PACK 6 THE TERMINATOR® BUILDTHE 800

THE MOST LEGENDARY CYBORG IN SCIENCE FICTION HISTORY!



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1:2 SCALE

THE FRANKSOF BUILD THE T-800 PACK 6 **CONTENTS**

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IDENTIFYING YOUR COMPONENTS: Each of your Terminator packs is divided into stages. Each stage contains a number of components, and can be identified by referring to the images in your assembly guide or the number located on the sticker on the back of each stage. Each number begins with '77' and is followed by a further three digits. The last three digits indicate the number of each stage. For example, 77 001 indicates stage 01, 77 002 indicates stage 02, etc.

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Not suitable for children under the age of 14. This product is not a toy and is not designed for use in play. Keep the parts out of the reach of small children. Some parts may have sharp edges. Please handle them with care.

STAGE 51: FITTING DETAILS TO THE PELVIS

Affix the pelvic shield to the pelvis, and attach a hip socket to the existing assembly.





LIST OF PIECES

51-1	Pelvic plate

- 51-2 Hip socket
- 51-3 Muscle connection

YOU WILL ALSO NEED

Tweezers (optional).

Complete assembly from stage 50.

Superglue and a cocktail stick.

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STEP 1

Take the assembly from stage 50 and identify the two holes in the pelvic shields **48-2** and **49-1** where the plate will fit (circled).



STEP 2

Fit the pelvic plate **51-1** in place so that the two pegs on the lower edge fit into the holes identified in step 1 (arrows).



STEP 3

This shows the pelvic plate **51-1** fitted in place so that the top edge is flush with the inner edge of the pelvic shields.

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STEP 4

Apply a little superglue in the inner recesses of the hip socket **51-2**.



STEP 5

Identify the fixing point for the hip socket – it fits over the two pegs that protrude from the right pelvic girdle **44-1** (circled).



STEP 6

Fit the hip socket **51-2** over the raised part of the pelvic girdle **44-1** so that the pegs fit into the holes.





STEP 7 This shows the hip socket **51-2** in place.



STAGE COMPLETE!

Details have been added to the pelvis. The muscle connection **51-3** will be used in the next stage.

STAGE 52: ASSEMBLING A MUSCLE AND FITTING ANOTHER PELVIC PLATE

Ready one of the connective muscles that will attach the pelvis to the chest, and seal the pelvic unit with a large pelvic plate.





|--|

52-2 Outer muscle

52-3 Inner muscle

52-4 Muscle cap

YOU WILL ALSO NEED

Tweezers (optional).

Complete assembly from stage 51.

Muscle connection 51-3.

Superglue and a cocktail stick.







Fit the inner muscle **52-3** into the outer muscle **52-2**, inserting it through the wider end of part **52-2**.

STEP 2

Pull the inner muscle **52-3** through the outer muscle **52-2**, as shown.



STEP 3

Apply a little superglue around the end of the muscle cap **52-4**, just beneath the rim (blue shaded area). Slide it onto the inner muscle **52-3** and down to the outer muscle **52-2**.



STEP 4

Fix the muscle cap **52-4** into the end of the outer muscle **52-2**. Just the rim of part **52-4** is visible.



STEP 5

Take the muscle connection **51-3** supplied with the previous stage. Apply a little superglue around part **51-3**, just below the rim (blue shaded area). Fix it in place in the open end of the outer muscle **52-2**.



STEP 6

This shows the muscle assembled.



STEP 7

Take the complete assembly which was last worked upon in stage 51. Identify four screw holes in the central framework (circled).



STEP 8

Identify the four smaller pegs on the back of the pelvic plate **52-1** (circled).





Fit the pelvic plate **52-1** in place so that the pegs go into the sockets identified in step 7. This is a push-fit connection.



STEP 10 This shows the pelvic plate **52-1** in place.



STAGE COMPLETE!

A muscle has been assembled, and another plate has been fitted to the pelvis.

STAGE 53: FITTING MORE PARTS TO THE TORSO AND PELVIS

Affix a connective muscle to the torso, and complete the hip sockets of the pelvis with the addition of the second hip connector.





LIST OF PIECES

53-1	Leg joint section
53-2	Hip socket
53-3	Inner side muscle
53-4	Muscle connection

YOU WILL ALSO NEED

Tweezers (optional).

Complete assembly from stage 52.

Superglue and a cocktail stick.





Fit the inner side muscle **53-3** into the shaft of the thoracic side muscle **37-2**.



STEP 2

Push the inner side muscle **53-3** in as far as it will go. It is not fixed at this point, so handle the assembly with care.



Identify the two pegs on the left side of the pelvis (circled) where the hip socket will be fitted.





Fix the hip socket **53-2** in place on the side of the pelvis, so that the pegs on the pelvis go into the recesses in the hip socket.



STEP 6 This shows the hip socket **53-2** in place.



STAGE COMPLETE!

An inner muscle has been fitted into a shaft on the torso and the second hip socket has been fitted to the side of the pelvis. The other parts will be used in a future stage.

STAGE 54: TNG 31 JS

Attach the side muscles to the torso using ball-joint connections, and prepare another muscle for future integration.





LIST OF PIECES

54-1	Leg joint section
54-2	Outer muscle
54-3	Inner muscle
54-4	Muscle cap
54-5	Inner side muscle

YOU WILL ALSO NEED

Tweezers (optional).

The muscle connection 53-4.

Superglue and a cocktail stick.







STEP 1

Fit the inner muscle **54-3** into the outer muscle **54-2**, inserting it through the wider end of part **54-2**.



Pull the inner muscle **54-3** through the outer muscle **54-2**, as shown.





STEP 3

Apply a little superglue around the end of the muscle cap **54-4**, just beneath the rim (blue shaded area). Slide it onto the inner muscle **54-3** and down to the outer muscle **54-2**.

STEP 4

Fix the muscle cap **54-4** into the end of the outer muscle **54-2**. Just the rim of part **54-4** is visible.



STEP 5

Take the muscle connection **53-4** supplied with the previous stage. Apply a little superglue around part 53-4, just below the rim (blue shaded area). Fix it in place in the open end of the outer muscle **54-2**.



STEP 6

This shows the muscle assembled.



STEP 7

Take the complete assembly which was last worked upon in stage 53 and Fit the inner side muscle 54-5 into the shaft on the left side of the torso. the inner side muscle 54-5.



STEP 8





Fit the inner side muscle **53-3** into the socket **49-3**. The ball on the end needs to be pushed firmly in place. Do not use any glue.



STEP 10

Similarly, fit the inner side muscle **54-5** into the socket **49-3**. Push it firmly in place and do not use any glue.



STAGE COMPLETE!

Another muscle has been assembled, and the side muscles on the torso have been attached to the pelvis. The other parts will be used in a future stage.

STAGE 55: FITTING A JOINT MECHANISM TO THE RIGHT THIGH

The right thigh begins to take shape, connecting to the leg joints supplied with stages 53 and 54.





LIST OF PIECES

55-1 Right thigh

55-2 5 x M2 nuts (1 spare)

YOU WILL ALSO NEED

Tweezers (optional).

Leg joint sections 53-1 and 54-1.

Superglue and a cocktail stick.





STEP 1

Take the two leg joint parts **53-1** and **54-1**.



STEP 2

Fit the joint section **54-1** around joint section **53-1**, in the orientation shown. This is best done by hand so that you can open part 54-1 slightly. We have used tweezers to show the shapes clearly.



STEP 3

Push the two parts firmly together, so that they click in place. The indents and raised sections around the edge of part **54-1** fit into place between raised sections and indents on the rim of part **53-1** as shown here.



STEP 4

Take the right thigh, part **55-1**. One at a time, apply a little superglue in the hexagonal recesses in the 'hip' end of the thigh.



STEP 5

After applying glue to a recess, fit an **M2** nut in place. It is very important that the nuts sit flat in the resesses.



STEP 6

With all four M2 nuts in place, take the joint assembly **53-1/54-1** and lay it on the work surface, as shown.





Fit the joint **53-1/54-1** on to the top of the thigh **55-1** so that the screw holes in part **53-1** are aligned with the nuts in part **55-1**.



STAGE COMPLETE

A joint has been fitted to the top of the left thigh.

STAGE 56: ASSEMBLING THE RIGHT HIP JOINT

Connect the right thigh to the pelvis using the joint and casings supplied.





LIST OF PIECES

56-1	Hip joint
56-2	Inner casing for hip joint
56-3	Outer casing for hip joint
56-4	Domed cap for hip joint
56-5	Outer cap for hip joint
56-6	5 × PM 2 × 18mm screws
56-7	2 x PM 3 x 8mm screws

YOU WILL ALSO NEED

Tweezers (optional).

The thigh assembly and model assembly from previous stages.

A cross-head screwdriver







Take the thigh assembly from stage 55 and place it in the orientation shown. Fit the inner hip casing **56-2** into the opening for the hip joint. The flat surface of part **56-2** is upwards, as shown

Ensure that the recesses in part **56-2** fit around the screw sockets inside the joint (above).



STEP 2

Fit the hip joint **56-1** inside the joint opening so that it sits in the inner joint casing **56-2**.



STEP 3

Take the model assembly from stage 54 and identify the hip socket **51-2**.





STEP 4

Fit the stem of the hip joint **56-1** into the hip socket **51-2**. Note that there are two notches on the hip socket **56-1** that have to be fitted over raised bars inside the hip socket (see arrows on inset). Take time to ensure that these notches are properly engaged.



STEP 5

Fix part **56-1** in place with a **PM** 3 x 8mm screw. At this stage, the joint will be quite loose. Ensure the screw is fully tightened.



STEP 6

Fit the outer hip joint casing **56-3** over the ball of the hip joint **56-1** so that the notches round the edge of part **56-3** fit around the raised screw sockets on the inside of the hip joint.

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STEP 7

Fit the metal domed hip joint cap **56-4** over the casing **56-3**. Again, the notches in part **56-4** fit around the raised screw sockets.



STEP 8

Take the outer cap for the hip joint **56-5** and note that there are slightly raised parts on either side of the screw holes. These will fit around the raised screw sockets on the inside of the hip joint, as indicated by the arrows. For the next step, you will need four **PM** 2 x 18mm screws.



STEP 9

Fit the outer cap **56-5** over part **56-4** so that the screw holes are aligned. Fix in place with four **PM** 2×18 mm screws.



STAGE COMPLETE!

The right thigh has been attached to the pelvis. The hip joint will become tighter in the next stage.



Cap off the right thigh joint with a covering plate, and begin a new element of the leg.





LIST OF PIECES

57-1 Hip plate

57-2 Right leg part

- 57-3 Right leg part insert
- 57-4 2 x PM 3 x 12mm Allen screws (1 spare)

YOU WILL ALSO NEED

The model assembly from the previous stage.

Allen key supplied with stage 26.





Lay the model on your work surface as shown so that you can access the hip joint and hip cap **56-5**.



STEP 2

Take the hip plate **57-1** and the Allen screw **57-4**. Note there are four pegs on the inside of part **57-1**. These will fit into the four sockets in the hip cap **56-5**.



Position the hip cap **57-1** over the hip joint opening so that the pegs are located in the holes in part **56-5**. Fit the 3 x 12mm Allen screw **57-4** into the screw hole and tighten it with an Allen key.

Do not overtighten: there should be movement in the joint. The thigh section can move backwards and forwards (as if walking) and also move out to the side.



STEP 4 Take the leg part **57-2** and the insert **57-3**.





Fit the insert **57-3** into the open end of part **57-2**. It is a tight fit, so no glue is needed.



STAGE COMPLETE!

A plate has been fitted to the outside of the right hip and a leg part has been assembled.

STAGE 58: G 'S TO THE **RIGHT THIGH**

Add decoration and support to the right thigh with a leg plate, and connect the leg part assembled last stage.



LIST OF PIECES

- 58-1 Right leg plate
- 58-2 2 x PM 3 x 16mm screw (1 spare)
- 58-3 4 x PB 2 x 4mm screws (1 spare)

YOU WILL ALSO NEED

The model assembly from the previous stage.

A fine cross-head screwdriver.

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STEP 1

Lay the model on your work surface as shown so that you can acces the outer face of the right thigh **55-1**. Position the leg plate **58-1** in front of the model assembly in the orientation shown. The arrows indicate how the leg plate **58-1** fits into the thigh **55-1**.



STEP 2

Fit the leg plate **58-1** into the recessed area in the thigh **55-1**.



STEP 3

Holding the leg plate **58-1** in place, access the inside of the thigh **55-1**. This may involve very carefully rolling the model assembly onto its side. Here we are viewing the assembly from above.



Part **58-1** is fixed from this side of the thigh. Identify the three small screw holes in part **55-1** (circled in blue) and fix part **58-1** in place using three **PB** 2 x 4 mm screws.



STEP 5

The loop on the leg part **57-2** is attached to the thigh **55-1** using a **PM** 3 x 16mm screw. Align the loop with the screw socket in part **55-1**, circled in blue.





Taking care not to over-tighten, secure the leg part **57-2** in place with the **PM 3x16mm** screw, as shown. The inset picture shows the assembly viewed from the other side: you may find it easier to access the screw sockets from this angle.



STAGE COMPLETE!

A plate has been fitted to the outside of the right thigh and a leg part has been attached.

STAGE 59: A MUSCLE FOR THE RIGHT THIGH



Assemble and attach one of the thigh muscles and prepare a tendon for future attachment.



LIST OF PIECES

- 59-1 Right leg joint
- 59-2 Tendon for right leg
- **59-3** Ring for tendon
- 59-4 Centre part for joint
- **59-5** 2 × PWM 2 × 5mm screws (1 spare)
- **59-6** 2 × PM 3 × 16mm screws (1 spare)

YOU WILL ALSO NEED

The model assembly from the previous stage.

The muscle assembly from stage 52.

A fine cross-head screwdriver.

Gel-type superglue and a cocktail stick.





STEP 1

Take the centre part for the joint **59-4**. Note that it has three raised studs. which will fit into recesses in part **59-1**.



STEP 2

Take part **59-1** and use a cocktail stick to apply a little superglue into the three circular recesses (circled).



STEP 3

Fit part **59-4** over the central shaft of part **59-1** and fix in place, ensuring that the studs are in the recesses. The centre of the joint **59-4** is not able to rotate around the shaft when it is correctly positioned.



Take the tendon 59-2 and the tendon ring 59-3. Note that one side of part 59-3 has a wider recess than the other side.



STEP 5

Fit the end of part **59-3** with a wider recess over the end of the tendon **59-2**. Fix in place with a PWB 2 x 5mm screw (59-5). The flange on the screw fits into the smaller recess in part 59-3.



STEP 6

Take the thigh muscle assembled in stage 52. Note that it is marked with a '1' (circled).





Take the assembly from stage 58 and identify the fixing point for the muscle near the centre of the pelvis (circled). Note that the model assembly is lying face upwards at this stage.



STEP 8

Fit the muscle connection **51-3** in place as shown. Note that the straighter side of the connection (arrow) goes toward the centre of the model. Fix in place with a PM 3×16 mm screw (**59-6**).





STAGE COMPLETE! A right thigh muscle has been attached to the pelvis and further right leg parts have been assembled (inset).

STAGE 60: MORE MUSCLES FOR THE RIGHT LEG



Attach two tendon joints and connect them to the inner thigh.



LIST OF PIECES

60- 1	Right leg joint	60-5	2 x M3 nuts (1 spare)
60-2	Tendon for right leg	60-6	2 x PM 3 x 12mm screws (1 spare)
60-3	Ring for tendon	60-7	2 x PM 3 x 16mm screws (1 spare)
60-4	Centre part for joint	60-8	2 x PWB2 x 5mm screws (1 spare)

YOU WILL ALSO NEED

Gel-type superglue and a cocktail stick.

The model assembly from the previous stage.

The muscle assembly from stage 54.

A fine cross-head screwdriver.





Take the centre of the joint **60-4**. Note that it has three raised studs, which will fit into recesses in part **60-1**.



STEP 2

Take part **60-1** and use a cocktail stick to apply a little superglue into the three circular recesses.



STEP 3

Fit part **60-4** into place on part **60-1**, ensuring that the pegs are in the recesses. The centre of the joint **60-4** is not able to rotate when it is correctly positioned.



STEP 4

Take the tendon **60-2** and the tendon ring **60-3**. Note that one side of part **60-3** has a wider recess than the other side.



STEP 5

Fit the end of part **60-3** with a wider recess over the end of the tendon **60-2**. Fix in place with a PWB 2 x 5mm screw (**60-8**). The washer on the screw fits into the smaller recess in part **60-3**.



STEP 6

Take the M3 nut **(60-5)** and identify the hexagonal recess in the other end of part **60-2**.





STEP 7

Fit the M3 nut **60-5** into the recess, ensuring that it is flat.



STEP 8

Take the muscle assembly from stage 54. Note that it is marked with a '2' (circled).



STEP 9

Take the assembly from stage 59 and identify the fixing point for the muscle at the outside of the pelvis (circled). Note that the model assembly is lying face downwards at this stage.



STEP 10

Position the muscle connection **53-4** as shown. Note that the straighter side of the connection goes toward the centre of the model (arrow, inset). Fix in place with a PM 3×12 mm screw (**60-6**).





STEP 11

This shows the rear view of the model with the muscle from stage 54 fixed in place. Note that the muscle connections are quite loose, to allow for movement.



STEP 12

Turn the model over so that it is lying face upwards. Take the tendon **59-2** and fit the end with a ring into the front thigh muscle (parts from stage 52, connected to the pelvis in stage 59).



STEP 13

This shows the tendon fitted into the front thigh muscle.



STEP 14

Turn the model over so that it is facing downwards. Take the tendon **60-2** assembled in step 7 and fit it into the end of the muscle assembly from stage 54, fitted in step 10.



STEP 15 This shows the two muscles fitted with tendons.



STEP 16

With the model still facing downwards, position the two tendons **59-2** and **60-2** on either side of the inner part of the thigh. The hexagonal nut on part **60-2** should face outwards (circled, inset) Fix in place with a PM 3 x 16mm screw (**60-7**). Again, the parts do not tighten fully against each other.







STAGE COMPLETE

Tendons have been attached to the knee joint and part of a joint has been assembled.

SCI-FI CINEMA

THE MATRIX

A downtrodden cubicle worker discovers he's the potential saviour of the planet — and that his 'reality' is all a giant simulation — in this genre-defining philosophical kung-fu event.

The Matrix is another film that shares a lot of DNA with The TerminatorTM, although its delivery is very different. In The Matrix, as with The TerminatorTM, humanity has lost a war against a hyper-advanced artificial intelligence, and the world has been ravaged as a result. There's also a single man, fated to take the war back to the machines. But rather than having to protect the mother of that man from time-traveling cyborgs sent to kill him, The Matrix concerns itself primarily with the physical, psychological, and philosophical awakening of Thomas A. Anderson, aka Neo, and the world-shaking repercussions of his being fully awake.

Furthermore, there is no saving the world as it was. The world as we know it is gone, the date of its destruction lost, all records expunged by the machines. Instead, the bulk of humanity now exists in a simulacrum of the late 20th Century, their minds plugged into a near-perfect simulation, their bodies plugged into vast electrical grids, harvesting their nervous systems for electricity, now that the overcast skies cannot support solar technology. No, in order to save the world of the Matrix, its hacker-culture outcasts will need to destroy the in-system enforcers of the Al rule, the Agents, and then decide whether they have the right to pull the plug on all of humanity, casting them back into, as Neo's mentor Morpheus dubs it, "the desert of the real".

The story itself is a hero's journey from zero to superhero, as a lowly office drone and night-time hacker discovers the truth about the simulated world in which he and the rest of humanity live; takes the chance to leave the simulation and fight back against the machines and Agents who run it, and ultimately unlocks the Matrixtwisting superpowers that were within him all along through a mixture of mentoring from Morpheus and Trinity and being (temporarily) murdered by the fanatical program, Agent Smith.

Though the two poorly-received sequels built on The



"THIS IS YOUR LAST CHANCE. AFTER THIS, THERE IS NO TURNING BACK. YOU TAKE THE BLUE PILL — THE STORY ENDS, YOU WAKE UP IN YOUR BED AND BELIEVE WHATEVER YOU WANT TO BELIEVE. YOU TAKE THE RED PILL — YOU STAY IN WONDERLAND AND I SHOW YOU HOW DEEP THE RABBIT-HOLE GOES." — MORPHEUS

Matrix's engaging world with ever-more-dense codphilosophising and computer generated effects that, while boundary-pushing at the time, now look dated, the original film's more limited scope retains all of its power, twenty years on, and a lot of that power derives from its unsettling ideas, as much as from its strikingly memorable fight scenes. ABOVE: Trinity, Neo, Morpheus, and Cypher, members of the resistance, taking the fight to the machines who have enslaved humanity. [Photol TCD/ Prod. DB / Alamy Stock Photo]

FILM DATABLAST

Directors: The Wachowskis

Screenplay: The Wachowskis

Producers: Joel Silver, Dan Cracciolo, Bruce Berman, Barrie M. Osborne, Erwin Stoff, Andrew Mason, Carol Hughes, Richard Mirisch, The Wachowskis **Composer:** Don Davis

Director of Photography: Bill Pope

Editor: Zach Staenberg

Cast: Keanu Reeves (Thomas A. Anderson / Neo), Laurence Fishburne (Morpheus), Carrie-Anne Moss (Trinity), Hugo Weaving (Agent Smith), Gloria Foster (Oracle), Joe Pantoliano (Cypher), Marcus Chong (Tank), Julian Arahanga (Apoc), Matt Doran (Mouse), Belinda McClory (Switch), Anthony Ray Parker (Dozer), Paul Goddard (Agent Brown), Robert Taylor (Agent Jones), David Aston (Rhineheart)

Year: 1999 Duration: 136min Aspect Ratio: 2.39:1 Country of Origin: USA

BELOW: As Neo's Matrix-twisting powers begin to develop, he is forced to battle Agent Smith, an avatar of the machines. (Photo: PictureLux / The Hollywood Archive / Alamy Stock Photo)

SIMULATION HYPOTHESIS

For a film that won its colossal audience on the strength of its 'bullet-time' martial arts sequences (in which the camera appears to swing around a frozen moment of gravity-defying stuntwork), *The Matrix* has a lot going on under the surface. Writer-directors the Wachowskis were concerned with delivering philosophical punches as well as physical ones, and the film is threaded with all kinds of nods to age-old philosophical concepts, with Neo's journey contingent on his reckoning with them.

Chief of these is the question at the heart of the film — can any of us *truly* know that the world in which we are living is real? If we cannot, does it matter? And who among us would choose to live in the 'real' world, if we could forget that we were living in a simulation?

Such 'sceptical hypotheses' have cropped up throughout recorded history, from Plato's Allegory of the Cave to Zhuang Zhou Dreams of Being a Butterfly. You may already be familiar with some of them — such as the 'brain in a vat' thought experiment originated by Gilbert Harman.

The concept of that experiment is that, through advanced science, a brain is removed and placed in a nutrient bath that can sustain it. The brain is connected up to a computer that can perfectly simulate the inputs that the brain's body would have previously transmitted to it, so from the brain's perspective, nothing has changed. The conclusion is that there is no way of knowing for certain that you are a brain inside a skull, being fed impulses by your body, or a brain inside a jar, being fed impulses by a computer.

The 'brain in a vat' thought experiment is often used as a baseline to calibrate discussions about empirical truth and the inability for any human to truly know objective reality, but it's an unsettling enough concept on its own. In *The Matrix*, humanity is trapped in a similar dilemma; their bodies wasting away in pods while their brains live out entire lives within a false reality.

BATTERY FARMING

One of the key oddities of the world of the Matrix (and something it's perhaps better not to dwell on too closely) is the energy economy at its heart — namely,



SCI-FI CINEMA

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that in order to survive, the machines have hooked all of humanity up to their energy grid and are drawing power from human bodies in the absence of sunlight or other renewable energy sources.

The trouble being that the human body produces less than 100W per second in power while at rest, while also requiring between 2000 and 2500 calories per day in order to produce that power (not to mention all the energy being expended dealing with waste, with the production of new humans, and with keeping a singleinstance simulation running at all times). 100W is the amount given off by a standard incandescent light bulb, as a quick comparison.

Various expanded universe explanations have been given as to why and how the machines have set up this symbiotic process, but it's a tremendously inefficient way of keeping the AI lights on.

Of course, as with many of these kinds of nitpicks, the real reason humans are being farmed by the machines for energy is so that there is a film at all, and so we as an audience can be incensed at the treatment of our Matrix surrogates!

RED OR BLUE

The issue of consent is key within the film — the band of outlaws led by Morpheus and Trinity fight against the machines because the consent of humanity has been taken away. No one within the fantasy world of the Matrix chose to spend their artificial lives there — the machines enslaved them.

But even in the war against the Machines, Morpheus still relies on informed consent before he recruits new members to his cause. People like Neo can be tracked, contacted,

"I'D LIKE TO SHARE A REVELATION THAT I'VE HAD DURING MY TIME HERE. HUMAN BEINGS ARE A DISEASE, A CANCER OF THIS PLANET. YOU'RE A PLAGUE AND WE ARE THE CURE." — AGENT SMITH

shown the boundaries of the simulation, but before they can be expelled into the real world proper, Morpheus offers them a choice (appropriately, for a computer simulated world, a binary one). Take the blue pill, and things go back to how they were. Take the red pill, though, and you'll be truly awake for the first time in your life.

Though the symbolism of the red and blue pills has unfortunately been adopted by some of the more unsavoury elements of the internet in recent years, the notion of making an active choice to learn more, to reject the safe in favour of the true, has lost none of its power.

The character of Cypher is also key to the narrative of *The Matrix*. A rebel who misses the home comforts (and delicious steaks) of the simulation, he's willing to betray his fellow humans for the chance to be put back into the Matrix, with his memory wiped: "Ignorance is bliss."

For the Wachowskis, it's true self-knowledge and awareness that is the ultimate super-power, with more power being granted to Neo each time he opens his eyes and mind further. But the key dilemma faced by the rebellious crew of the *Nebuchadnezzar* is whether to inflict the pain of truth upon a world that may not be ready to receive it. ABOVE: Fully awakened, Neo sees the source code behind the Matrix for the first time, and his true abilities become apparent to the unfortunate Agents sent to kill him. (Photo: TCD/Prod. DB / Alamy Stock Photo)





THE SIMULATION HYPOTHESIS AND THE HOLOGRAPHIC UNIVERSE

In case you think that the notion behind *The Matrix* is a mere philosophical sub-plot in a twenty year-old film, meet two bold theories that offer mind-expanding visions of the universe!

ABOVE: The universe, and our places in it, may be even more strange than you can imagine. [Photo: Shutterstock] he ideas inherent in *The Matrix* have been tackled by philosophers both long before and soon after its release. Swedish philosopher Nick Bostrom, a resident at Oxford University, UK who specializes in the fields of artificial intelligence and existential risk, and the founding director of the Future of Humanity Institute at Oxford University, put forward a trilemma called "the simulation argument" in 2003.

It must be noted that, despite its name, Bostrom is not directly arguing that we live in a simulation, but rather that one of the trilemma's three equally-unlikely propositions must be true.

THE ANCESTOR SIMULATION ARGUMENT

Those propositions run as follows:

- "The fraction of human-level civilizations that reach a posthuman stage (that is, one capable of running highfidelity ancestor simulations) is very close to zero," OR
- "The fraction of posthuman civilizations that are interested in running ancestor-simulations is very close to zero," OR
- "The fraction of all people with our kind of experiences that are living in a simulation is very close to one."

REAL-WORLD SCIENCE

Even Bostrom himself cannot see a strong argument for which of the three propositions is correct, given the current lack of data, but the core of his thought experiment is that *if* humanity survives long enough to become posthuman that is, technologically advanced enough to exceed our biological boundaries, perhaps by merging ourselves with artificial intelligences and cyborg technologies — then only a *tiny* percentage of that civilization would need to run ancestor simulations for the total number of simulated human ancestors to exceed the total number of *actual* biological human ancestors in the universe.

The key takeaway of that third proposition is then that if we live in a universe in which posthumanity will come into being, the majority of beings like ourselves, having experiences like us, will be artificial simulations. We are more likely to be living in a simulation than otherwise.

Obviously, this philosophical conundrum is controversial, and is as much aimed at provoking additional debate and discussion as it is finding empirical answers. Even those who accept the first two propositions have argued that we may be in the first generation, for example — that we cannot be in a simulation because the posthuman generations that will succeed us have not yet come into being. Others point to proofs of the limits of computation to suggest that, even for a posthuman civilization, it will not be possible to simulate the existing universe with exact fidelity, as the power required to simulate a simulation in perfect detail may equal or exceed the amount of power in the universe.

THE HOLOGRAPHIC UNIVERSE

In an unrelated but equally mind-boggling theory, a study run by scientists from the UK, Canada and Italy in 2017 added the first observational evidence to the idea that our entire three-dimensional universe may be a hologram encoded on a 2D surface — itself a theory developed from the concept that, though no matter may escape a black hole, the *information* of anything that has been pulled into it survives as fluctuations on the black hole's boundary.

The holographic principle extends those informational fluctuations from a black hole and out to the very boundary wall of the universe itself.

The analogy drawn by the scientists is one of going to see a 3D film. From our vantage point behind our 3D glasses, it looks like the objects we see have depth as well as height and width, even though they are all emanating out of a flat 2D screen. The main difference is that in our universe, we are also part of the projection, so everything about the projection is 'real' from our perspective.

Some scientists are excited by the theory, because of the way it may offer a way to reconcile Einstein's theory of general relativity and modern quantum theory. Currently, Einstein's theories still explain almost everything when we interrogate the universe at a large scale, but



"IMAGINE THAT EVERYTHING YOU SEE, FEEL AND HEAR IN THREE DIMENSIONS (AND YOUR PERCEPTION OF TIME) IN FACT EMANATES FROM A FLAT TWO-DIMENSIONAL FIELD." - PROFESSOR KOSTAS SKENDERIS, UNIVERSITY OF SOUTHAMPTION, UK (2017)

they become less useful as we delve into the quantum level.

Seeking to find observational evidence of the holographic theory, the researchers investigated irregularities in the cosmic microwave background — the surprisingly uniform spread of radiation left over from the Big Bang.

Using advanced telescopes searching multiple wavelengths, scientists searched back to shortly after the universe was created, sieving the data hidden in the 'white noise' of the microwaves to gain an idea of what the physical state of the universe was, shortly after its conception.

Theoretical physics met observational proof when they found that some of their simplest quantum field theories could explain nearly all of the cosmological observations of the early universe. In their own words, there was "substantial evidence supporting a holographic explanation of the universe — in fact, as much as there is for the traditional explanation of these irregularities using the theory of cosmic inflation." ABDVE: Gugu Mbatha-Raw as Kelly and Mackenzie Davis as Yorkie in the critically-acclaimed Black Mirror episode 'San Junipero', which adds heart and soul to the simulated universe conundrum. [Photo: PictureLux / The Hollywood Archive / Alamy Stock Photo]

