

A ROBOT PLAYING PIANO

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Computer Science 35L

WHAT WAS BEFORE

- Meet Teotronica
- He has 19 fingers
- Is hyper accurate with notes
- Plays the piano better than me
 - And is better dressed than me



Source: Mogg

OUR CURRENT GENERATION

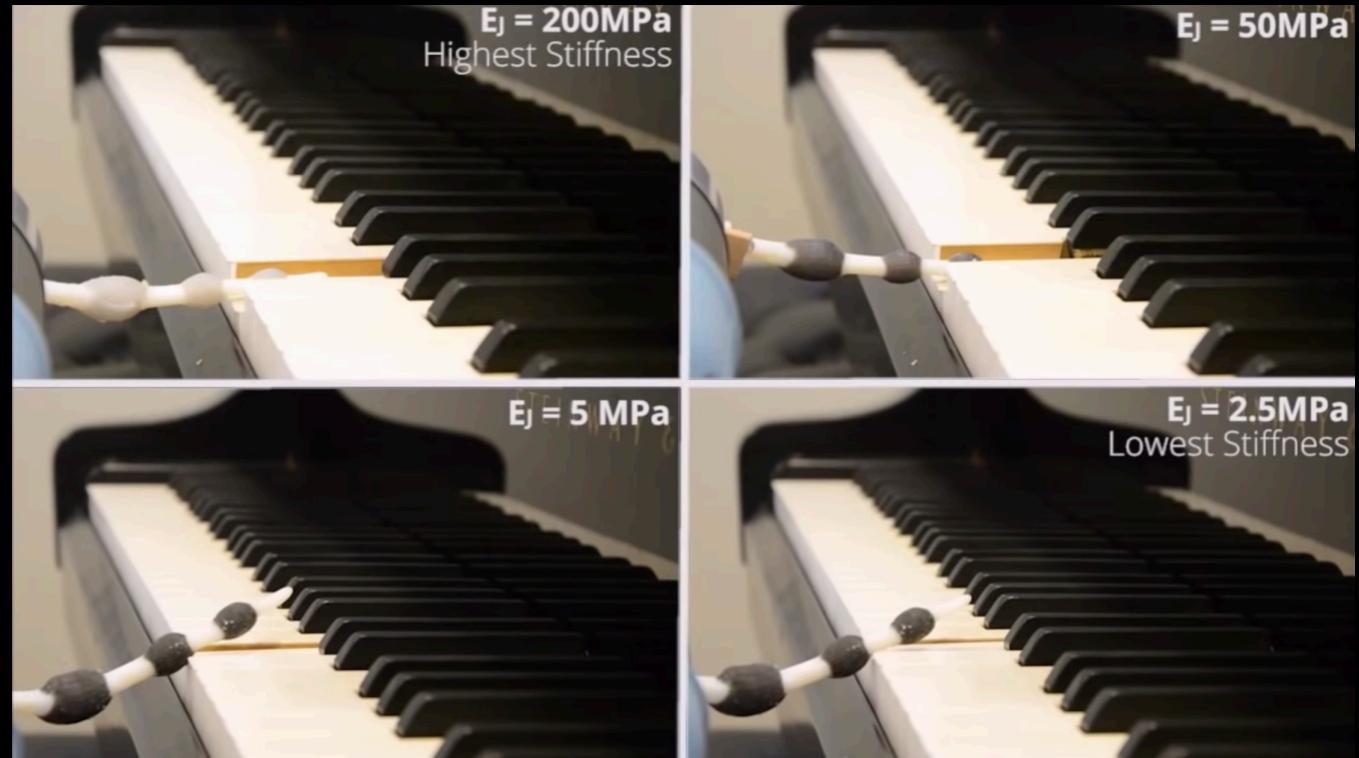


Source: Josie Hughes

- University of Cambridge released
- Fingers are static
- More lifelike
- Only movement is from the motor hand
- Only plays glissando or staccato
- Still a better piano player than me

HOW DOES IT WORK?

- Motors are only in the arm and wrist joints
- The fingers were 3-D printed
- Joints are actually quite flexible
- Movement is more human like
- Can currently play Twinkle Twinkle Little Star



Source: Science Daily

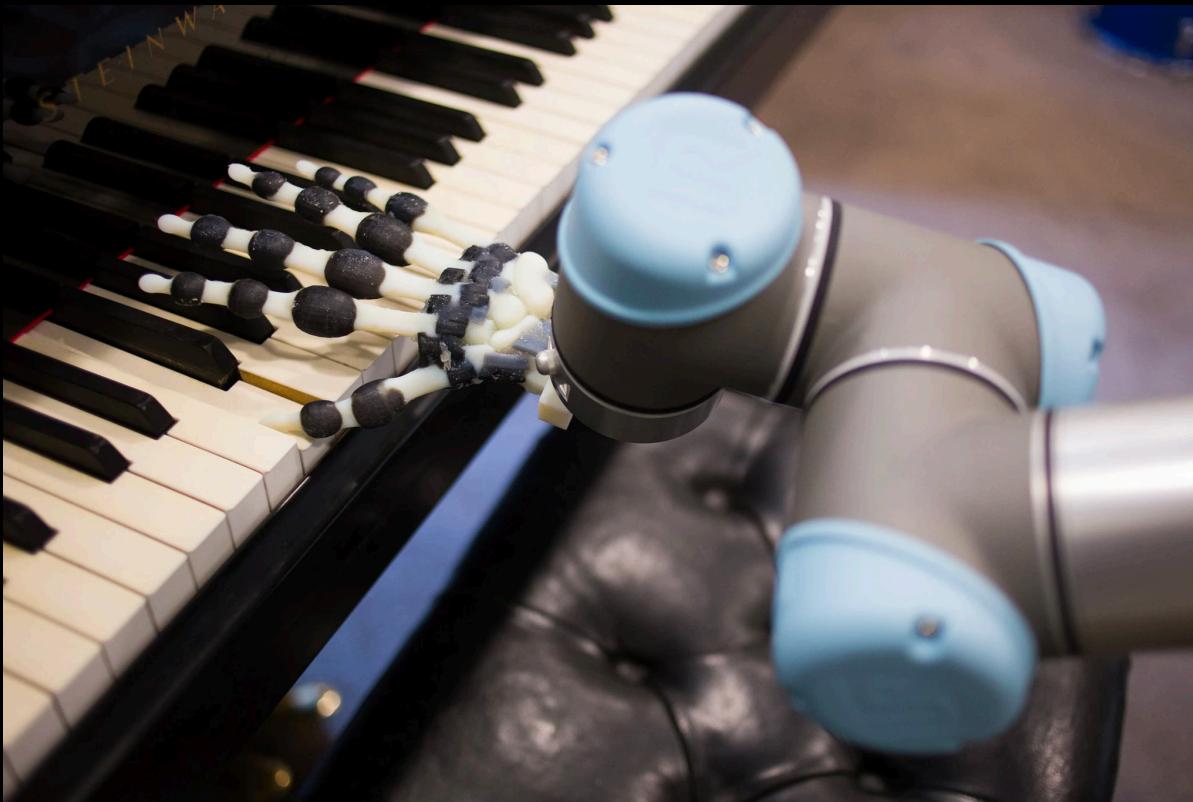
A LITTLE MORE TECHNICAL



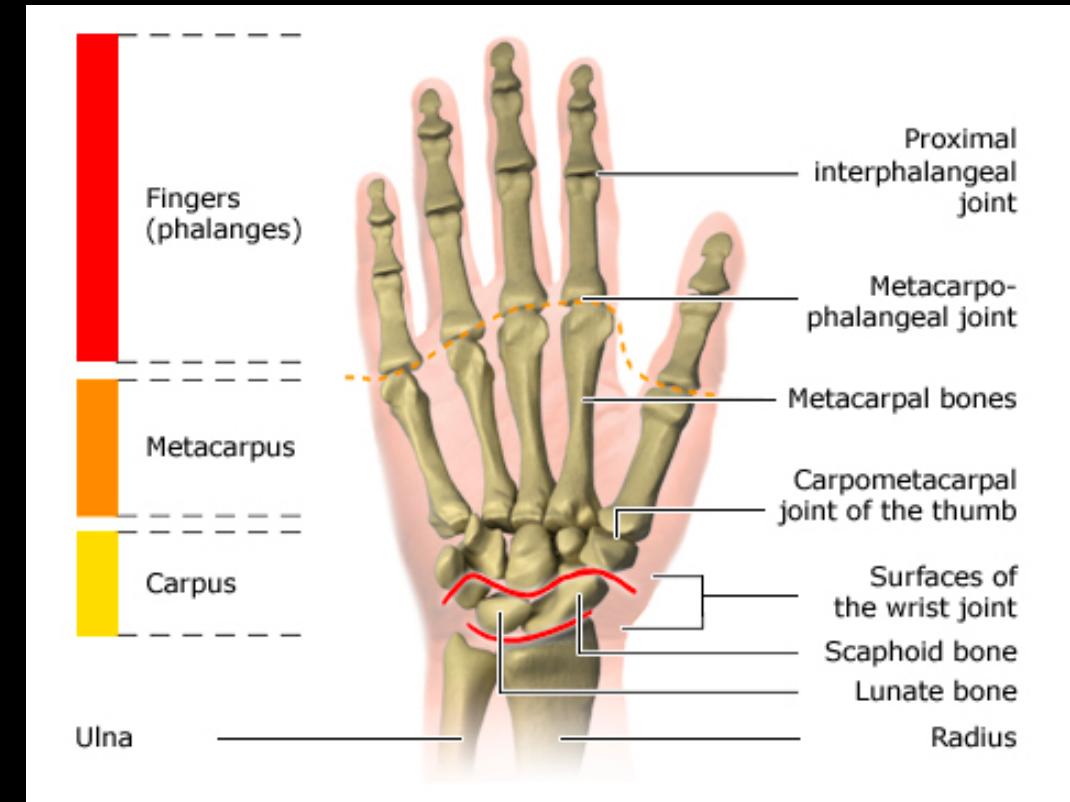
Source: Josie Hughes

- The robot was programmed to play specifically using only the wrist
- Little amount machine learning was actually incorporated
- The hand was made so that less learning is required by the robot
- Program design possibly memorized and executed based on locations and distance of keys
- The hand decides how the robot moved

OUR HAND VS THE ROBOT'S HAND

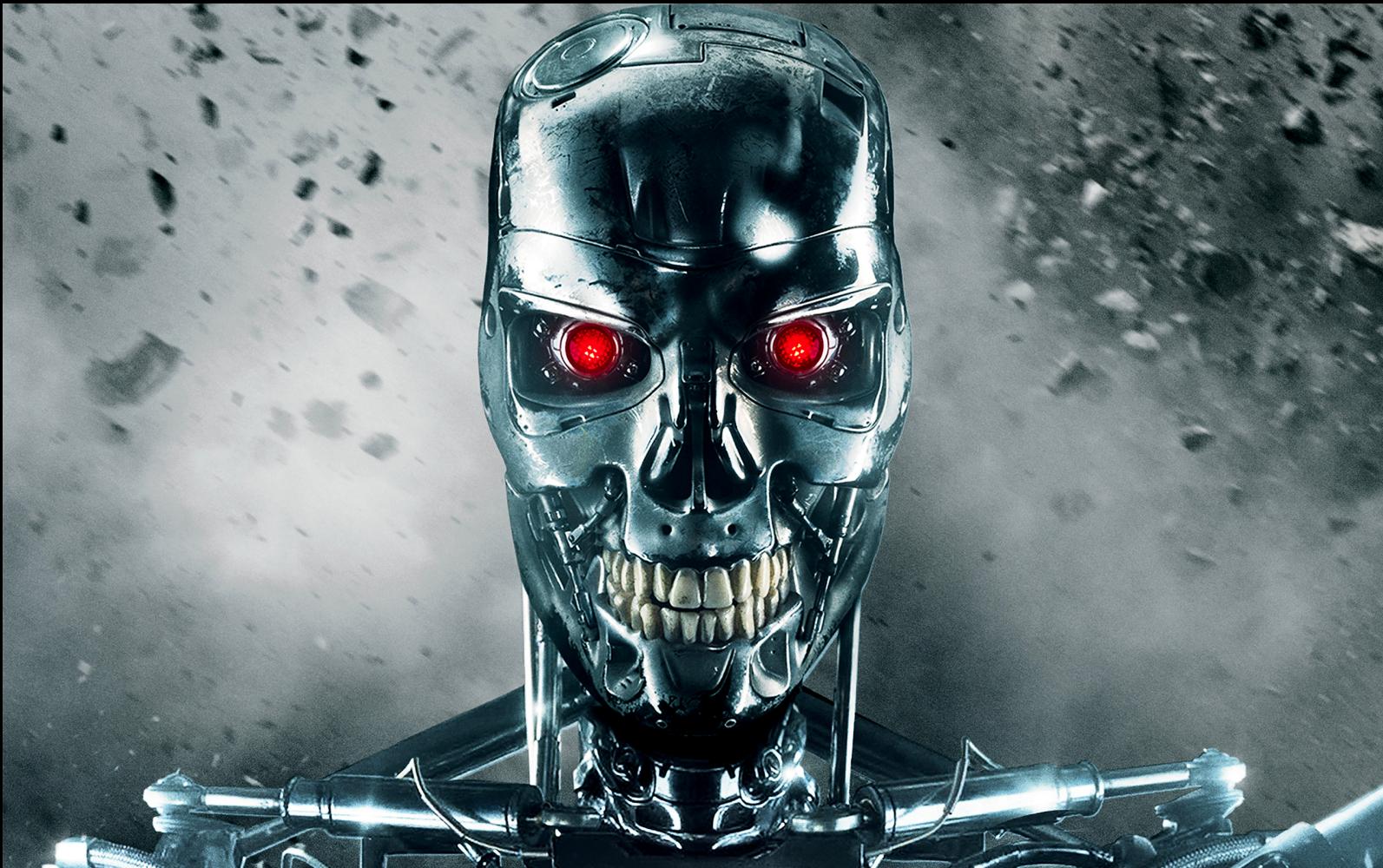


Source: Josie Hughes



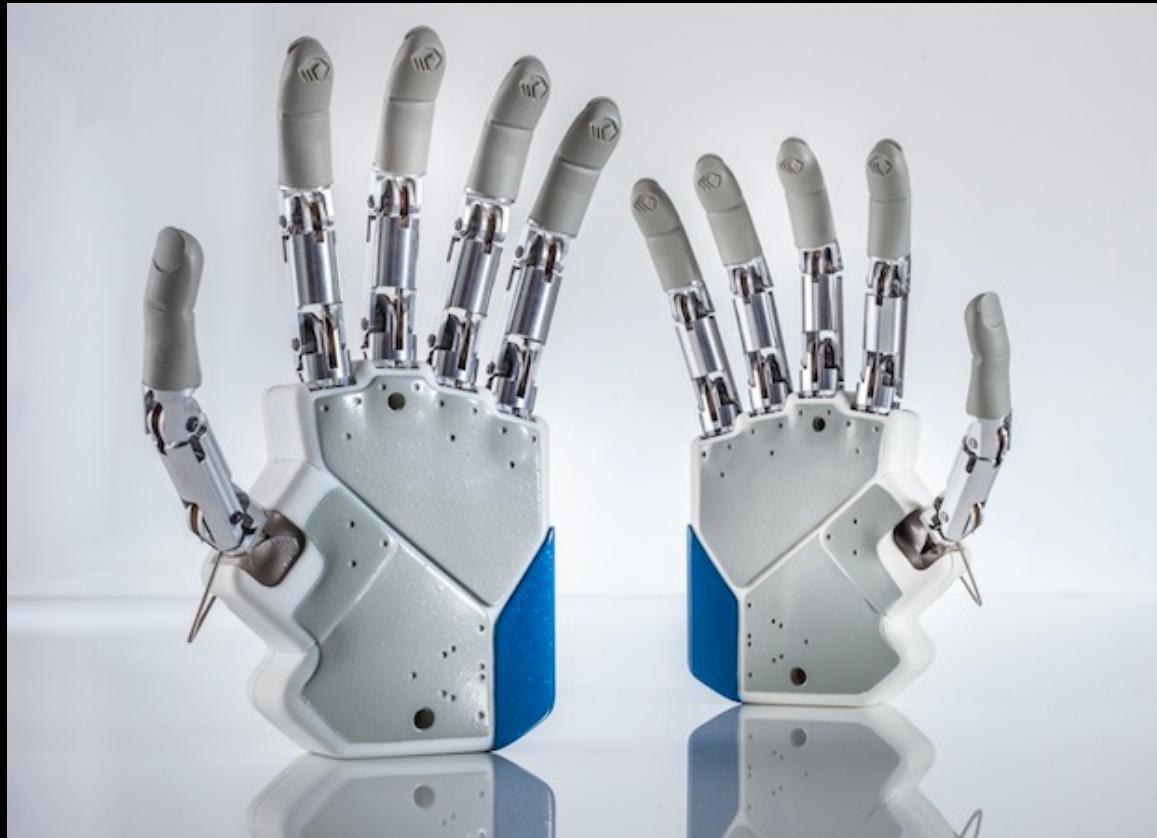
Source: NCBI

WHAT'S NEXT?



Source: Endo Morgan

NO, NOT TERMINATORS



Source: Christian Ciprani

- We could use one robot for much more
- Maybe more humanoid hands
- We can use robots to do difficult human tasks
- More precise human movement in robots
- Machine learning?

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