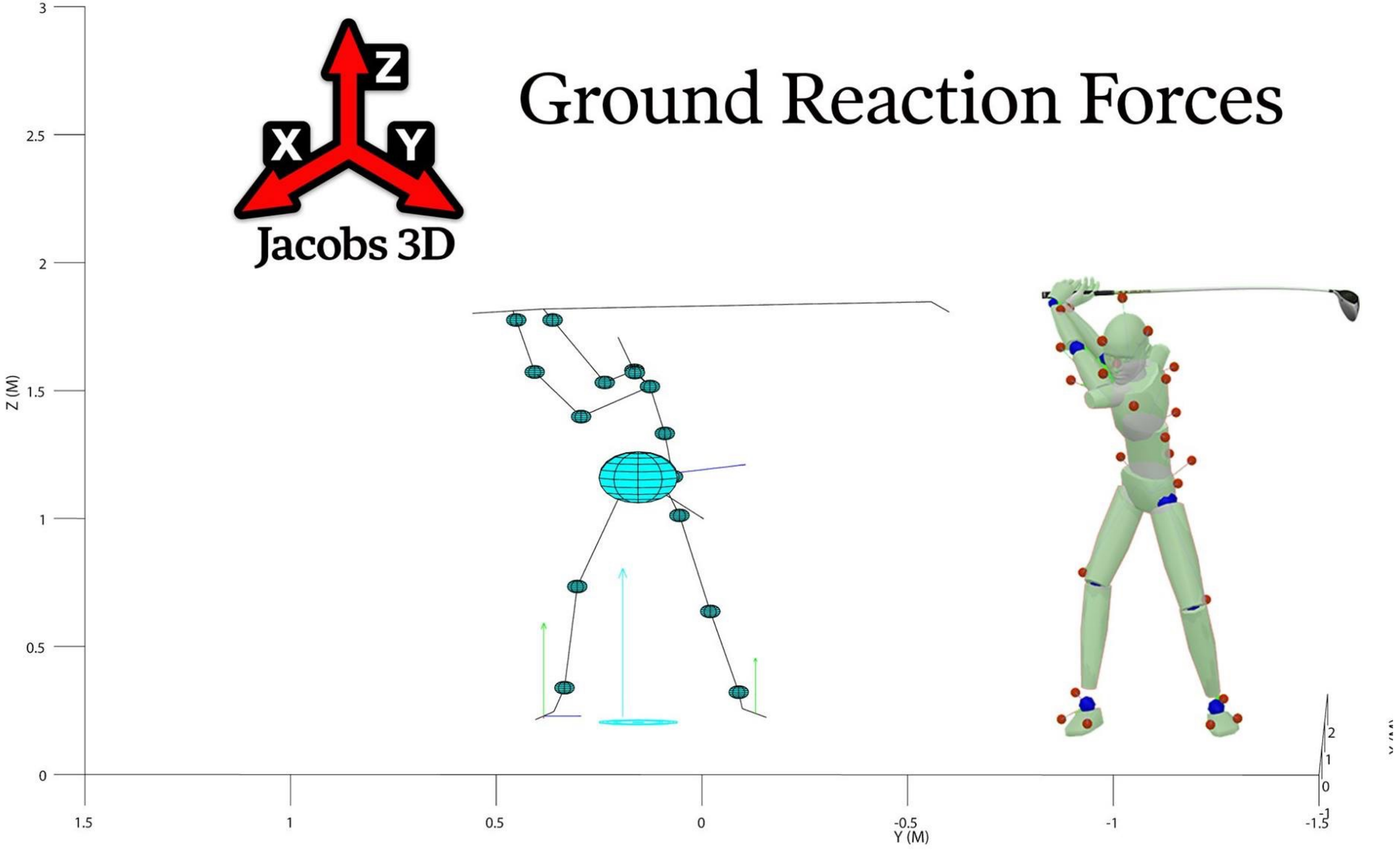


FINISH



Ground Reaction Forces

Jacobs 3D



Mail: info@boldport.it

Instagram: @bold_sport

Facebook: Bold Sport

Whatsapp: +393939589569

BO
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SPORT
GOLF
FISIO
LOUNGE