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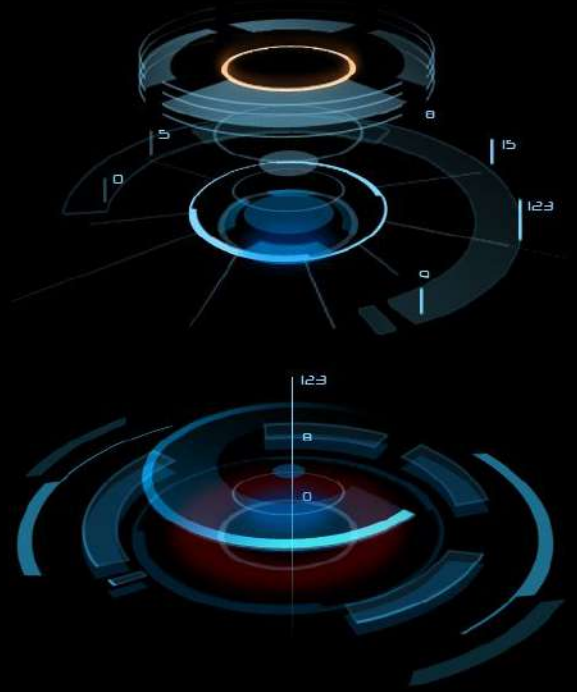

DESIGN EXPLORATION SEMINAR

Future Gadgets as seen through science fiction movies

Human Machine Interactions (HMI)

Submitted by

Pranay Gurumukhi
206130013

Guided by

Prof. Sugandh Malhotra

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited of whom proper permission has not been taken when needed.

Pranay Gurumukhi
206130013
M Des (Industrial Design)

APPROVAL SHEET

This Vehicle Design Research Seminar Entitled “Future Gadgets as seen through science fiction movies- Human Machine interactions (HMI)” by Pranay Gurumukhi, 206130013, is approved in the Partial Fulfillment of the Requirements for Master in Design Degree in Industrial Design.

Project Guide:

Prof. Sugandh Malhotra

ACKNOWLEDGEMENT

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I would like to thank our guide **Prof. Sugandh Malhotra** for constant guidance, feedback, and motivation in achieving the outcome. In addition, I also thank **Prof. Vivek Kant** for their support, guidance and for helping me to drive my work in the proper direction to achieve the goals. Also, sincere appreciation for the valuable resources and assistance provided by my colleagues and friends.

I would like to extend my acknowledgment to our course co-ordinator **Prof. Avinash Shende** for their encouragement and support for the accomplishment of this project.

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INTENT

The intent of working on human-machine interfaces (HMI) is to improve the interaction between humans and machines, making it more efficient, intuitive, and natural. This involves developing technologies that allow humans to control and communicate with machines through gestures, voice, touch, and other modalities.

By building interest in future tech HMI, we hope to inspire and educate people about the possibilities and potential of these interfaces. This includes exploring new technologies such as brain-computer interfaces, augmented reality, and haptic feedback, as well as improving existing interfaces such as touchscreens and voice assistants. The ultimate goal is to create interfaces that are more human-centric, enabling us to interact with technology in more seamless and meaningful ways.

METHODOLOGY

- Selecting a list of science fictional movies that have interesting and innovative HMIs, HUDs, FUIs and technology and includes a diverse range of genres and time periods to give a comprehensive view of how the technology has evolved over time.
- Screen playing each movie carefully and taking note of the technology and interfaces used, documenting how they work, what they do, and any relevant details.
- Analyzing the technology based on Maslow's hierarchy of needs theory. Identifying which needs the technology fulfills and how it does so.
- Organizing the findings into categories based on how they relate to Maslow's hierarchy of needs. Summarize the key findings for each category.
- Gathering conclusions based on the findings. Identifying any patterns or trends that emerged from the analysis and discussing their implications. Considering how the technology could be further developed and integrated into our own lives in the future.

LIST OF MOVIES

- Prometheus
- Interstellar
- Pacific Rim
- Pacific Rim Uprising
- The Matrix Resurrections
- Dune (2023)
- Sight Extended
- The Expanse
- Passengers
- Blade Runner 2049
- Ghost in the shell
- Life

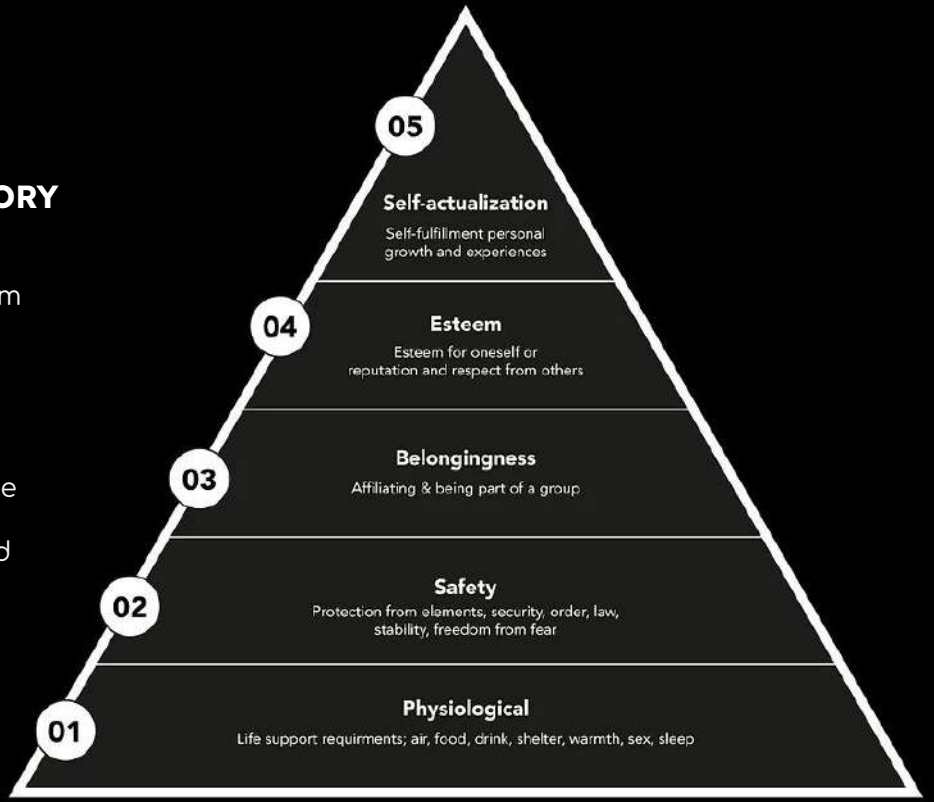
ANALYSIS

BASED ON MASLOW'S HIERARCHY OF NEEDS THEORY

According to Maslow, human needs were arranged in the form of a hierarchy, with physiological (survival) needs at the bottom, and the more creative and intellectually oriented 'self-actualization' needs at the top.

Maslow argued that survival needs must be satisfied before the individual can satisfy the higher needs. The higher up the hierarchy, the more difficult it is to satisfy the needs associated with that stage, because of the interpersonal and environmental barriers that inevitably frustrate us.

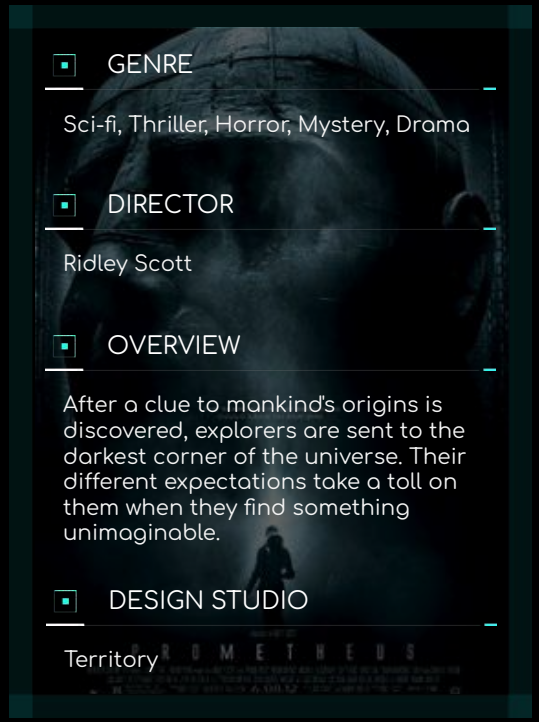
As per Maslow's Hierarchy, the above study of HMIs and technology has been classified based on the hierarchy.



MOVIES: CASE STUDY

01

PROMETHEUS (2012)



GENRE

Sci-fi, Thriller, Horror, Mystery, Drama

DIRECTOR

Ridley Scott

OVERVIEW

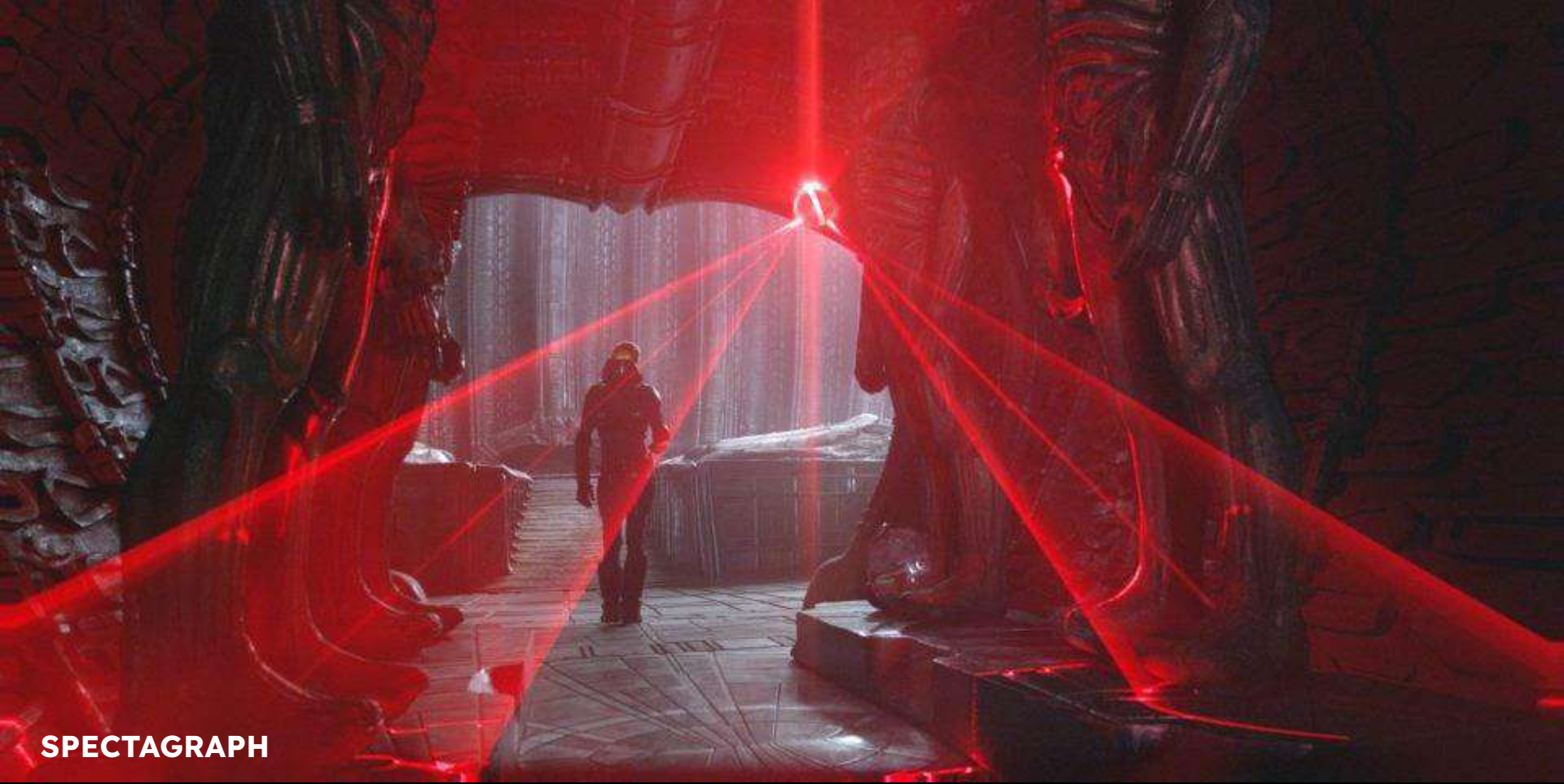
After a clue to mankind's origins is discovered, explorers are sent to the darkest corner of the universe. Their different expectations take a toll on them when they find something unimaginable.

DESIGN STUDIO

Territory

Prometheus is a 2012 science fiction horror film directed by Ridley Scott, written by Jon Spaihts and Damon Lindelof.

It is set in the late 21st century and centers on the crew of the spaceship Prometheus as it follows a star map discovered among the artifacts of several ancient Earth cultures. Seeking the origins of humanity, the crew arrives on a distant world and discovers a threat that could cause the extinction of the human species.



SPECTAGRAPH

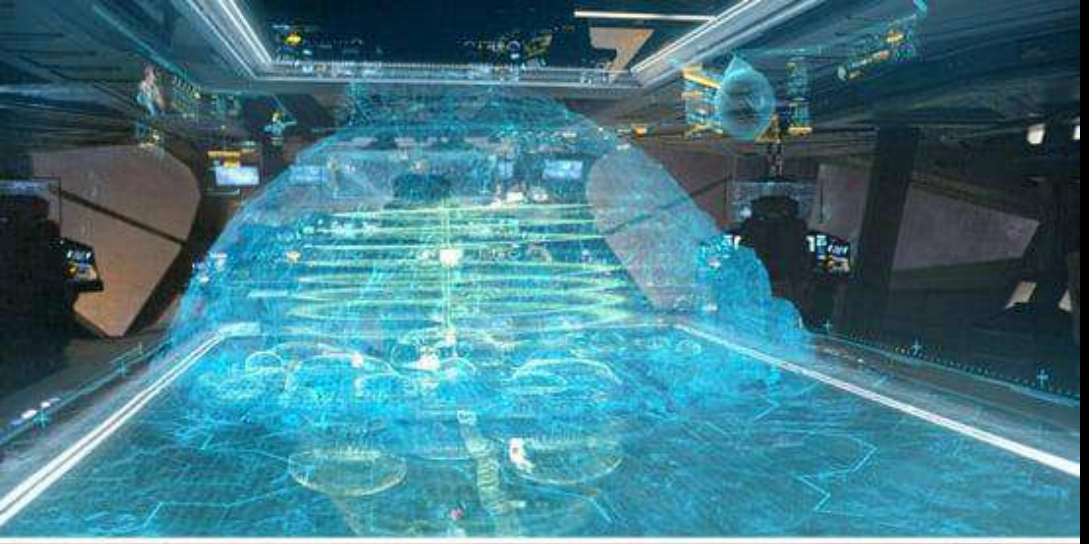
A flying orb, the spectrograph is used by the geologists and engineers to scan unknown terrain and search for possible living microbes. The red laser live-maps 3D topography and sends the scans back to the team on the ship.

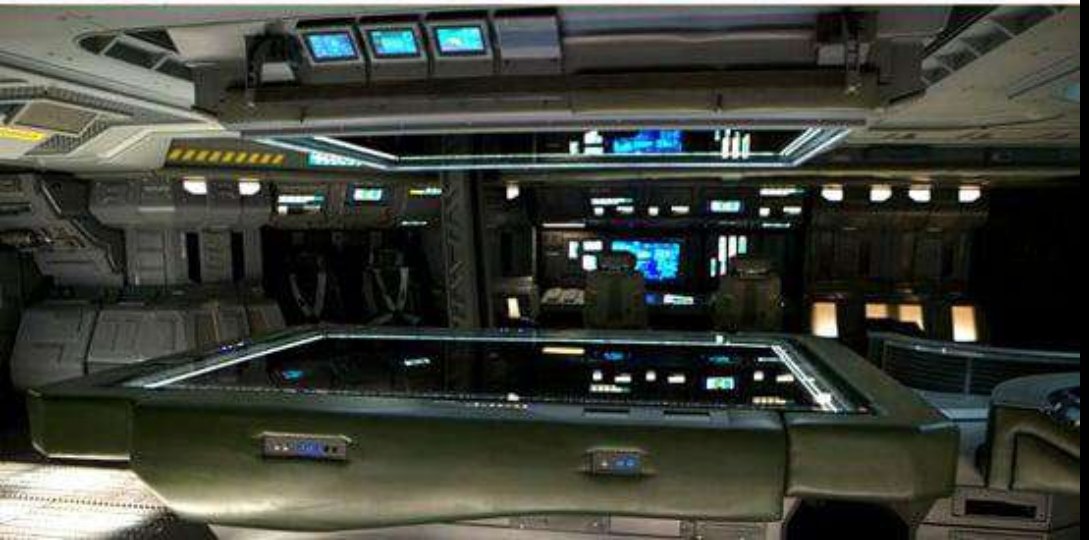
CRYOSTASIS PODS

Save your energy and pesky human aging process for when you've arrived at your planetary destination and are ready for business. A staple of science fiction, the cryostasis pod preserves human life while in a catatonic state.

HOLOGRAM EVERYTHING

Life in Ridley Scott's vision of 2093 is rife with holograms, and no, the Coachella hologram has nothing on these futuristic versions. It would be an augmented reality that breathes new life into home entertainment of any medium.





INTERACTIVE OFFICES

Imagine gathering around this conference table to get briefed on the latest team developments. The Prometheus team used the pictured 3D topographical hologram map to follow crew members as they worked on the alien planet. With live reports continuously updating and appearing within the table, the control center paints the whole story more than a basic touchscreen table ever could.

SRF SCN
PST MD
TOR SCN
QANT AL
CHY
CAR
HYD
NITR
GRP SRF
FMG
056 2.1 NM

WEATHER ICONS
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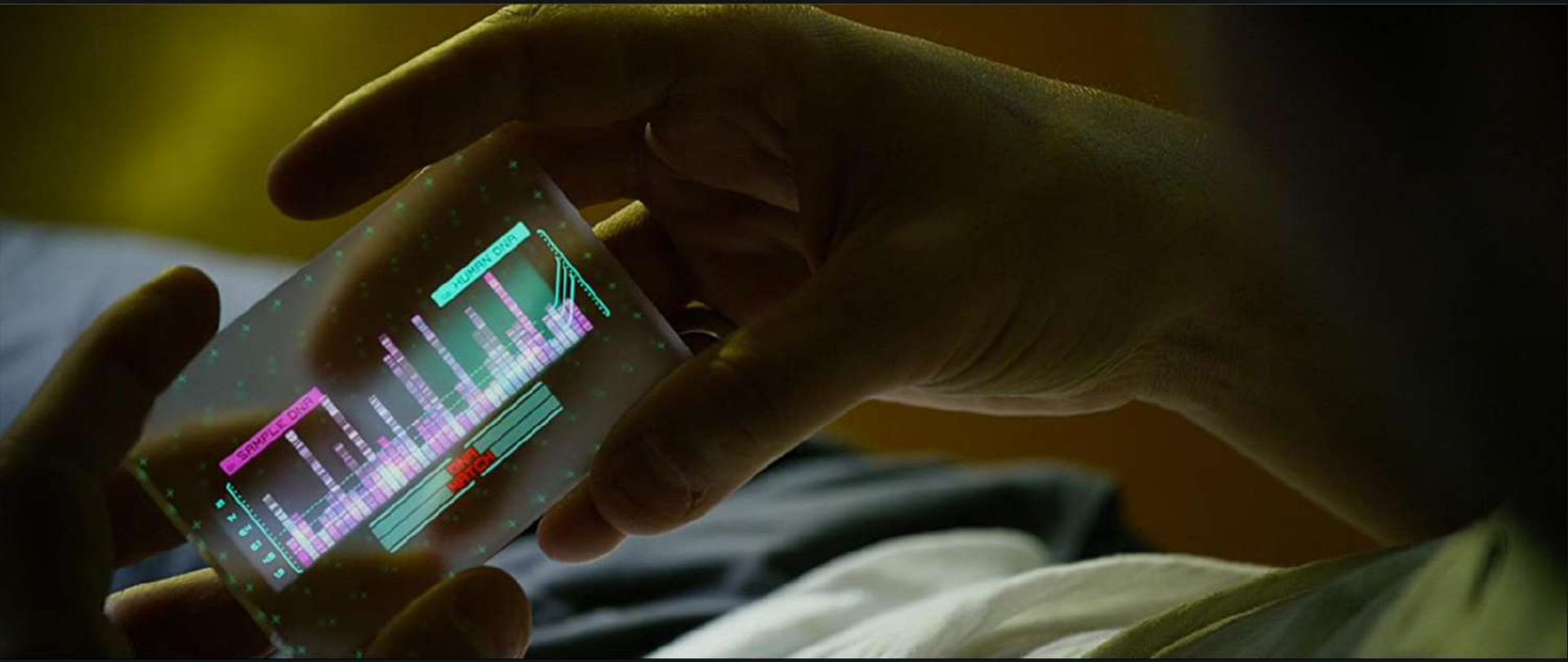
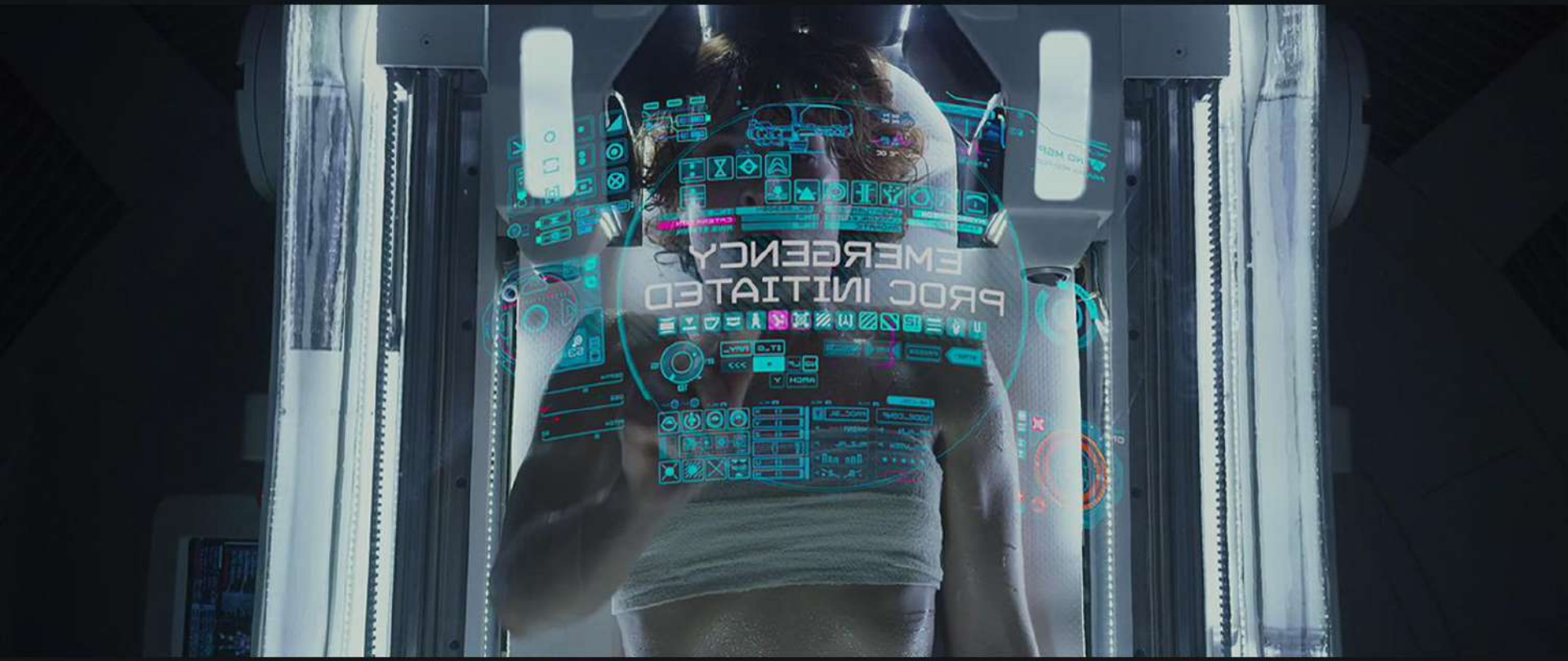

HUMAN DNA
SAMPLE DNA
DNA MATCH


EMERGENCY
PROC INITIATED

WD MGP
PAULING MED-POD
EF-09/B
CONV.
92%
PROCESSING
DATA
SCAN HEADS
STABLE
NODES
RATIO
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2/0.3
NODE_CONF
MP_ALN
BMP_VIEW
RADC_SL
MAINT
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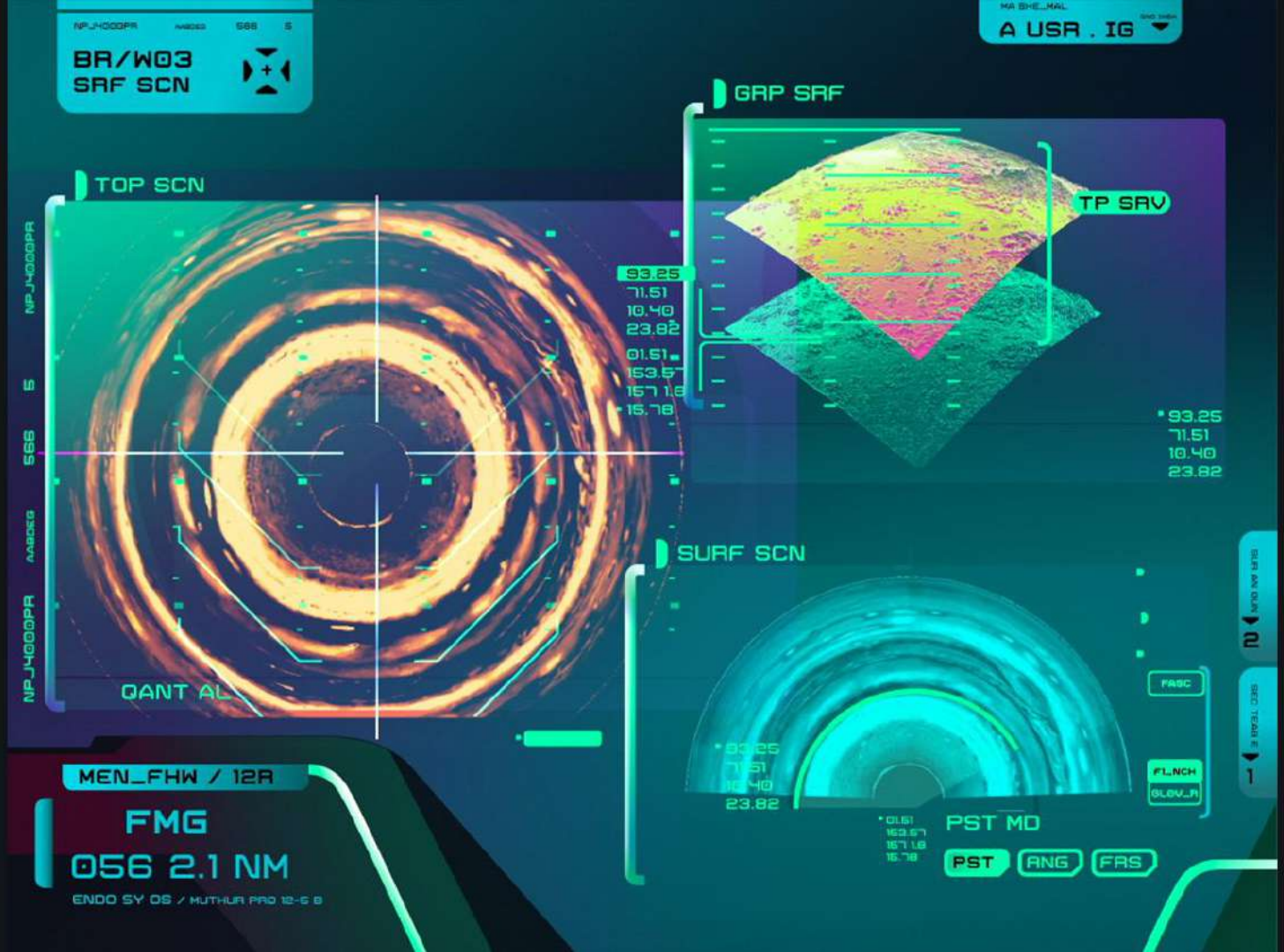
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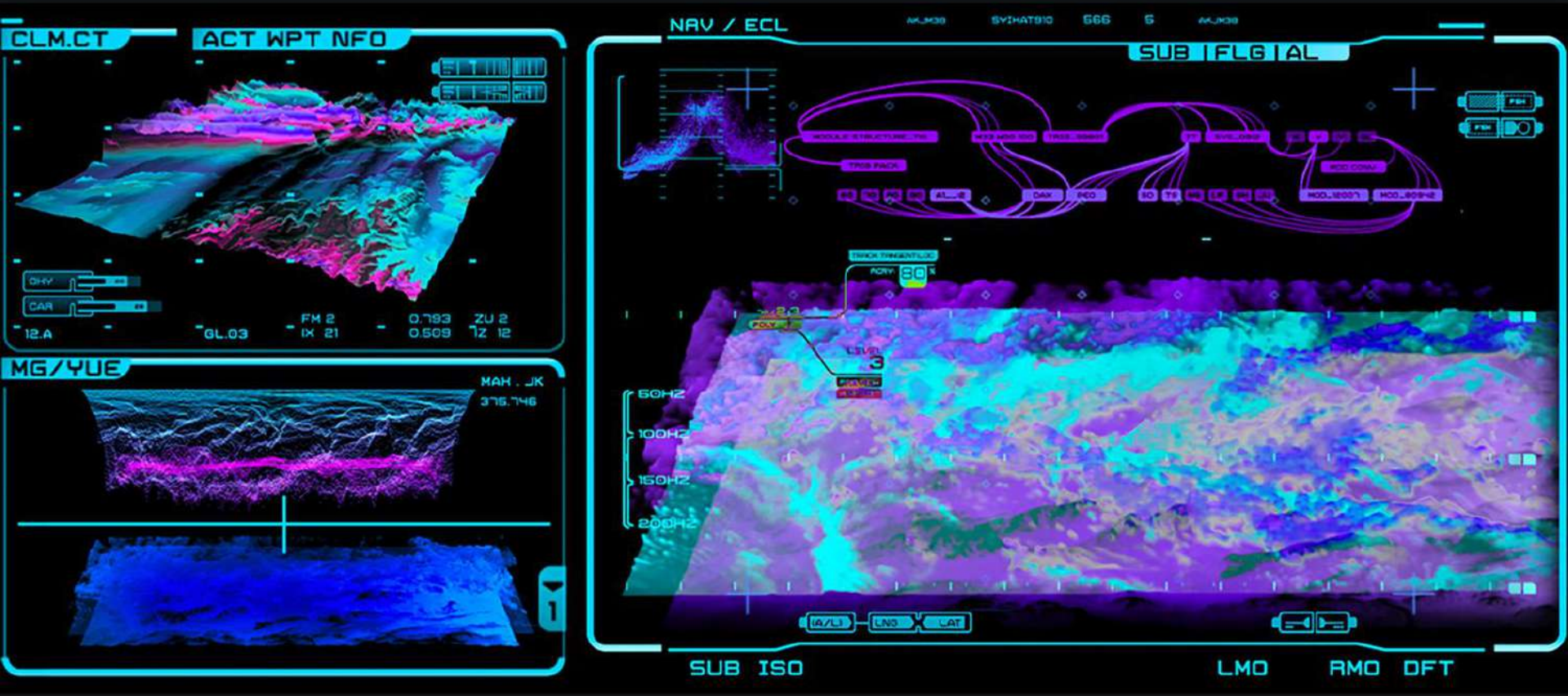
CLM.CT
ACT WPT NFO
MG/YUE
NAV / ECL
SUB IFLGIAL
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LMO
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DFT
50HZ
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200HZ

SAMPLE DNA
HUMAN DNA
PROCESSING
WD MGP

ECG ICONS
SET UP
FREEZE
START
END
MRI ICONS
SAT
RX
LIFT
RETURN
SEND
D-CON
OPEN
CLSD
1
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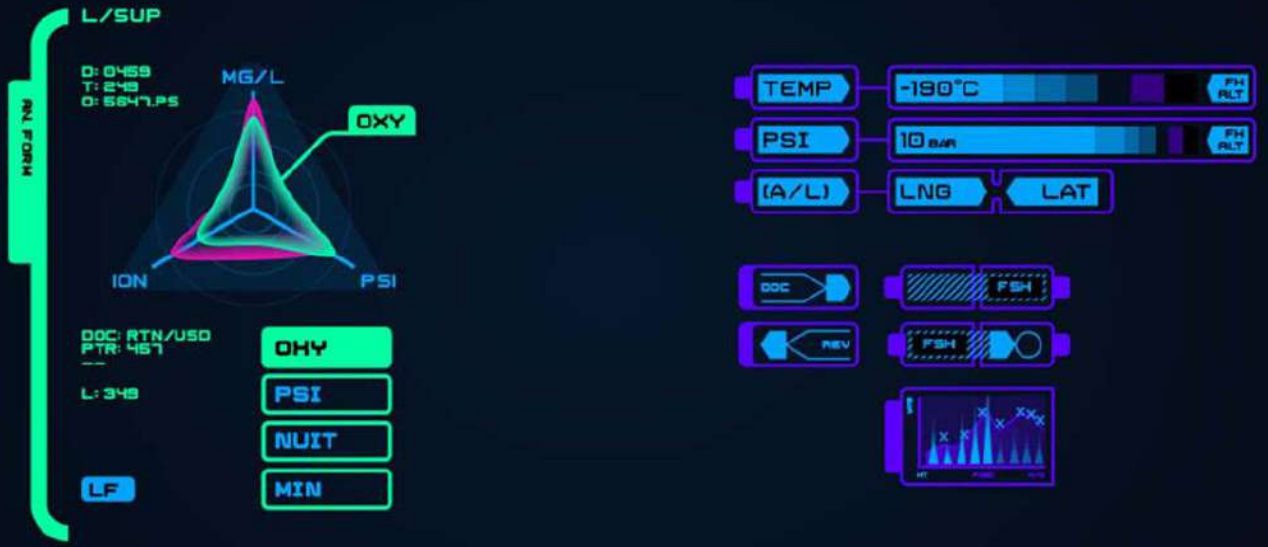
SEND
STOP
VOLUMETRIC SCANNER
SCAN
SPECTAGRAPH ICONS
START
STOP


L/SUP
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T: 243
O: 5547.PS
MG/L
OXY
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PSI
DOC: RTN/USD
PTR: 467
L: 349
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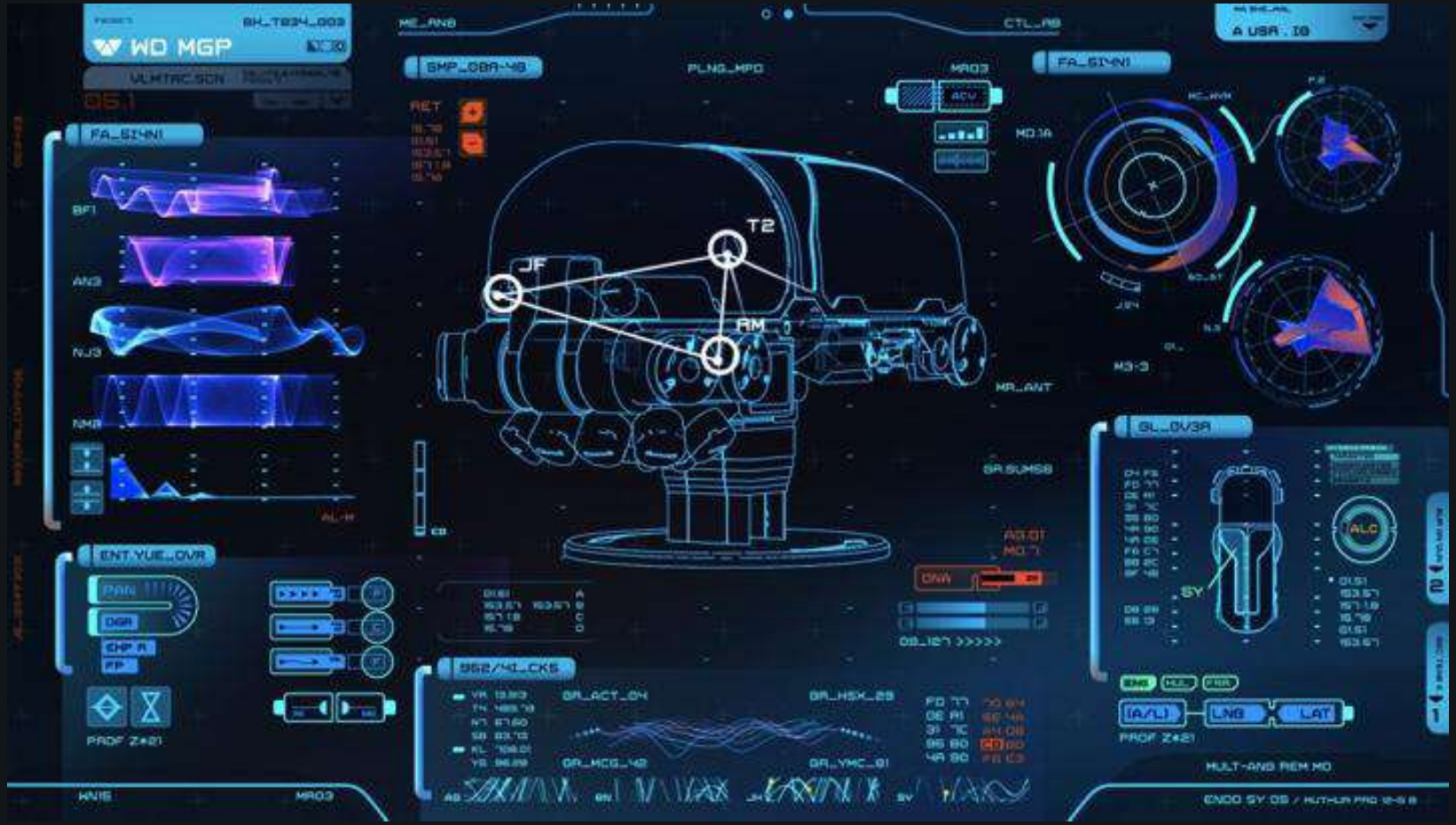
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CHP R
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PROF Z*21
SMP_OBR-48
PLNG_MPO
MRO3
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RM
MR_ANT
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GR_HSX_29
GR_MCG_42
GR_YMC_01
GL_0V3R
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ALC
(A/L)
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LAT
PROF Z*21
MULT-ANG REM MO
ENDO SY 05
WN16
MRO3

ANALYSIS - PROMETHEUS

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The advanced medical technology provides them with life support systems, advanced medical equipment, and cryogenic sleep chambers.	The HMI and technology provide them with advanced spaceships, high-tech space suits, and security systems. The David android's advanced AI capabilities also contribute to the safety and security of the characters.	The characters form bonds and relationships with each other, which contributes to their sense of belonging and connection.	The advanced technology used in the movie helps the characters to achieve their full potential and gain recognition for their skills and abilities. For example, the David android's advanced AI capabilities enable him to perform complex tasks and provide valuable information to the crew, which earns him the respect and admiration of the crew members.	Technology enabling them to explore new frontiers and transcend their physical limitations. The advanced medical technology and spacecraft allow the characters to travel to new worlds and discover the origins of humanity, while the David android's advanced AI capabilities enable him to question the nature of his own existence and explore the limits of artificial intelligence.

MOVIES: CASE STUDY 02

INTERSTELLAR (2014)

GENRE

Sci-fi, Adventure, Mystery, Drama

DIRECTOR

Christopher Nolan

OVERVIEW

When Earth becomes uninhabitable in the future, a farmer and ex-NASA pilot, Joseph Cooper, is tasked to pilot a spacecraft, along with a team of researchers, to find a new planet for humans.

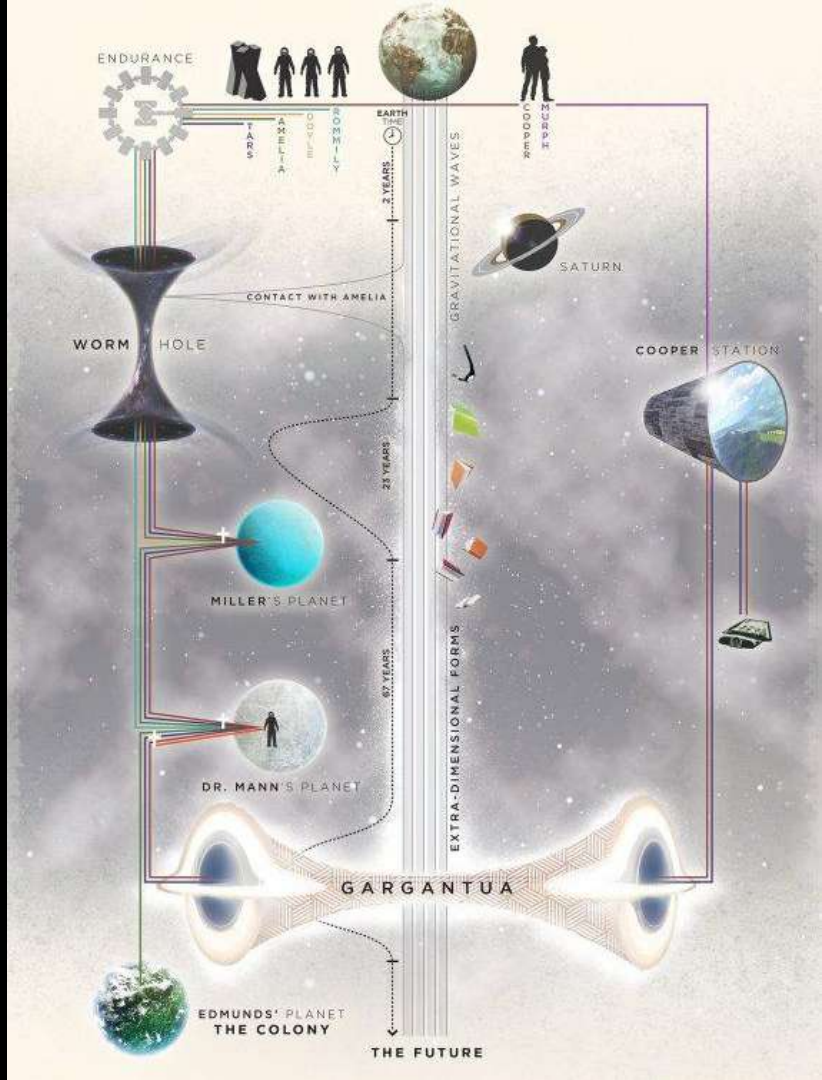
Interstellar is a 2014 epic science fiction film co-written, directed, and produced by Christopher Nolan.

Set in a dystopian future in 2067, where humanity is struggling to survive, the film follows a group of astronauts who travel through a wormhole near Saturn in search of a new home for mankind. the film contained 850 visual-effect shots at a resolution of 5600 × 4000 lines: 150 shots that were created in-camera using digital projectors, and another 700 were created in post-production.

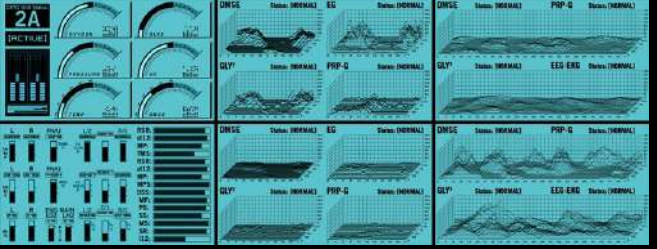
Describing Nolan as a "merchant of awe," Interstellar was "agonisingly" close to a masterpiece, highlighting the conceptual boldness and "deep-digging intelligence" of the mankind.

A FILM BY CHRISTOPHER NOLAN
INTERSTELLAR

The movie is a perfect blend of Science, technology, out of the world imaginations and Human emotions.



COCKPIT



VGA01

V01

VGA02

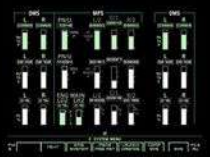
V02

SFEED01

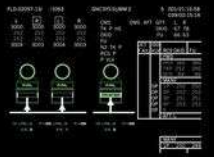
SFEED02

SFEED03

VGA03



VGA04



VGA05

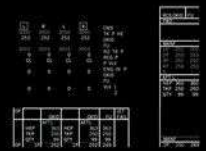
SFEED03

SFEED02

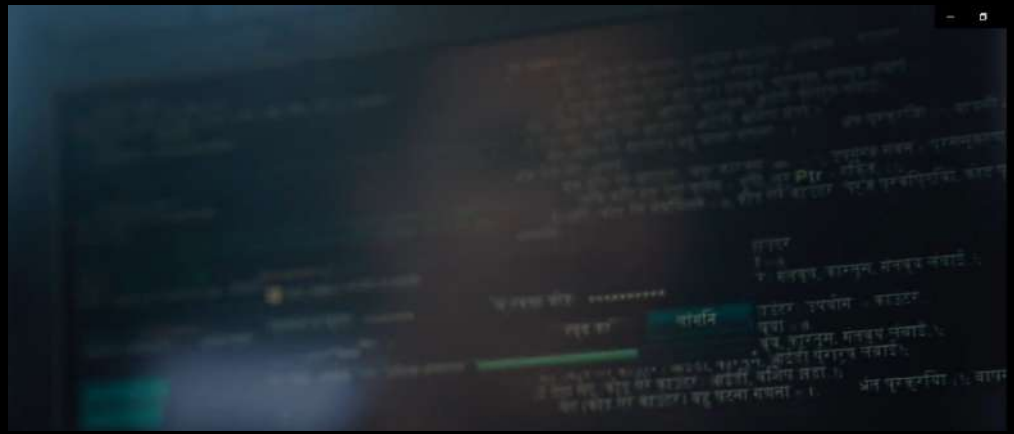
SFEED01

VGA06

VGA07

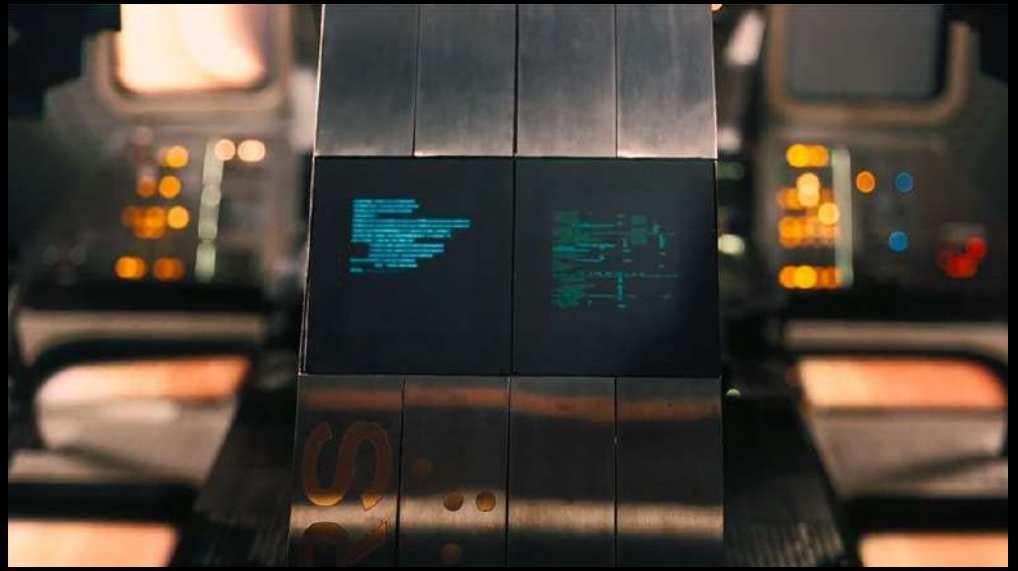


VGA08



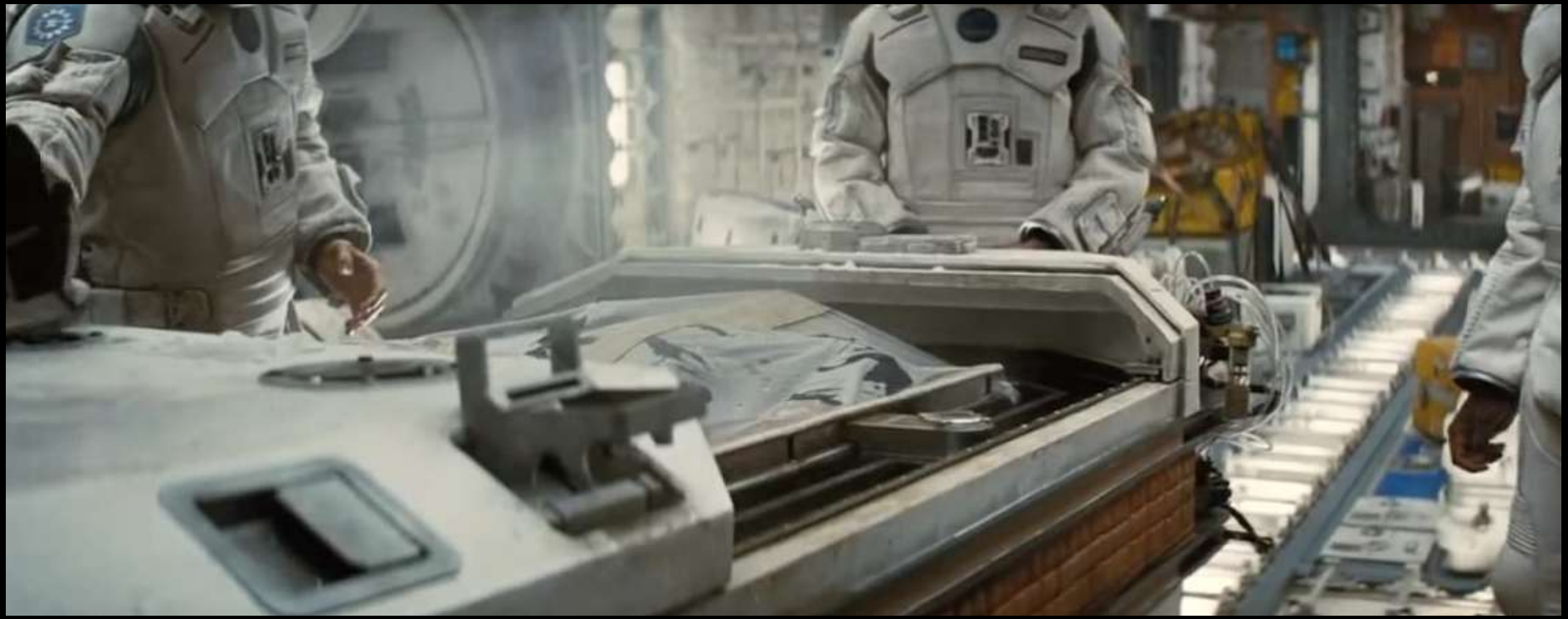
The movie shows an Indian Air force drone which has lost control

The Protagonist tries to gain control over it.
The coding shown in hindi shows how much the creators have paid attention to the most minor detailings.



INTELLIGENT AND SUPERFICIAL ROBOTS

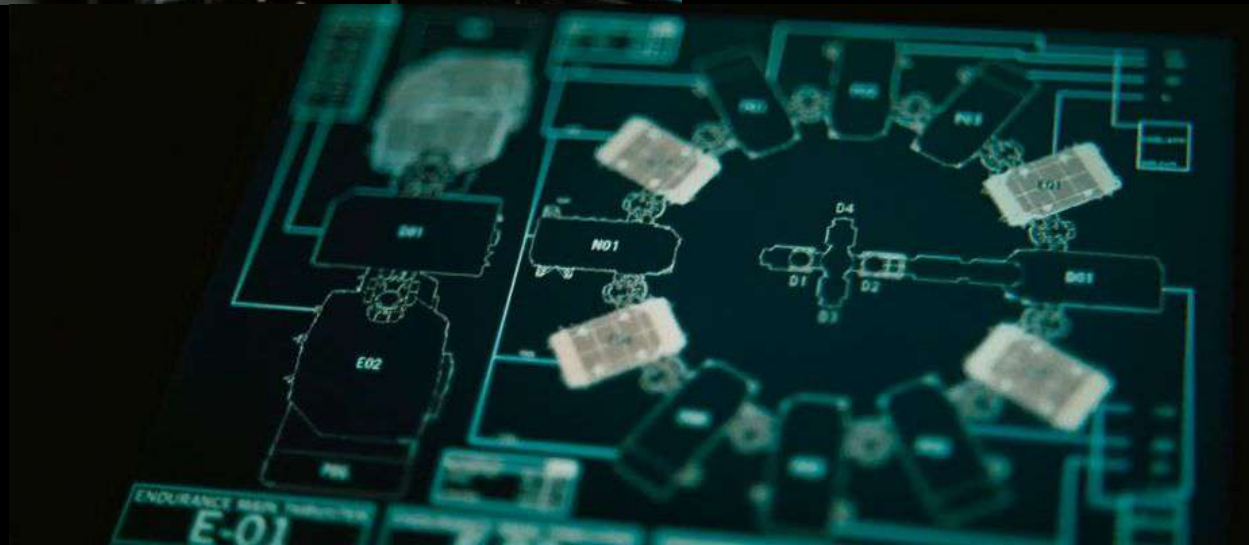
Two similar Artificially Intelligent Robots are shown in the movie which has a cuboidal form by default. But as the movie progresses the way the shape changes in order to facilitate different activities and help humans are a treat to watch.



CRYOSLEEP

Cryogenic sleep, also known as suspended animation and **cryosleep**, refers to a deep sleep at super low temperatures.
The idea is that the low temperatures will keep vital functions intact while the rest of the body goes into a hibernation-like state.

This is done to prevent aging and for efficient use of limited resources

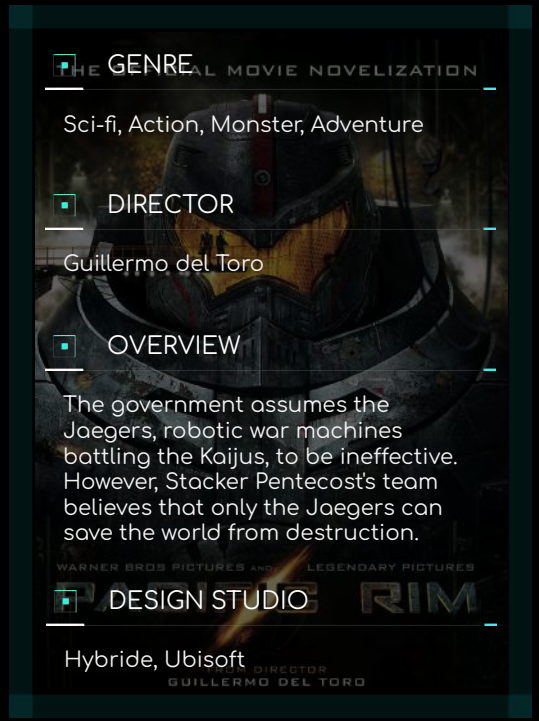

N01
D4
D1
D2
D3
E02
ENDURANCE MAIN
E-01

ANALYSIS - INTERSTELLAR

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
Technology provide them with life support systems, advanced medical equipment, and food and water supplies. The characters also use advanced agricultural technology to grow crops in space, which helps them to sustain themselves.	The HMI and technology provide them with advanced spacecraft and spacesuits, as well as sophisticated navigation and communication systems. The advanced AI technology of the TARS robot also contributes to the safety and security of the characters.	The strong bonds and relationships that the characters form with each other throughout the course of the movie contribute to their sense of connection and belonging.	the character Dr. Mann uses advanced cryogenic technology to extend his life and continue his research, which earns him the respect and admiration of the other characters.	Tech helps them to explore new frontiers and push the boundaries of human knowledge and understanding. The characters use advanced spacecraft and wormhole technology to travel to new worlds and search for habitable planets, while the advanced AI technology of the TARS robot allows them to perform complex tasks and make discoveries that were previously thought to be impossible.

MOVIES: CASE STUDY 03

PACIFIC RIM (2013)



GENRE

Sci-fi, Action, Monster, Adventure

DIRECTOR

Guillermo del Toro

OVERVIEW

The government assumes the Jaegers, robotic war machines battling the Kaijus, to be ineffective. However, Stacker Pentecost's team believes that only the Jaegers can save the world from destruction.

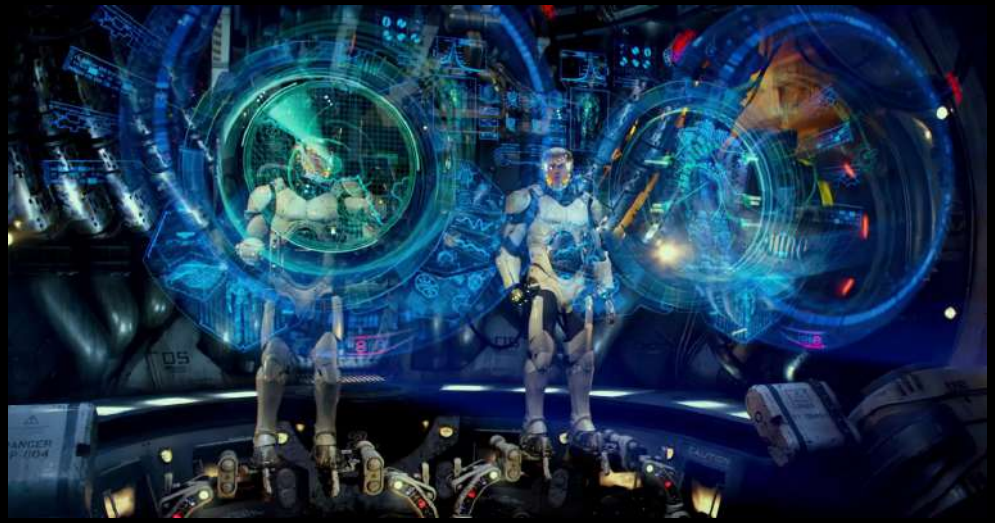
DESIGN STUDIO

Hybride, Ubisoft

A 2013 American science fiction monster film directed by Guillermo del Toro, screenplay was written by Travis Beacham and del Toro from a story by Beacham.

The film is set in the future, when Earth is at war with the Kaiju, colossal sea monsters which have emerged from an interdimensional portal on the bottom of the Pacific Ocean. To combat the monsters, humanity unites to create the Jaegers, gigantic humanoid mechas, each controlled by two co-pilots whose minds are joined by a mental link.

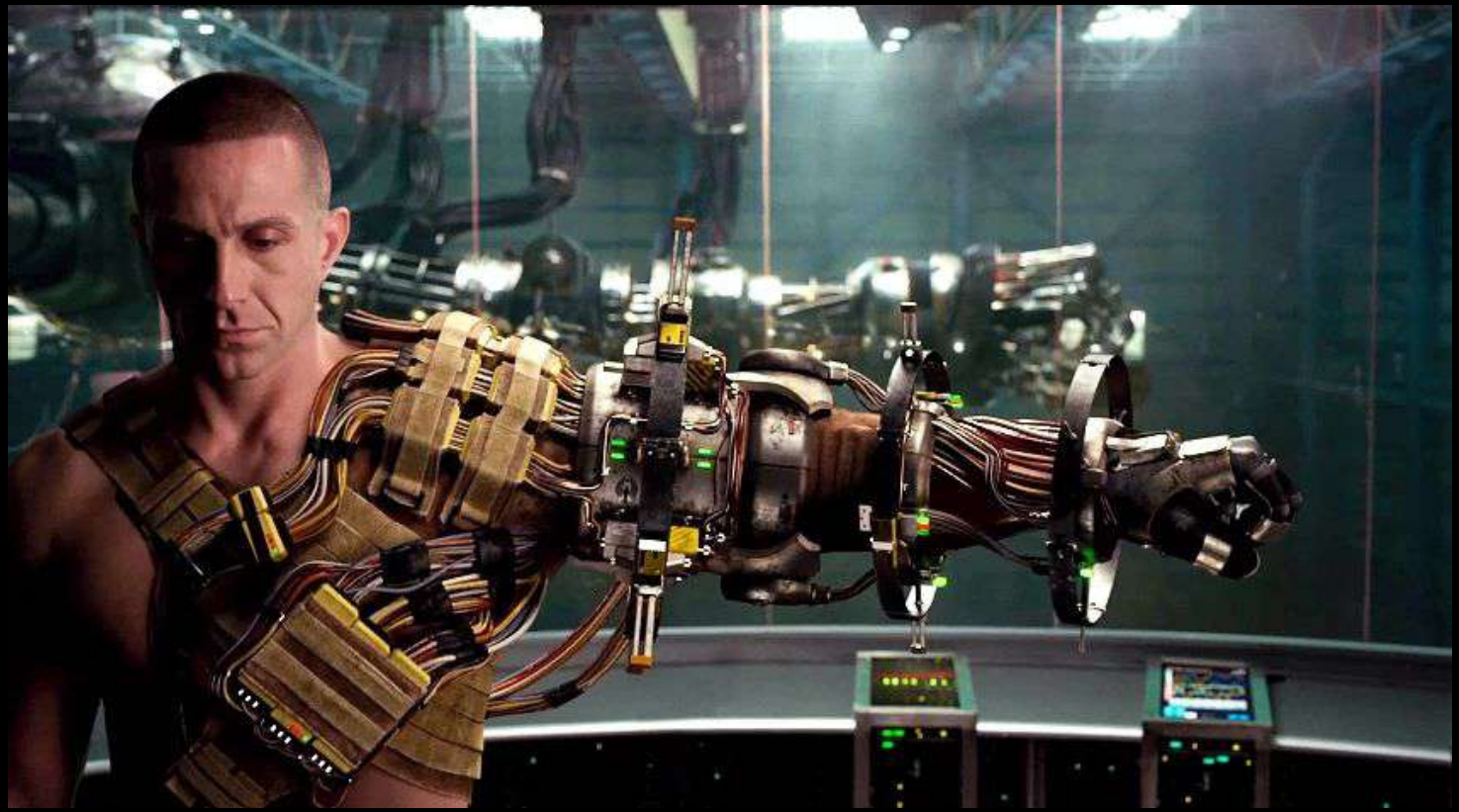
It may sport more style than substance, but Pacific Rim is a solid modern creature feature bolstered by fantastical imagery and an irresistible sense of fun.



Tech

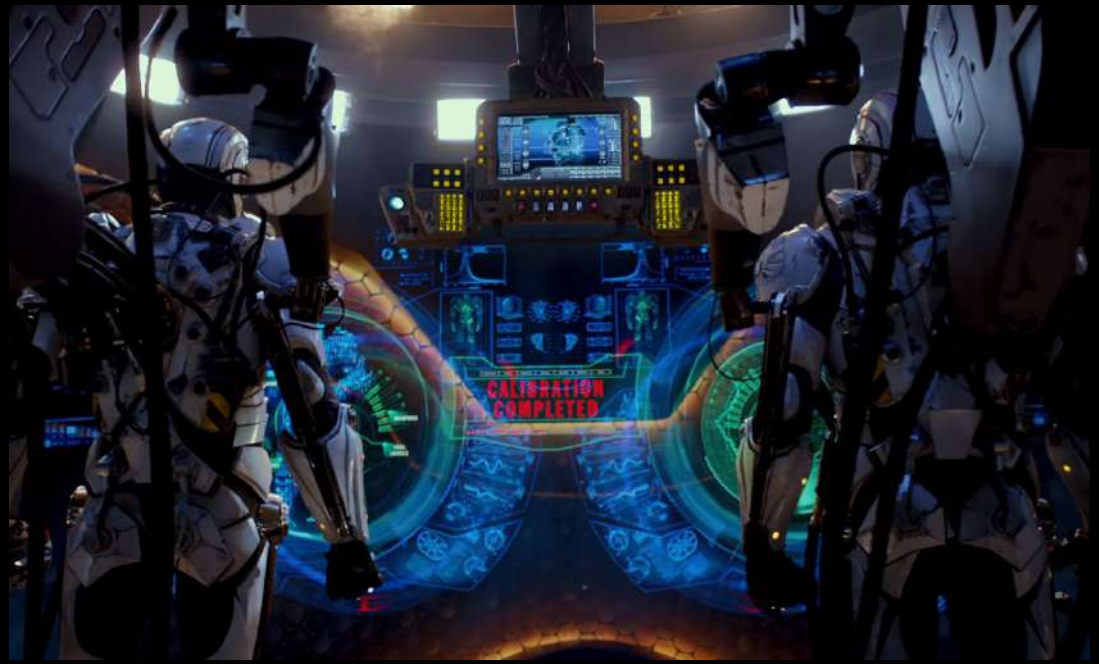
The technologies in Pacific Rim are heavily focused on human-machine interfaces, with the neural handshake and Drift technology being the key mechanisms for controlling the Jaegers. The heads-up display and holographic screens provide pilots and command center personnel with real-time information about the battle and the status of their equipment, while the Kaiju blood and related technologies enable the development of new weapons and strategies for fighting the monsters.

For the cockpit HUDS (Heads-Up Displays), Hybride's graphic designers were faced with the challenge of creating visual signatures for graphics to help identify each robot's country of origin, allowing audiences to instantly recognize Jaegers.



DARPA Neural Link

The Jaegers were based on existing Robotic / DARPA (US military research agency) Jet-fighter neural links. The very first engines used to create the ‘muscle strands’ on the Jaeger limbs were Husqvarna (Swedish engine makers) engines and the first assembly line was an amalgam between Germany and US. Those were the MARK I.



Neural Handshake - The Drift

Each Jaeger requires two pilots, and each pilot provides one hemisphere of brain function and motor control to the robot body.The Bond that enables pilots to manipulate the Jaeger's every movement. Two bodies mind-melding with the body of a giant machine. Once pilots enter the drift-space, the connection between them and the Jaeger allows the two-part human pilot system to sync up seamlessly with the robotic frame.

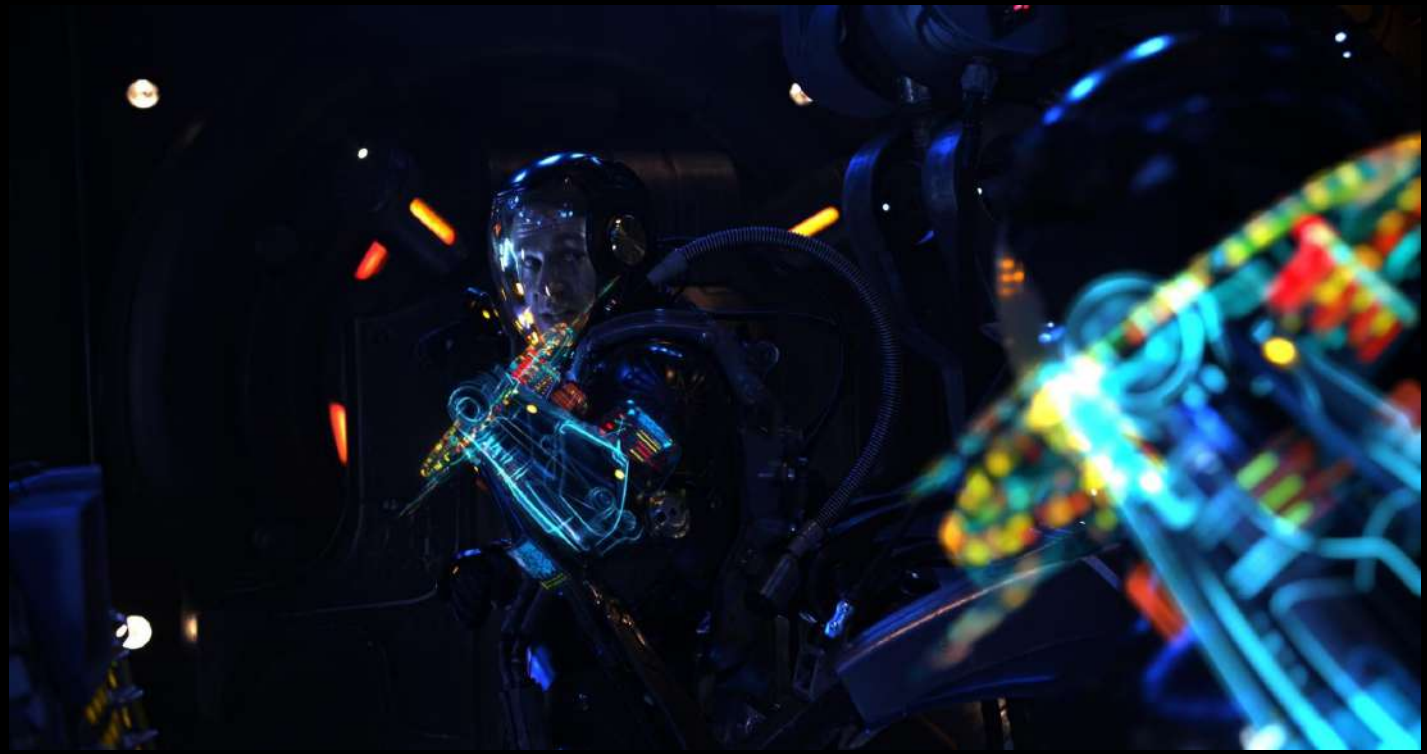
This is an example of mental synthesis what we call as mental interaction to control a tangible system with brain based on co-cognitive experiences in the drift. For which we refer to Brain-computer Interfaces (BCI).

The Conn Pod

Inside the Jaeger heads – known as Conn-Pods – two pilots control the robot via ‘drifting’ in which their minds are locked in a neural bridge. They can then operate the Jaeger by physically performing the required actions while connected to each other and the robot itself via mechanical ‘stilts’. Production filmed the pilot actors on a gimbal-operated set that was partially fitted out with interiors, cables et cetera but also had interactive water, sparks and movement filmed in live action. Legacy Effects was responsible for the practical Conn-Pod machinery of pull levers, springs and metal parts. The studio also fashioned pilot suits and helmets. Extra moving machinery and holograms would be added in via visual effects.

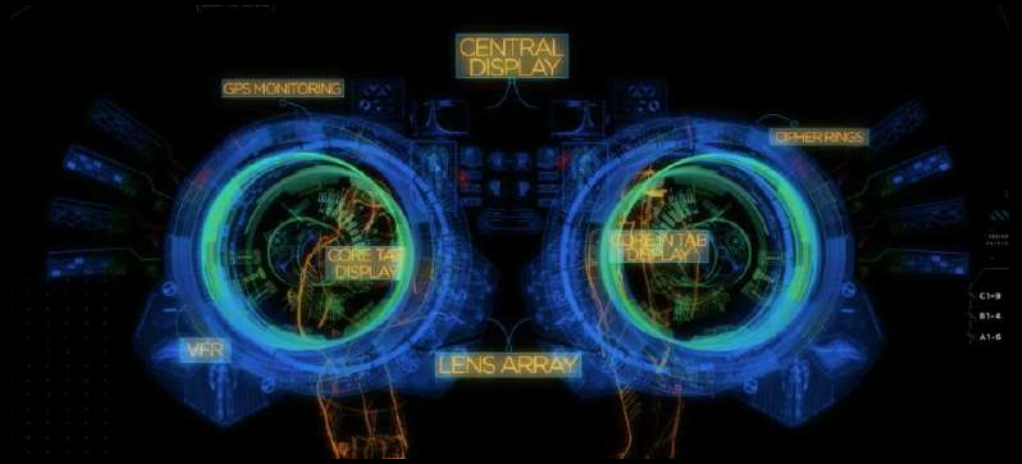
Hand Disk holograms

The hand disk is a similar holographic display that appears on the palms of the pilots' gloves. It provides a more detailed view of the environment, showing the location of Kaiju, other Jaegers, and any obstacles in the pilots' path. The hand disk is also used for targeting, allowing pilots to lock onto specific targets and fire their weapons with greater accuracy.



Arm grid holograms

The arm grid is a holographic display that appears on the arms of the Jaeger pilots' suits. It shows the different weapon systems available on the Jaeger, allowing pilots to select and activate them with a simple gesture. For example, if a pilot wants to fire a missile, they can swipe their arm in the direction of the target and the arm grid will show the missile system being activated.



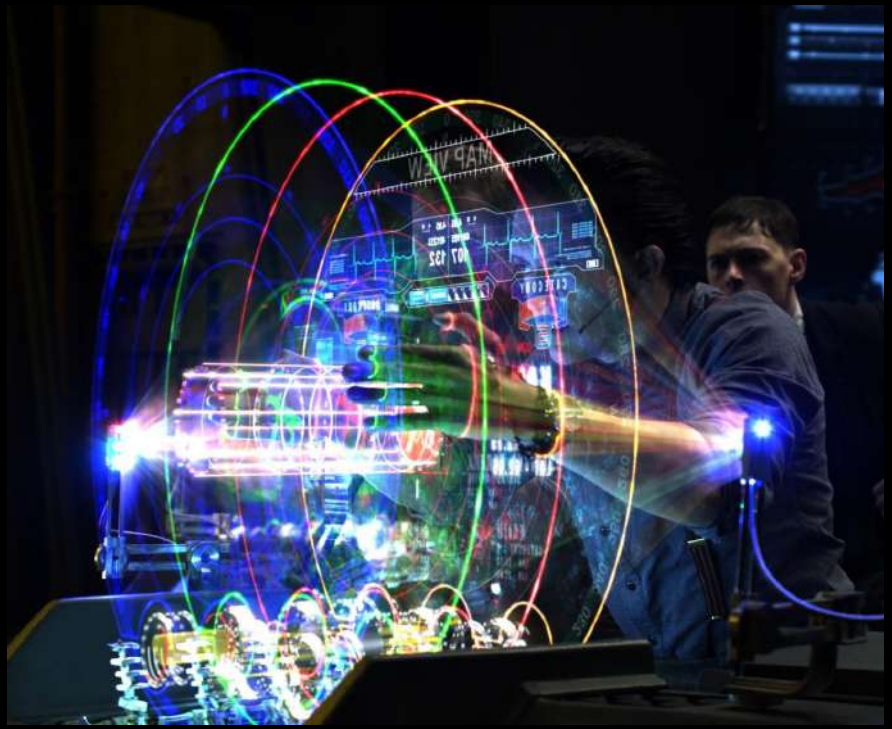
The arm grid and hand disk holograms are part of the user interface in the Jaeger suits, providing pilots with additional control and information about their environment.

Both the arm grid and hand disk holograms are controlled through the Jaeger's neural interface, which allows pilots to operate the systems with their thoughts and gestures. This enables them to react quickly in the heat of battle, without the need for complex button presses or verbal commands.

Overall, the arm grid and hand disk holograms in Pacific Rim provide pilots with a powerful and intuitive user interface, enabling them to control their Jaeger more effectively and respond to threats in real-time.

Cockpits of Jaegers

Hybride's team of artists created a series of colour and graphic styles specific to each country's robot.

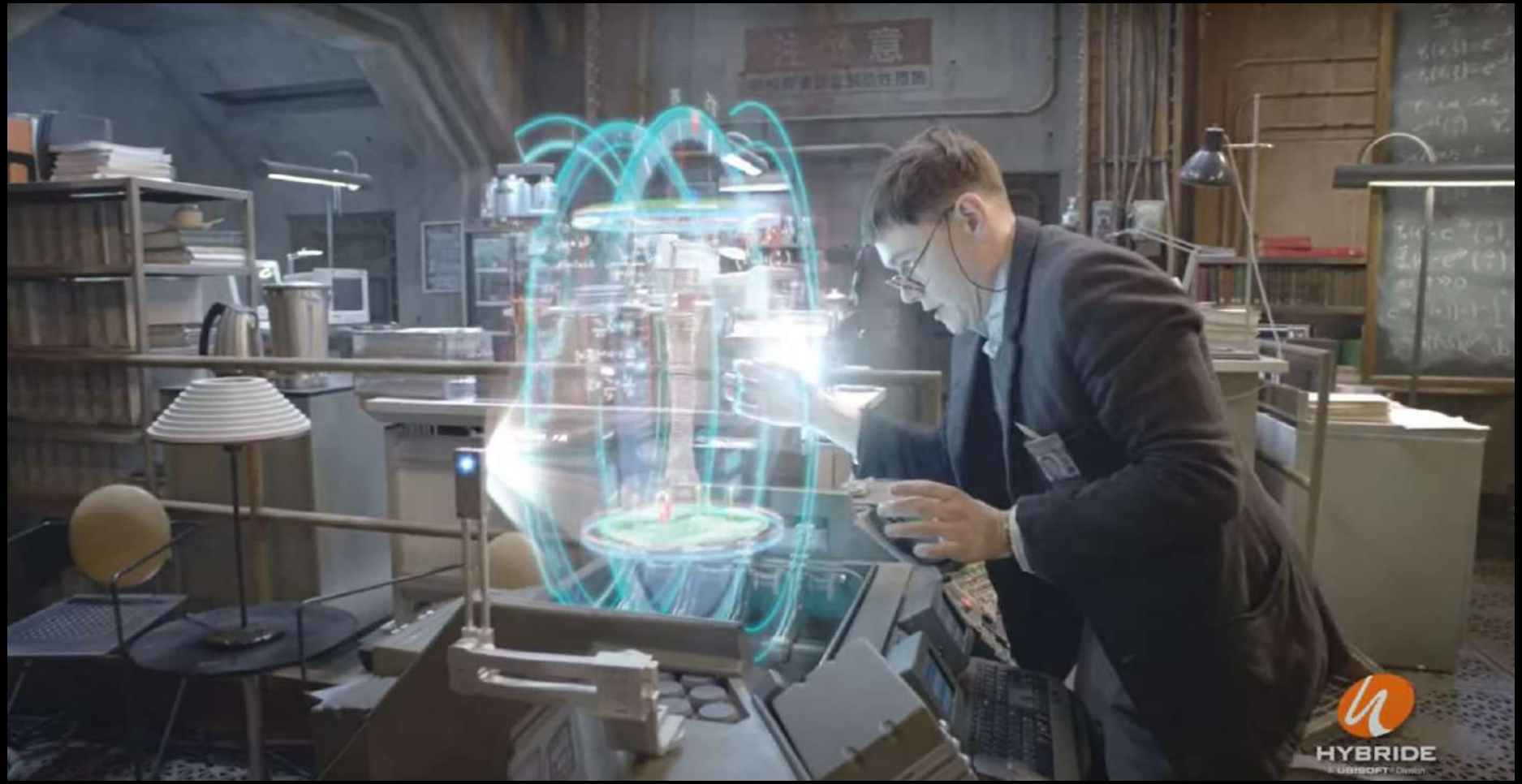


Control room monitors

The displays are typically arranged in a grid format, allowing multiple feeds to be viewed simultaneously and enabling the command center to track multiple Jaegers and Kaiju at the same time.

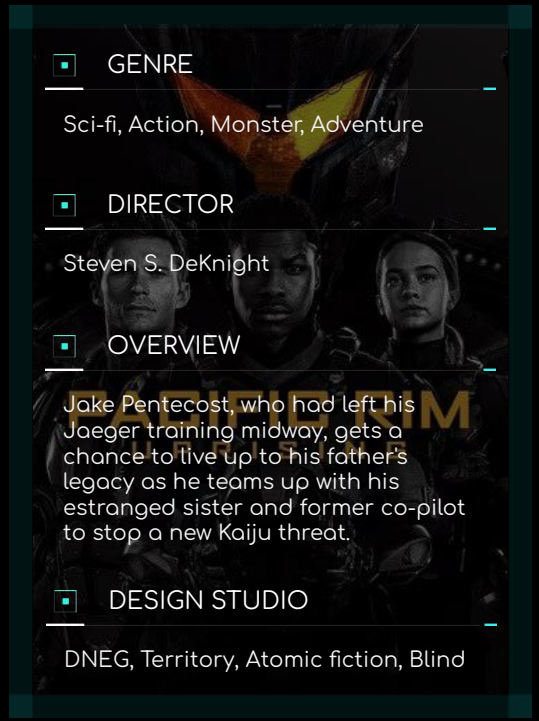
These displays use holographic technology to create three-dimensional images, providing personnel with a more immersive and realistic view of the battle environment. For example, holographic television screens are used to show news broadcasts and public announcements, while holographic computer monitors are used by scientists and engineers to study the Kaiju and develop new weapons and technologies.

The control room monitors and holographic displays in Pacific Rim are an essential part of the movie's world-building, creating a high-tech and immersive environment that supports the story and enhances the viewing experience. They provide a sense of realism and detail, making it easier for viewers to suspend disbelief and engage with the movie's characters and events.


HYBRIDE
UBISOFT Divertis

MOVIES: CASE STUDY 04

PACIFIC RIM 2 (2018)



GENRE

Sci-fi, Action, Monster, Adventure

DIRECTOR

Steven S. DeKnight

OVERVIEW

Jake Pentecost, who had left his Jaeger training midway, gets a chance to live up to his father's legacy as he teams up with his estranged sister and former co-pilot to stop a new Kaiju threat.

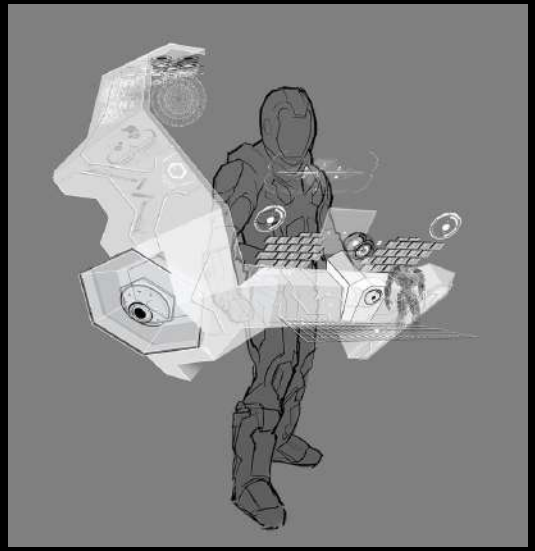
DESIGN STUDIO

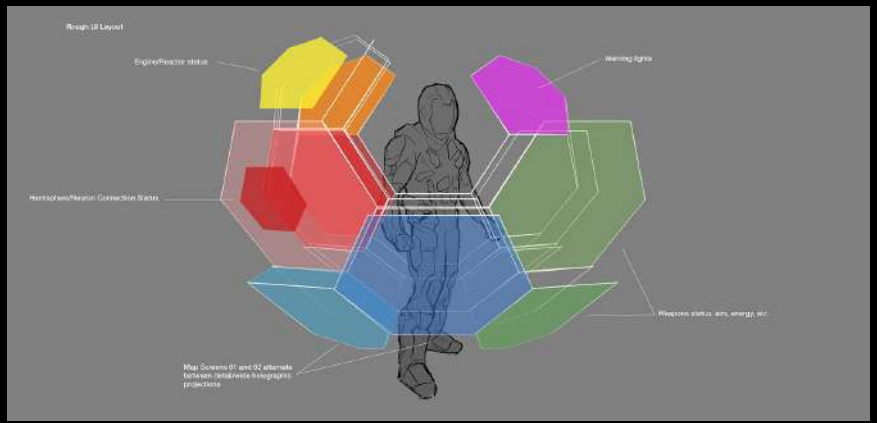
DNEG, Territory, Atomic fiction, Blind

Pacific Rim Uprising is a 2018 American science fiction monster film directed by Steven S. DeKnight, and written by DeKnight, Emily Carmichael, Kira Snyder and T.S. Nowlin.

It is the sequel to the 2013 film Pacific Rim. The film takes place in 2035, ten years after the events of the original film. The story follows Jake Pentecost, who is given one last chance to live up to his father's legacy after Kaiju, giant sea monsters, are unleashed back into the world and aim to destroy it.

Tapped to create holographic control surfaces and display systems for the iconic Jaeger robots in Pacific Rim: Uprising, Territory worked closely with Dneg to bring the man-machine interactions to life.





Console and Display Development

There was different design principles of different jaegers. to reflect the technical evolution and sophistication of the different models, they also needed to give each Jaeger distinct ‘personalities’ in the design and graphic language of holographic consoles.

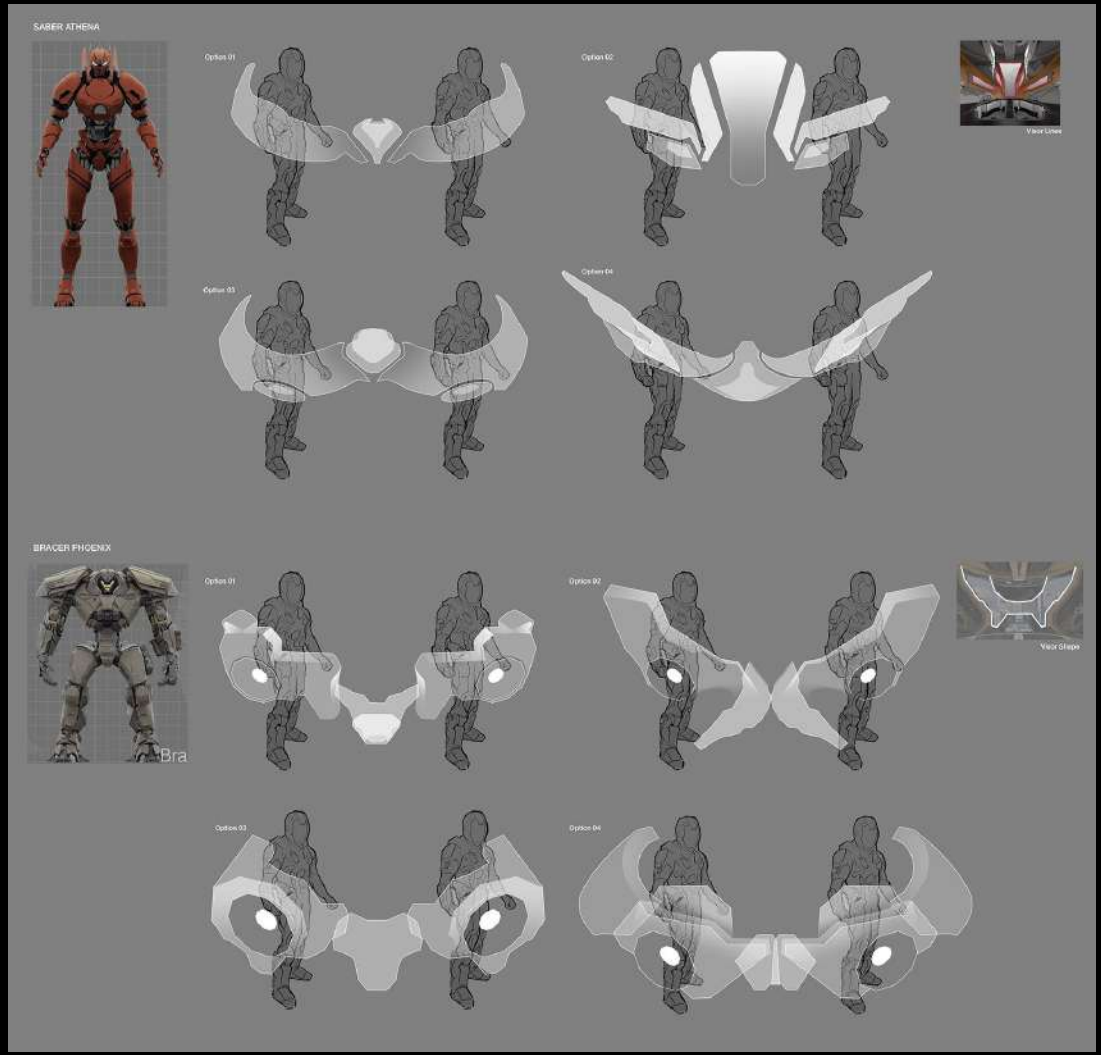
By exploring quite a few routes in the shape language, which needed to be unique for each Jaeger, and ways of creating complexity and volume for the interfaces.

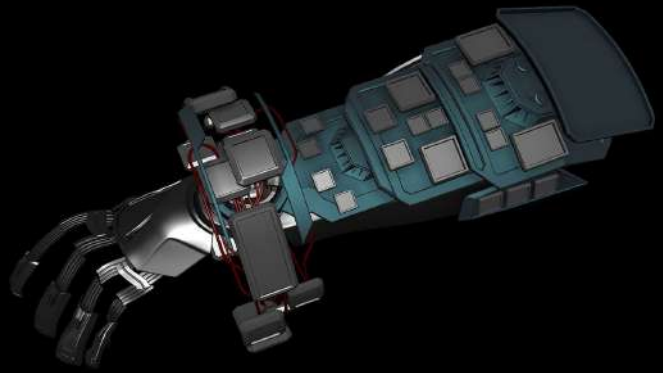
In addition to the aesthetic consideration, they grounded each console design in ergonomic constraints to ensure that the displays felt like a natural extension of the actors’ movements.

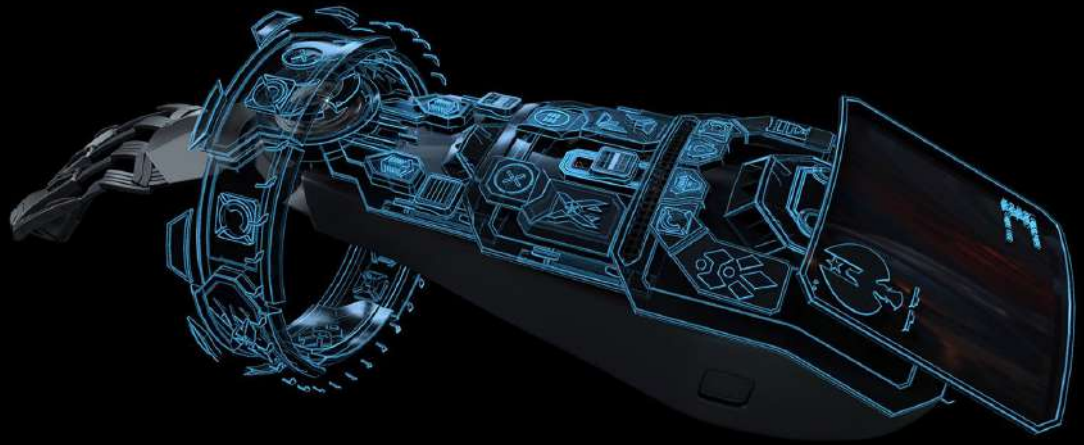
Jaeger Console States

Established the concept of a central, roughly cylindrical core as the heart of each interface console.

Creating configurations based on the different states they needed to be in for any sequence, they designed distinctive bootup, recon, damage and battle states. This created behavioural rules for how the consoles scaled up and down. For example, when the pilots are in battle, the consoles move out of their way, allowing freedom of movement without risk of clashing with the interfaces.







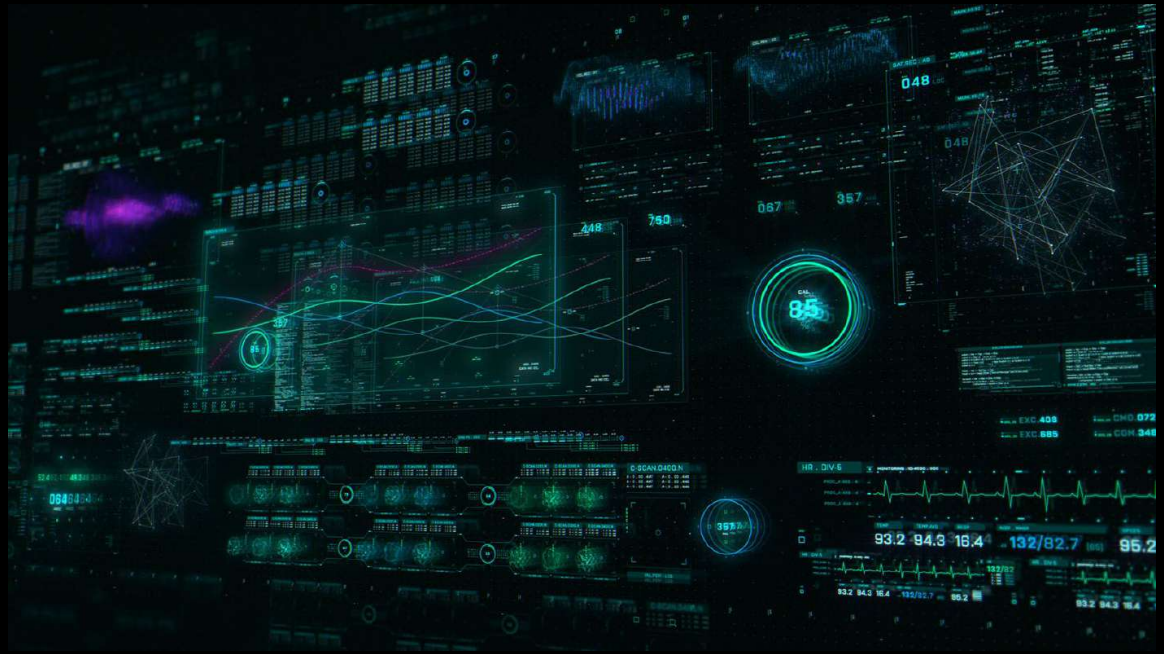
Holographic arm control

A holographic arm control system that allows pilots to control their mechas with gestures and touch-based commands. These displays are controlled by the pilots' movements and provide a range of options for operating the Jaeger's weapons and systems.

To activate a missile launcher, a pilot can use a swipe gesture to bring up the arm controls, select the missile launcher icon, and then swipe in the direction of the target to launch the missile. Similarly, to activate a shield, a pilot can use a tapping gesture to bring up the shield controls and then tap the shield icon to activate it.

The arm controls also provide pilots with real-time information about the status of their Jaeger, including power levels, weapon systems, and damage reports. This allows them to make quick decisions in the heat of battle, without the need to consult additional displays or readouts.

These provide a more sophisticated and intuitive interface for controlling the Jaegers.



UI Development

The user interfaces and visual language for each holographic console and display involved specific design language. From the right materials and shaders, transparency and colour palette, to typography and iconography, to reflect and give distinction to each Jaeger. All these elements also needed to co-exist consistently in a constantly dynamic form that scaled up and down according to the needs of any sequence.

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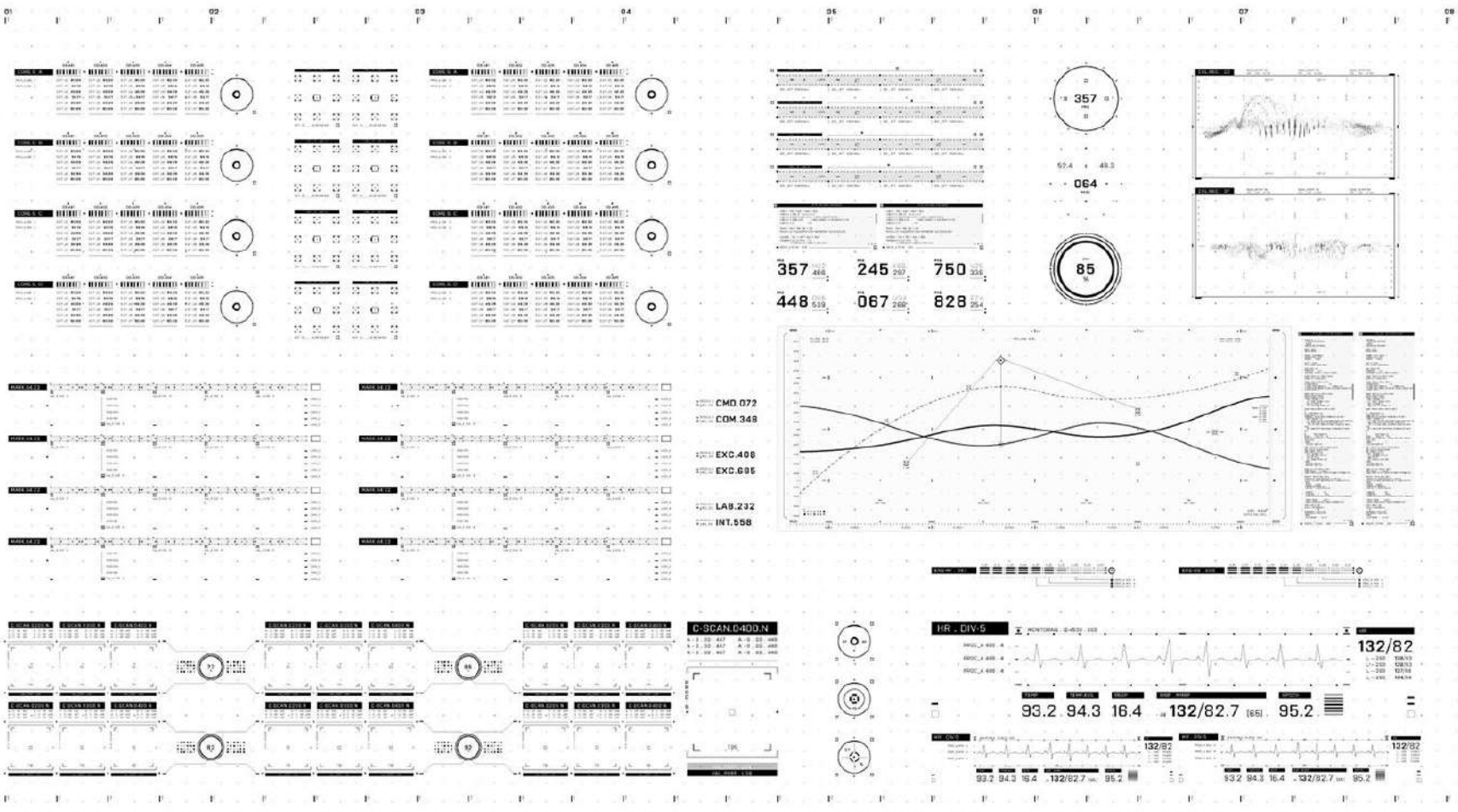
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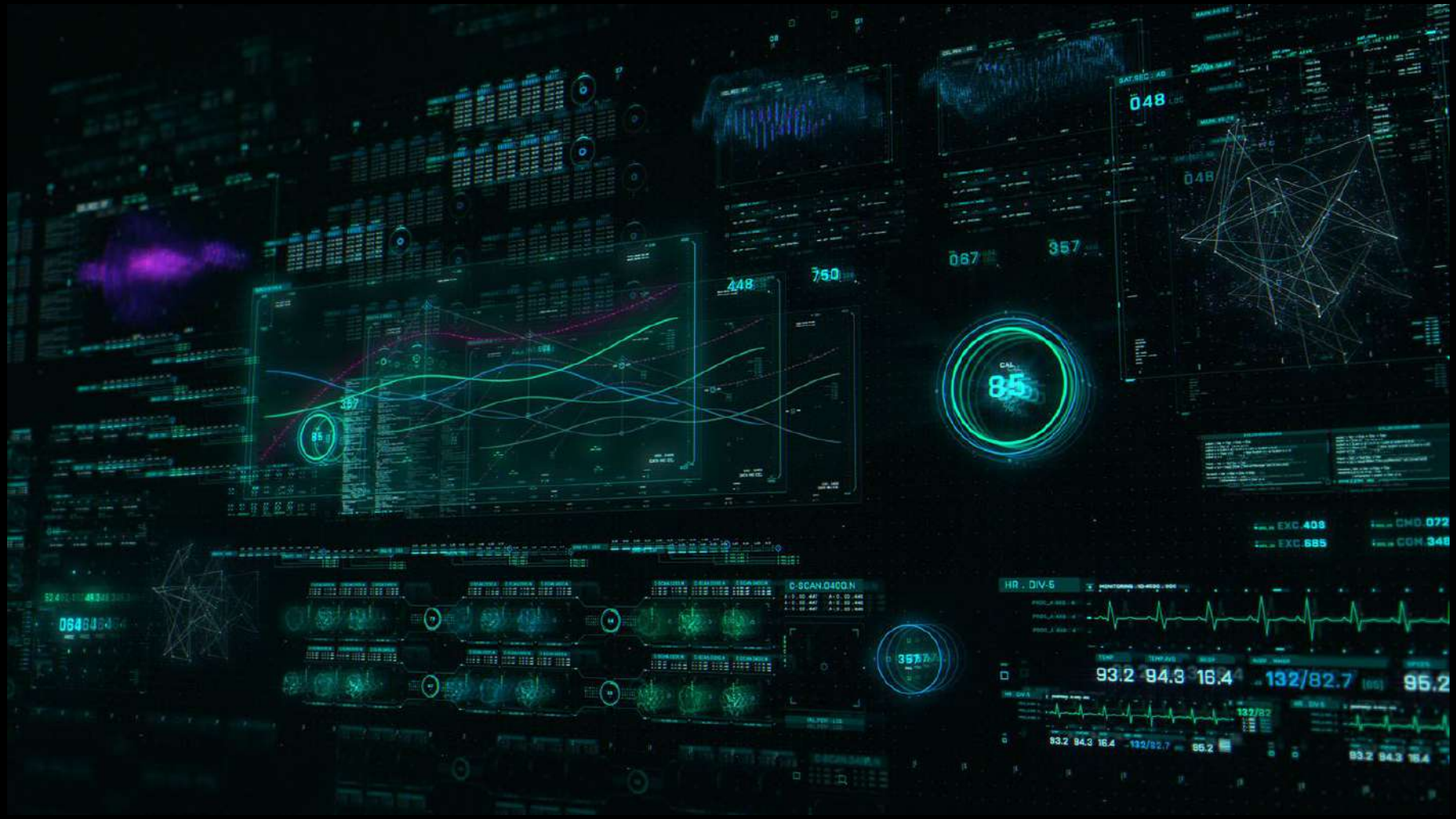
132/82.7
95.2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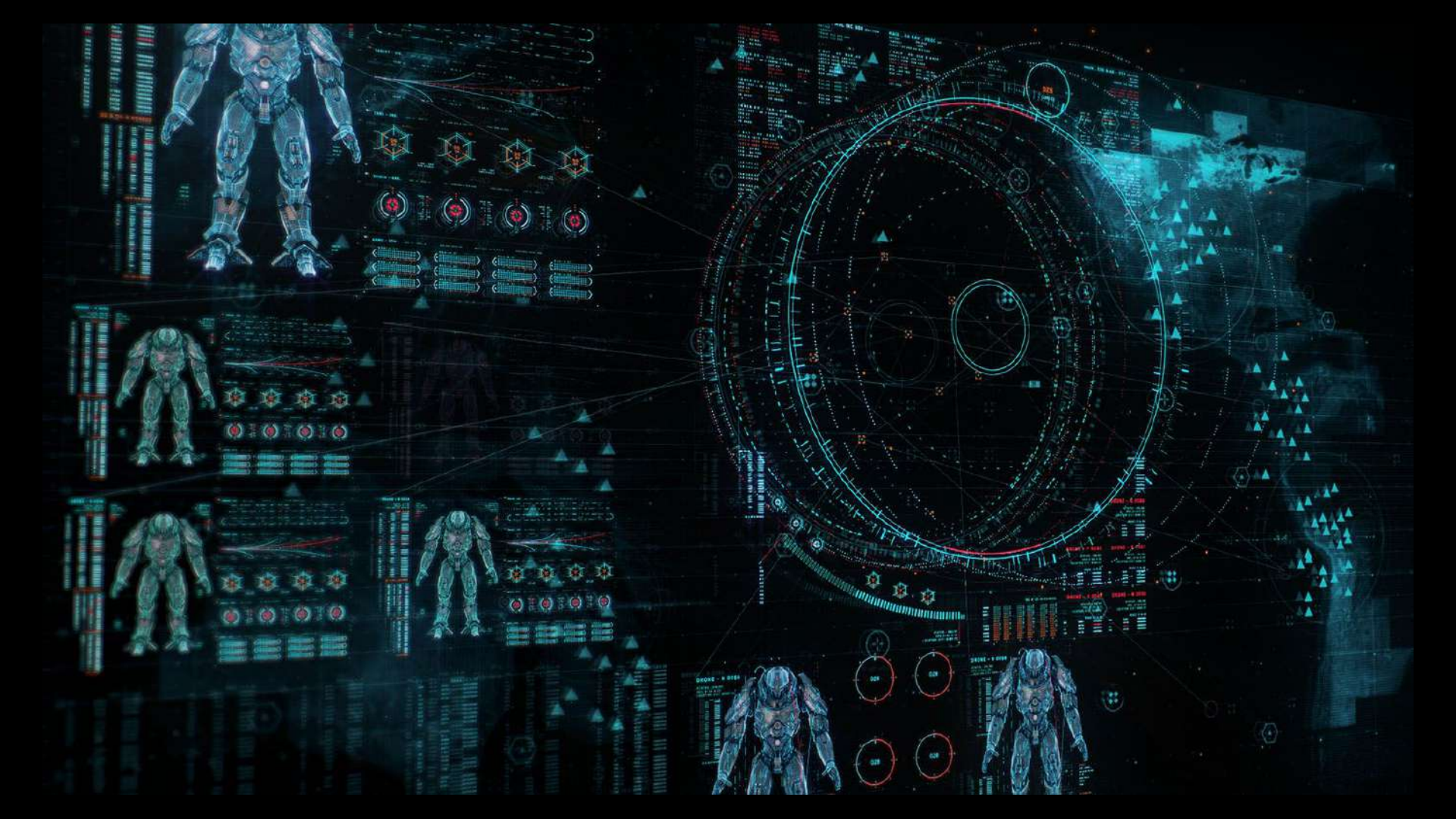
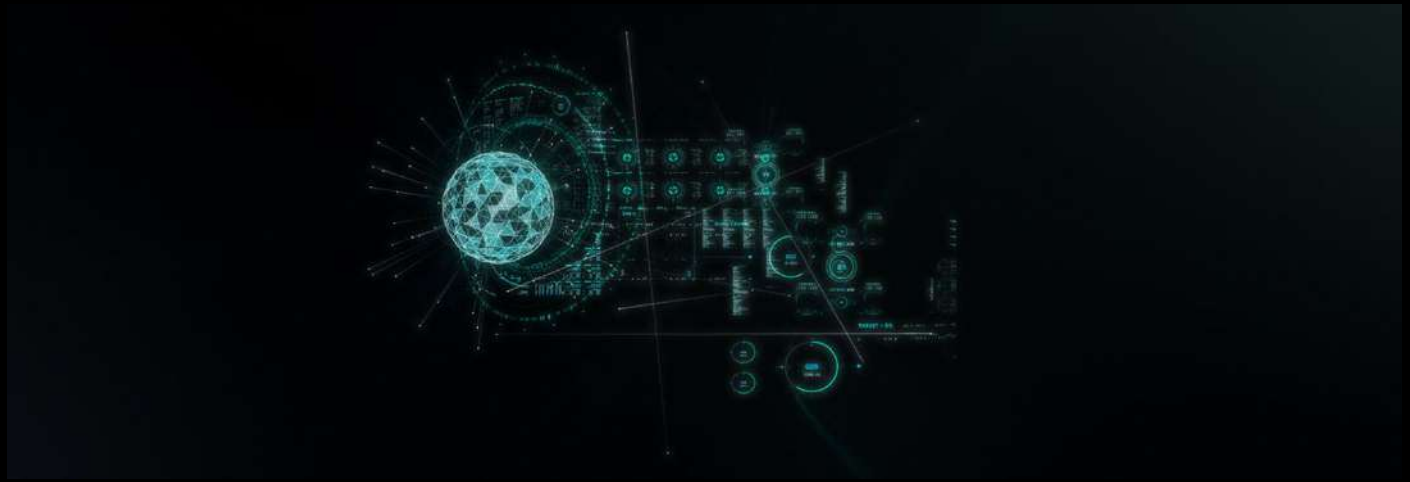


UI Iconography

Iconography in the UI HUD (User Interface Head-Up Display) in Pacific Rim Uprising refers to the visual symbols or icons used to represent different elements and functions of the Jaeger suits' user interface. It is designed to be intuitive and easy to understand, allowing pilots to quickly identify different weapons, systems, and controls during combat.

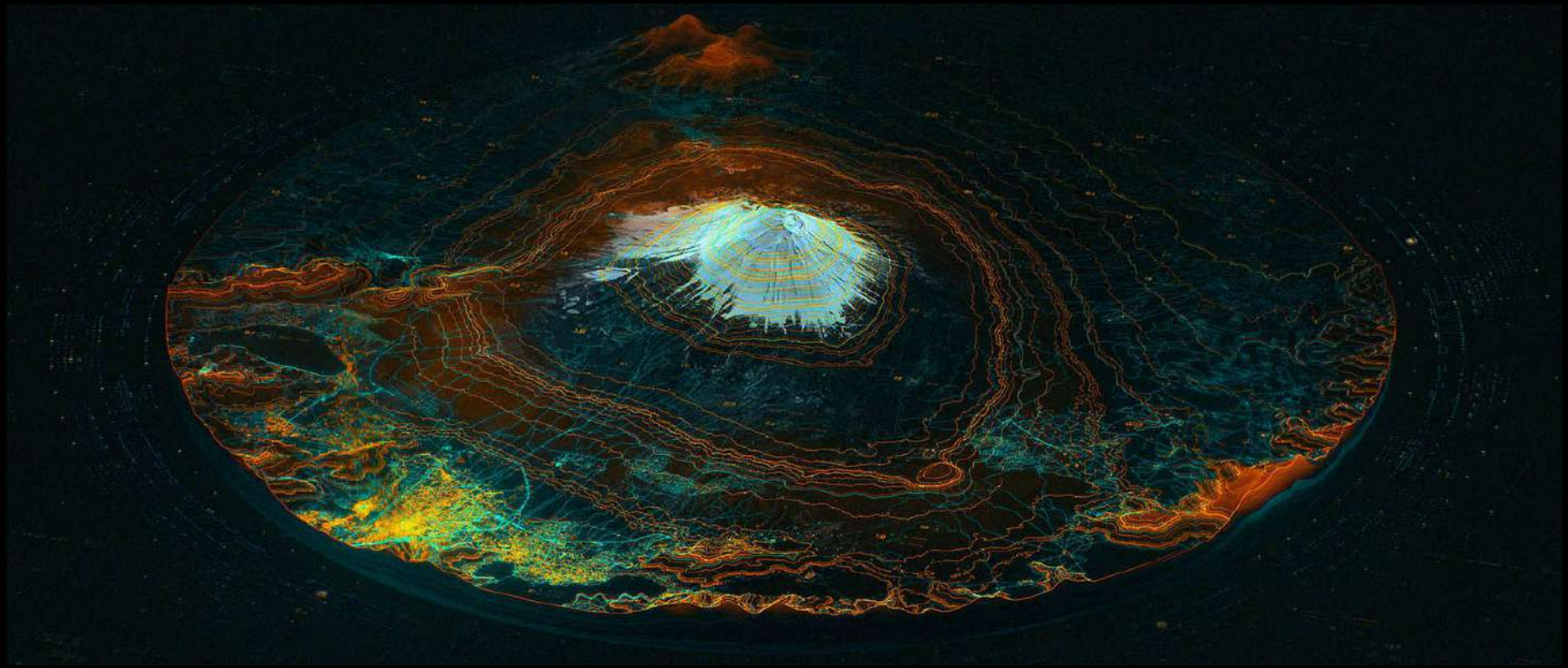


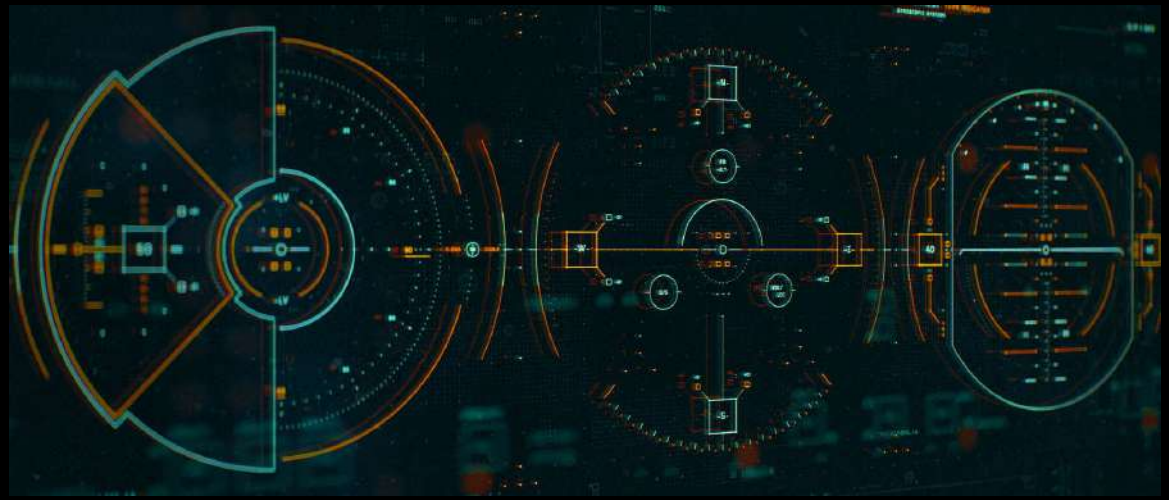
Hologram displays

These are three-dimensional projections in mid-air that provide a more immersive and realistic view of the battle environment and other data related to the Jaeger program.

Based on principle of interference, a laser beam is split into two or more beams, which are then directed through a series of mirrors and lenses to create an interference pattern. This pattern is then projected onto a special type of film or glass. Also they are use of high-speed projectors or LED lights, which can project a series of images in rapid succession to create the illusion of motion and depth.

The hologram displays in Pacific Rim Uprising are a more advanced version of the holographic television screens and computer monitors from the first movie, providing a more sophisticated and immersive way of displaying information. They create a high-tech and futuristic environment that supports the story and enhances the viewing experience.





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VIKTORIYA
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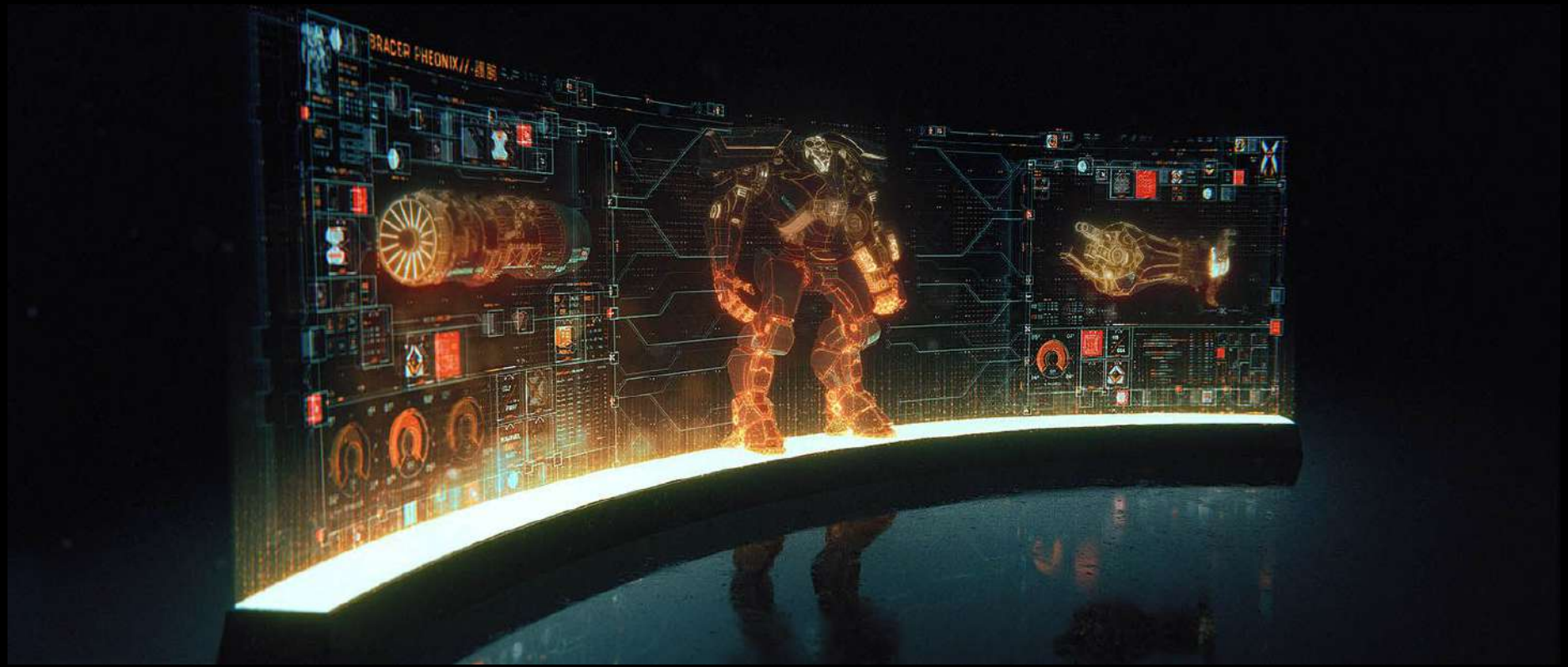
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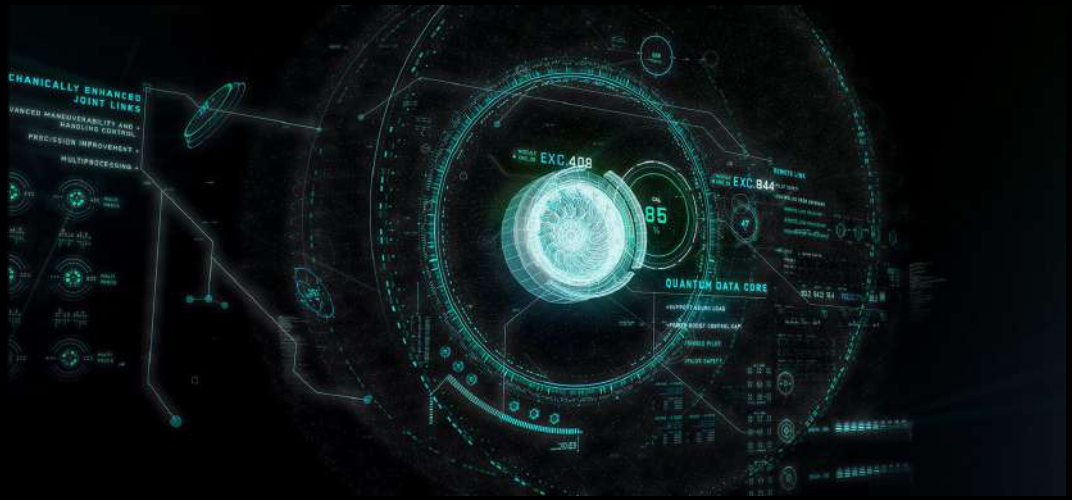
CHANICALLY ENHANCED
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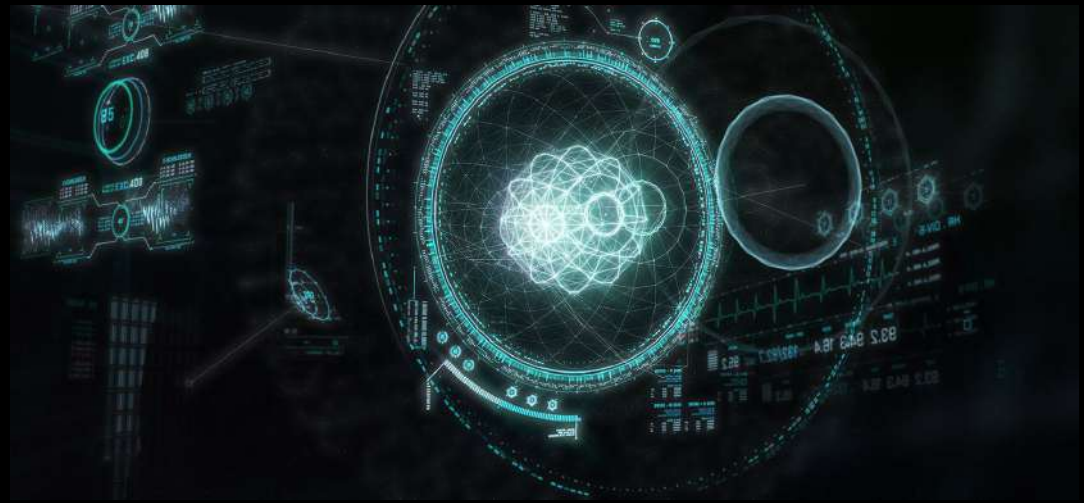
QUANTUM DATA CORE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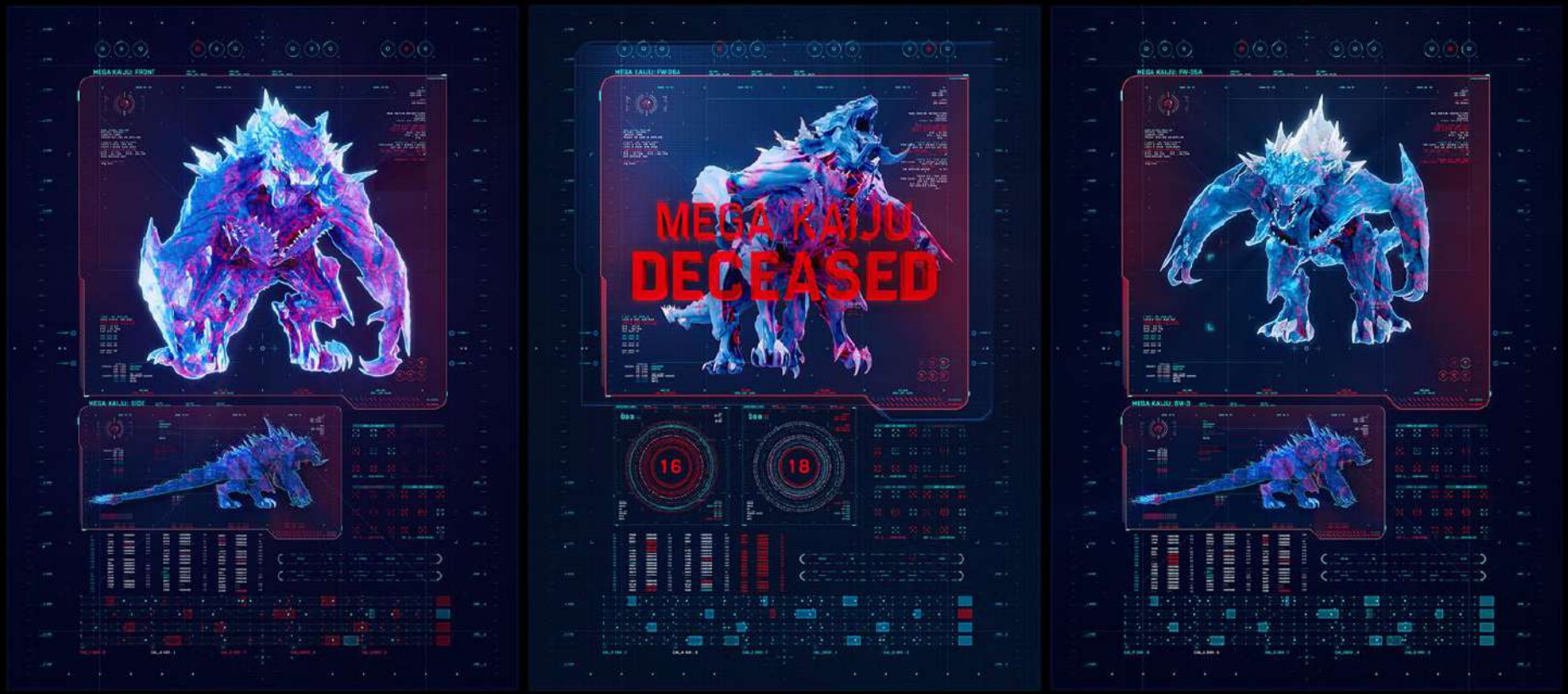
MEGA KAIJU
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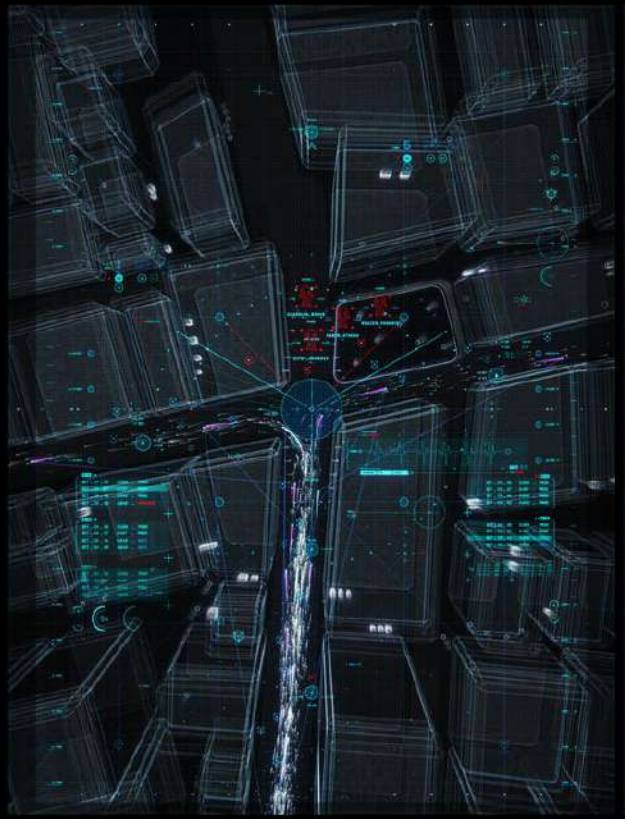
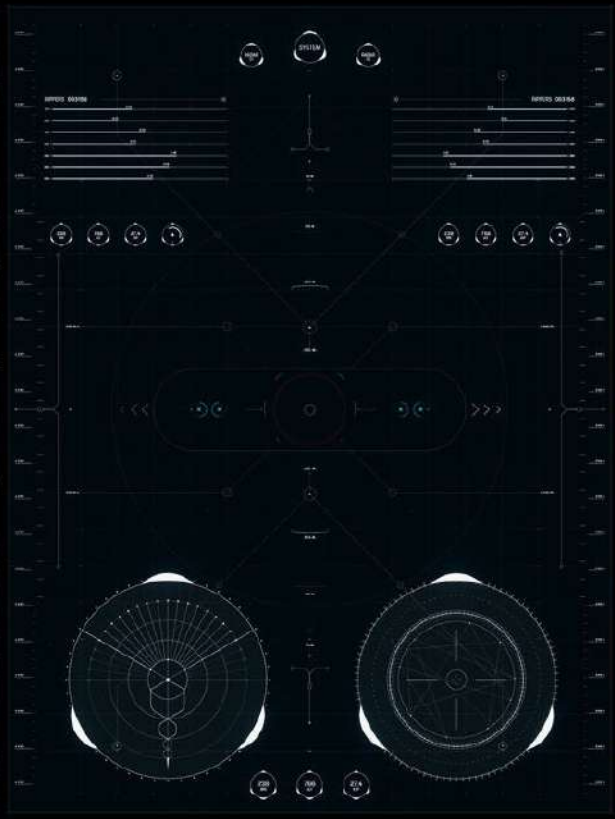
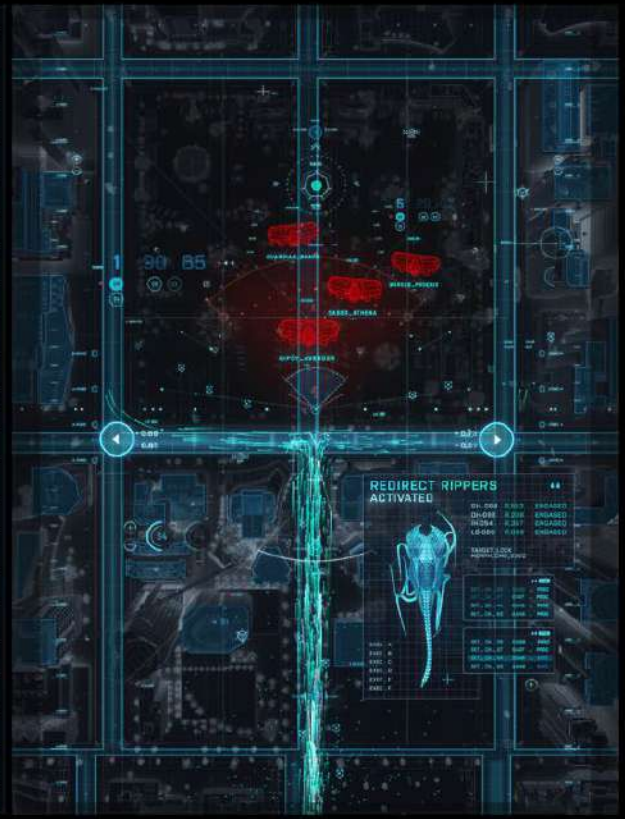
18






REDIRECT RIPPERS
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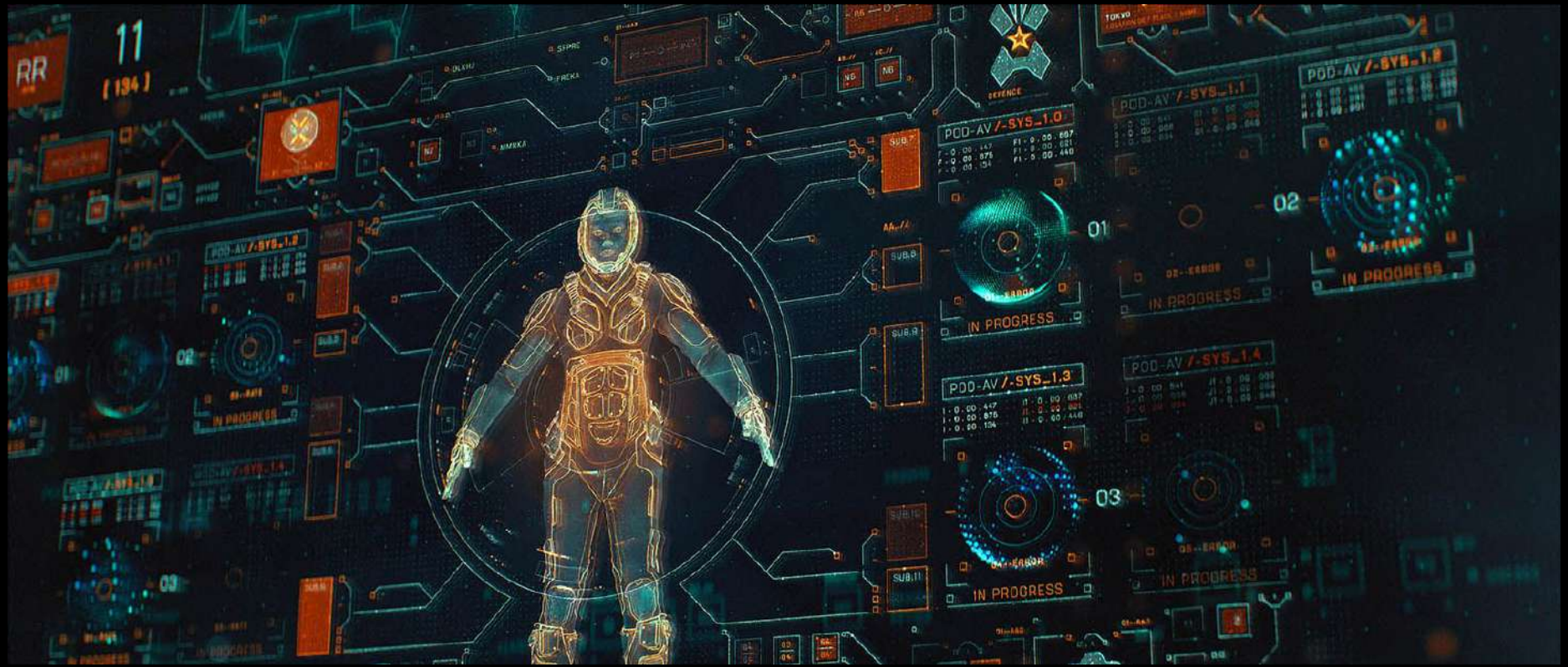
FUI (Fictional User Interface)

This is an indication of how FUI is perceived these days. Films are slowly moving away from incorporating FUI purely for eye-candy or to make a scene feel 'hi-tech'. Audiences have become more familiar with FUI in films and it is now much better regarded as a film making device to compliment or drive a story forward.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POD-AV /-SYS_1.0
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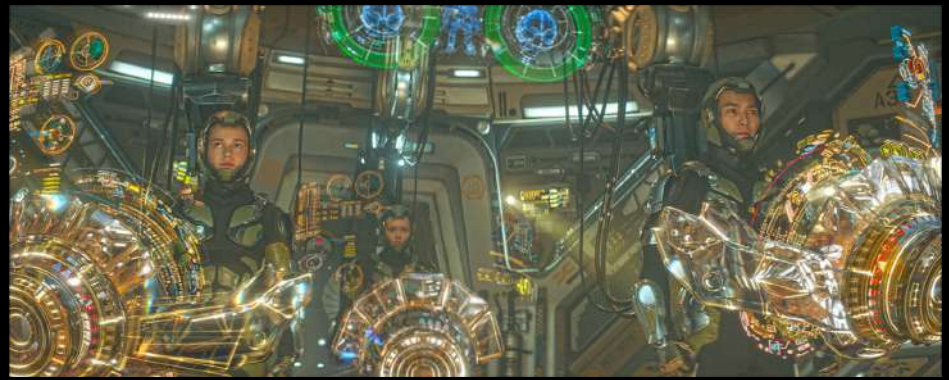
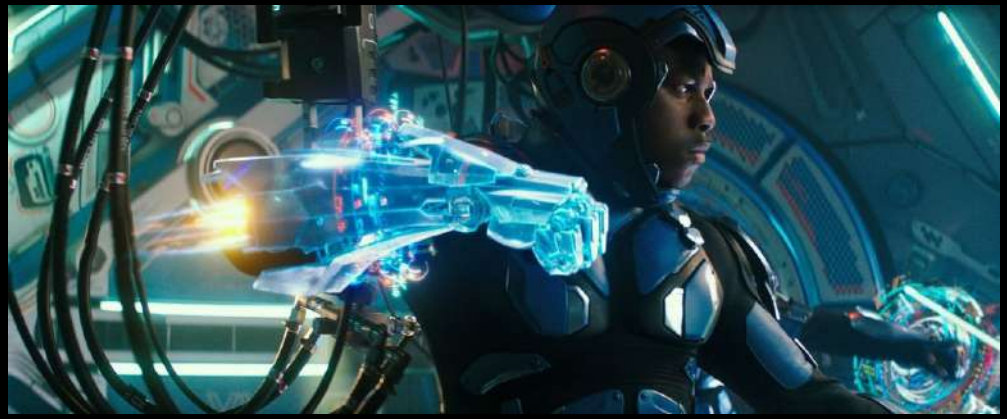
IN PROGRESS
DEFENCE

Jaeger Cockpits

A series of sharp, sophisticated and dynamic holographic interfaces that support the advanced world and technology of the evolved Jaegers, also tying into actors' performance and storybeats.





Use of Augmented Reality

AR is used to enhance the Jaeger pilot's experience. This provide real-time data and visual overlays during combat, as well as provide targeting data for weapons and systems.

The AR displays also include visual cues and alerts to help pilots react quickly to changing conditions and threats.

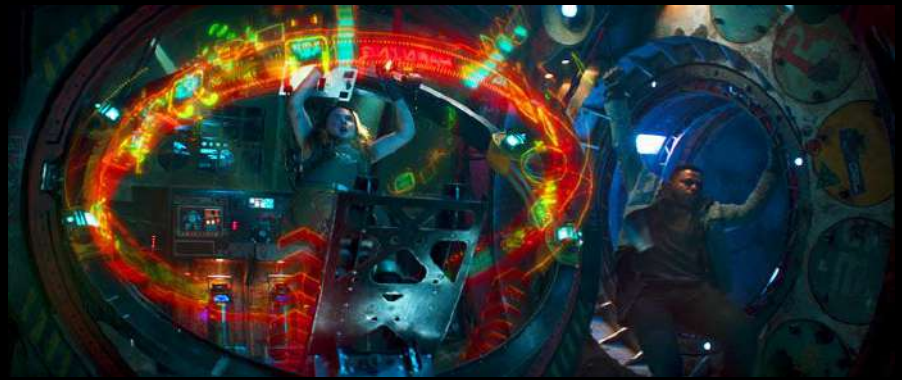
It is also an example of how AR technology can be used to enhance human-machine interaction and provide a more intuitive and effective user interface in high-pressure and complex situations.

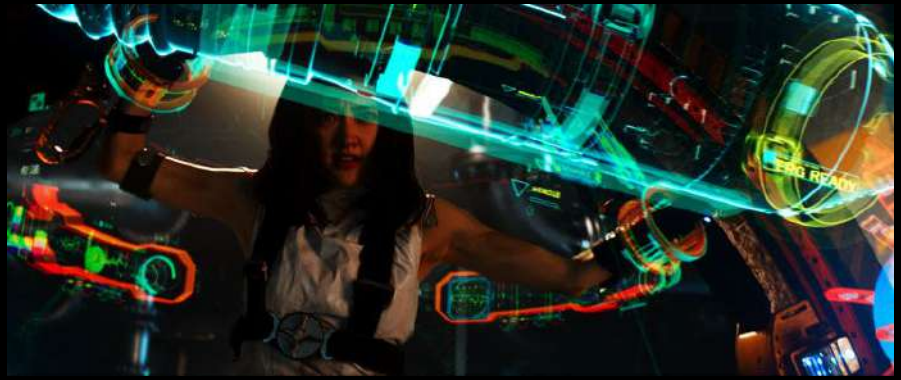
Scrapper Cockpit

The complex user interface design and animations were required to create interactive 3D holographic controls for Scrapper.

To differentiate from the other Jaeger slick and seamless interfaces, a retro fairground feel. The holographic designs and bright colour palette also reflected the character's playful personality and reflected the scrap nature of the robot itself.

Pacific Rim UI took inspiration from military displays, an advanced visual look and feel was required for the sequel. They also referenced modern jet fighter HUDs for the new pilot interfaces, while maintaining visual continuity across all the designs.



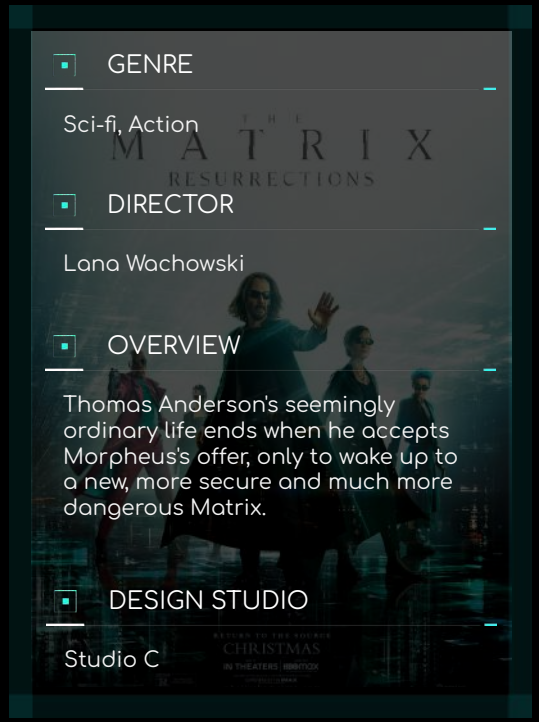


170
-REVS-

ANALYSIS - PACIFIC RIM 1 & 2

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
Technology indirectly contribute to the safety and survival of the characters by providing them with advanced biomechanical suits and Jaegers that protect them from the dangers of the Kaijus.	The HMI and technology provide them with advanced weapons, shields, and life support systems. The neural handshake technology used in the movie also helps the pilots to synchronize their movements and thoughts, which enhances their safety while piloting the Jaegers.	The strong bonds and relationships that the characters form with each other throughout the course of the movie for fighting the Kaijus and controlling the Jaegers	The pilots of the Jaegers are highly respected and admired for their bravery and skills in combating the Kaijus.	The biomechanical suits and Jaegers allow the pilots to fight the Kaijus and protect humanity, while the neural handshake technology enables them to connect with each other and the Jaegers on a deeper level.

MOVIES: CASE STUDY 05



MATRIX RESURRECTIONS

(2018)

The film is set sixty years after Revolutions and follows Neo, who lives a seemingly ordinary life as a video game developer having trouble with distinguishing fantasy from reality. A group of rebels, with the help of a programmed version of Morpheus, free Neo from a new version of the Matrix and fight a new enemy that holds Trinity captive.

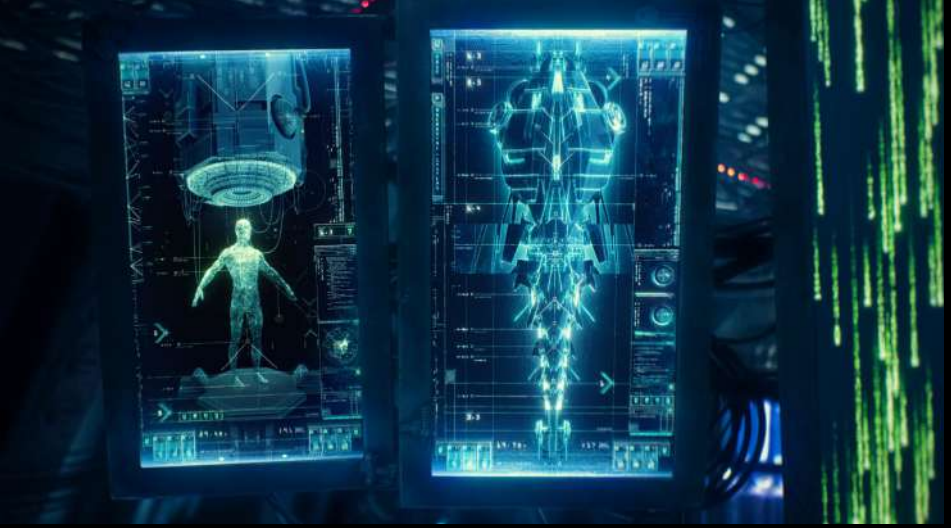
Also, part of the fun of sci-fi is a small degree of believability. Suspension of disbelief is critical. What makes the Matrix intriguing as a concept is that it forces us to wonder if we are living in a false reality. So, the more grounded the technology can seem, the stronger the possibility of living inside a matrix becomes.

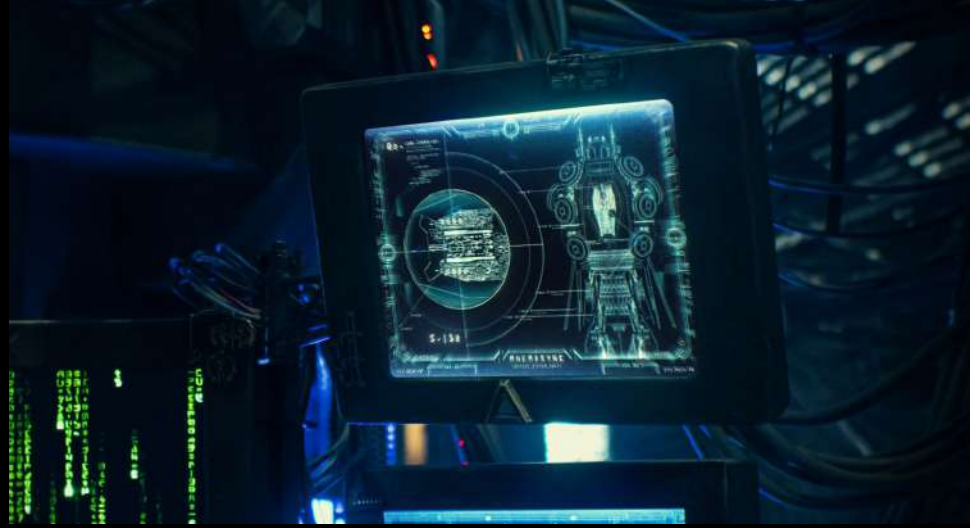
The UI for the latest Matrix film include designs for the main deck of the hovercraft Mnemosyne, screens from within the Matrix, the city of IO and of course the iconic green digital rain.

The film takes place 60 years after the events of The Matrix Revolutions, so although the UI designs pay homage to the previous films, they've been allowed to evolve and develop. The UI from the Mnemosyne is more detailed and complex than in the previous films, though the hardware itself is still quite chunky and tactile, which makes sense in a world of limited resources.

MNEMOSYNE MAIN DECK - Operators Station

Using the original trilogies iconic Operator Station as inspiration, they pay homage to the past whilst advancing the design. They developed an entirely new visual language for how the Matrix is viewed from within the real world, as well as on-board monitoring for the Mnemosyne, aided by the infusion of "Synethient" technology.



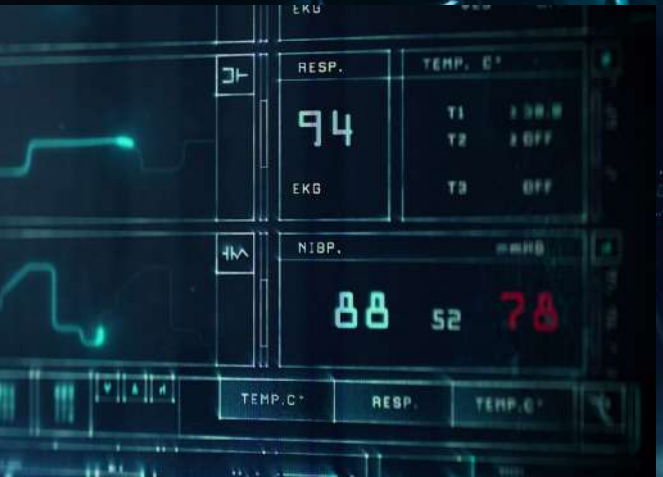


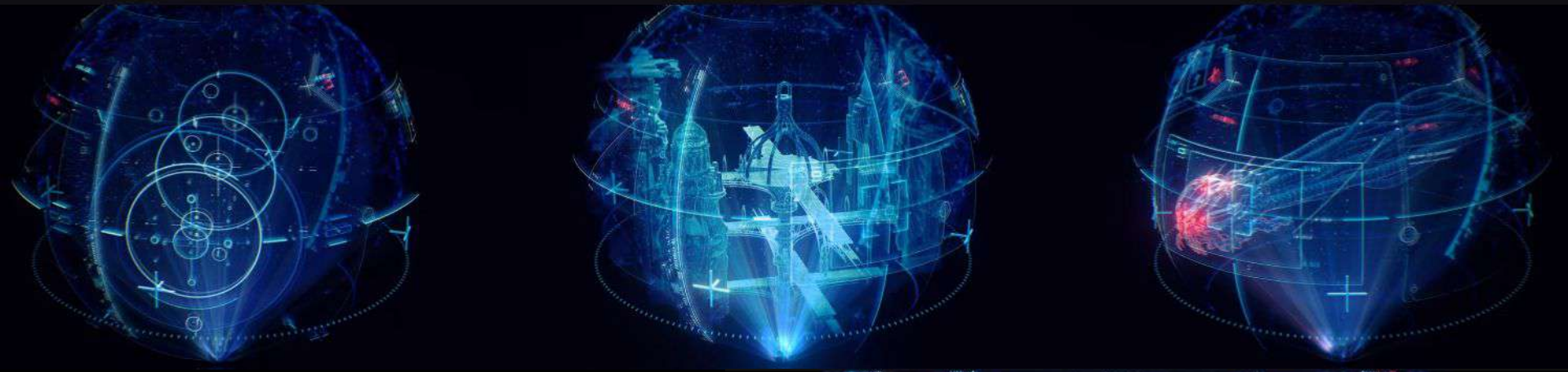
SEQ’S KEYBOARD

As well as on-screen graphics, Synthient character set was developed which is used across physical devices within the film.

MNEMOSYNE COCKPIT

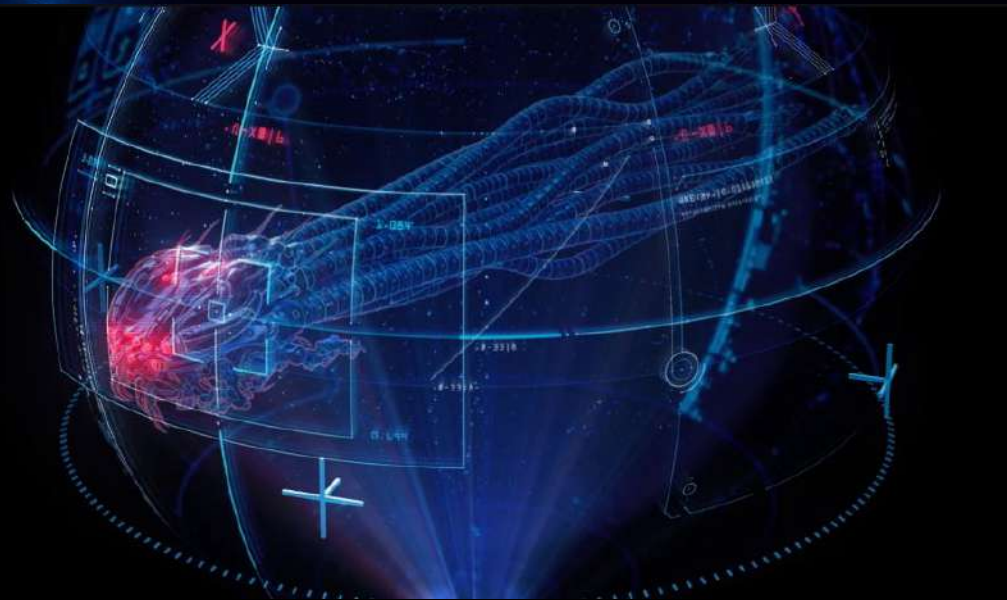
For the cockpit, they applied the same logic as the main deck, taking what came before and creating a new Synthient infused style. As well as the classic radar and gyroscopes associated with a cockpit, they recreated a sewer system map asset from The Matrix Revolutions as a visual call-back.





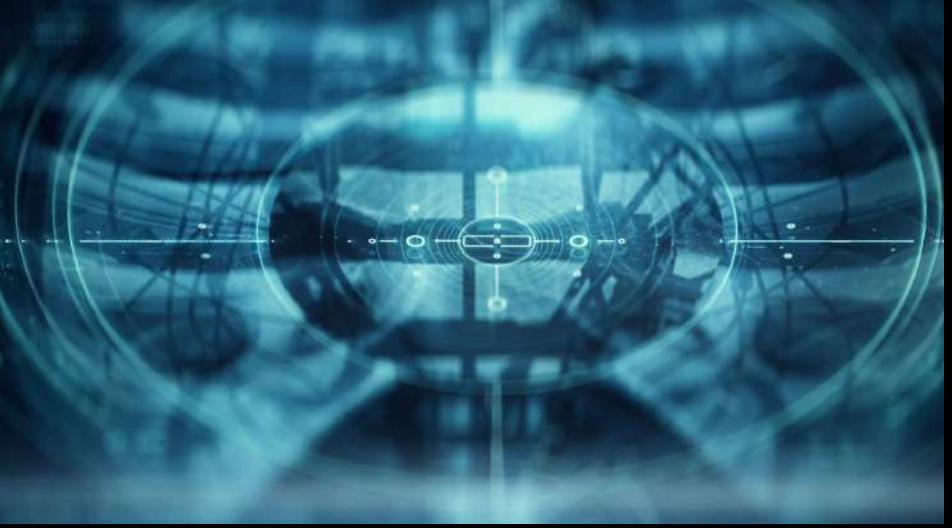
HOLOGRAMS IN COCKPIT

They developed a hologram for the cockpit of the Mnemosyne, the classic Sentinel proximity scanner, an onboard LiDAR system mapping the cave walls where they fly through the abandoned sewer system.



MNEMOSYNE MEDBAY

An important moment in film taking place after Neo's extraction from the Matrix, the graphics played a pivotal role in showing his body in distress, as well as the cold boot into the Dojo training program. Interface included a 3D model of Neo's internal exoskeleton, and filmed content treated to match the original's aesthetic.



SPO2
119

EMERGENCY

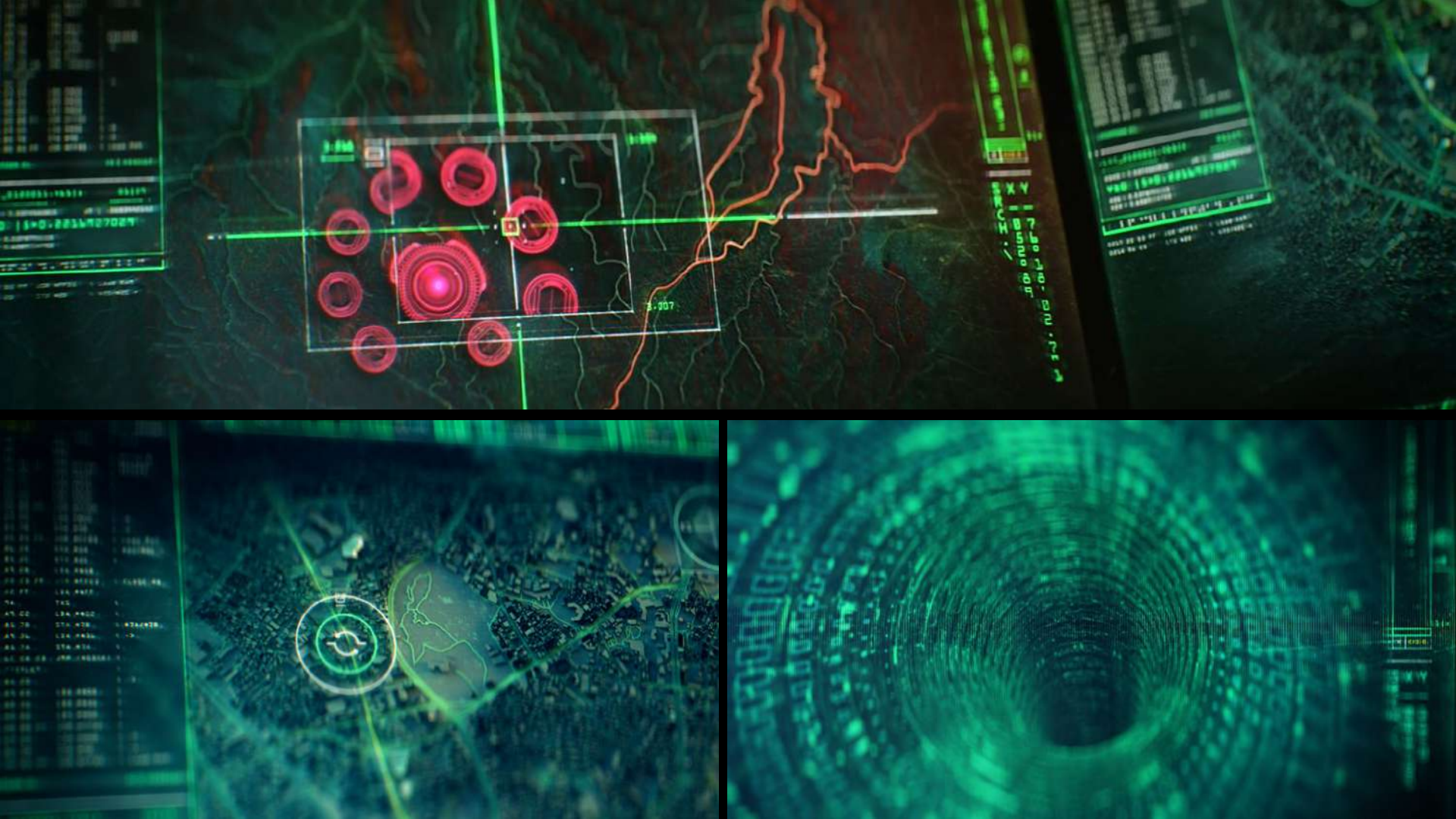
NEO’S OFFICE

Thomas Anderson's(Neo) office was a pivotal sequence in the film, with a clear distinguished look between his day-to-day life and the Modal. A bespoke games engine used by Neo to develop assets in his day job at Deus Machina, whilst conversely, Neo’s personal Modal programme taps into original Matrix code and content, serving as a visual ‘deja vu’ references calling back to the original.

Smart Material
Name
MAT.DB_0044469325
WORLD POINT: 501 -> 501 -> 385 -> 392
LOCATION: 51.0241, 36.6121
Albedo
ALERT-PERIMETER BREACH

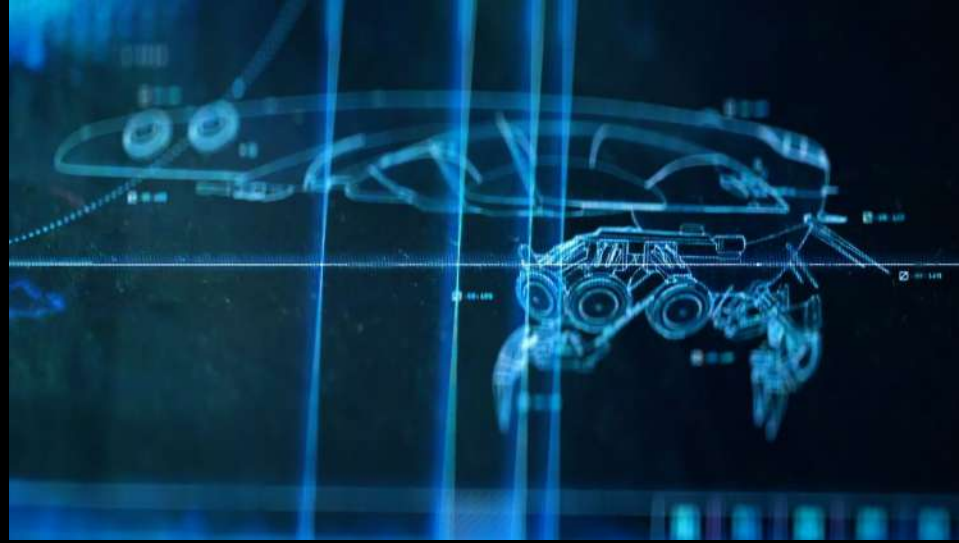
DILAPIDATED THEATRE

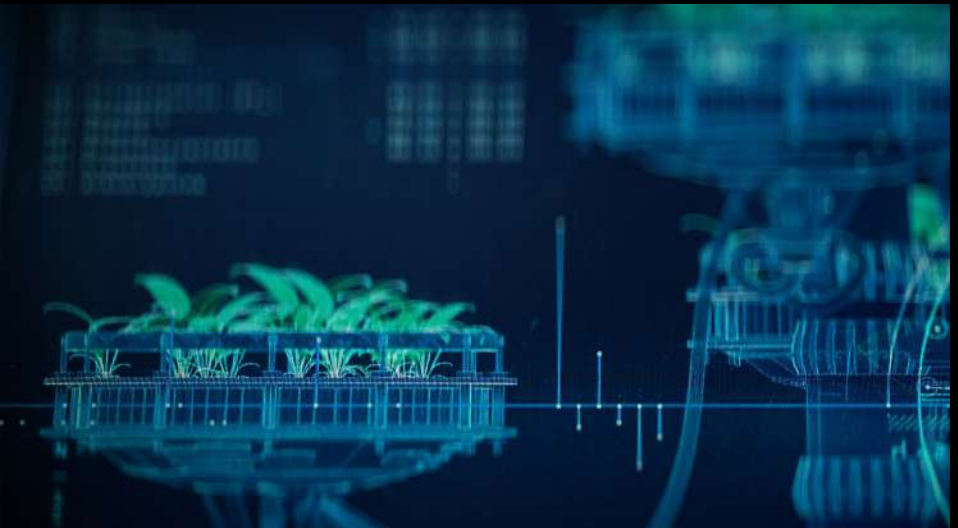
The theatre extraction uses an eclectic mix of technology, with designs all created with the theme of tracking Neo's removal from the Matrix into the real world. As Neo takes the red pill, the graphics begin to tell the story of locating him within the 'Anomaleum'. This part serves as a mirror to the original Matrix extraction, which is represented through modern iterations of legacy designs.



IO - FARM AND COMMAND CENTRE

This was the new home of the surviving humans, IO showed how the new collaboration with the machine race has developed the technology, bringing a more organic and fluid look compared to the old industrial dystopian feel of Zion.



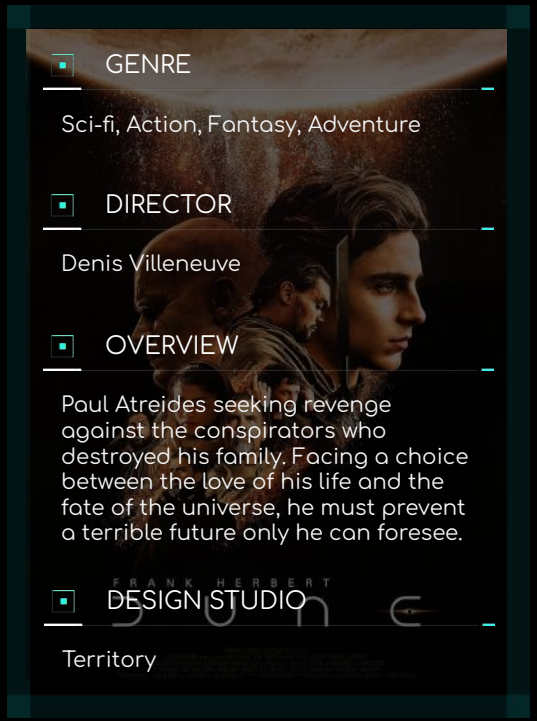


ANALYSIS - MATRIX RESURRECTIONS

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
Technology provide them with advanced medical equipment and life support systems. The Matrix pods also provide the characters with sustenance and oxygen.	The HMI and technology provide them with advanced weapons, communication systems, and transportation. The characters use the blue and red pills to navigate between the Matrix and the real world, which provides them with a sense of safety and control.	The strong bonds and relationships that the characters form with each other throughout the course of the movie for understanding the flaws in the matrix and fighting together	Neo uses his advanced combat skills and knowledge of the Matrix to fight the machines and gain the respect and admiration of the other characters.	Technology enables them to break free from the constraints of the Matrix and explore new realities. The characters use advanced technology to navigate between the Matrix and the real world, which allows them to transcend their previous limitations and become more fully actualized individuals.

MOVIES: CASE STUDY 06

DUNE (2021)



GENRE

Sci-fi, Action, Fantasy, Adventure

DIRECTOR

Denis Villeneuve

OVERVIEW

Paul Atreides seeking revenge against the conspirators who destroyed his family. Facing a choice between the love of his life and the fate of the universe, he must prevent a terrible future only he can foresee.

DESIGN STUDIO

Territory

Dune (titled onscreen as Dune: Part One) is a 2021 American epic science fiction film directed by Denis Villeneuve.

Set in the distant future, the film follows Paul Atreides as his family, the noble House Atreides, is thrust into a war for the deadly and inhospitable desert planet Arrakis.

The set design for Dune would be guided by the need "to ground the story into realistic settings to help the audience believe in the extraordinary elements". They sought to make the sets as realistic and immersive as possible, and used minimal set extension.

Here's a look at some of the FUI(Fictional User Interface) highlighted in the film Dune. The story unfolds in a world that features technology that's familiar but slightly different to what we currently have.

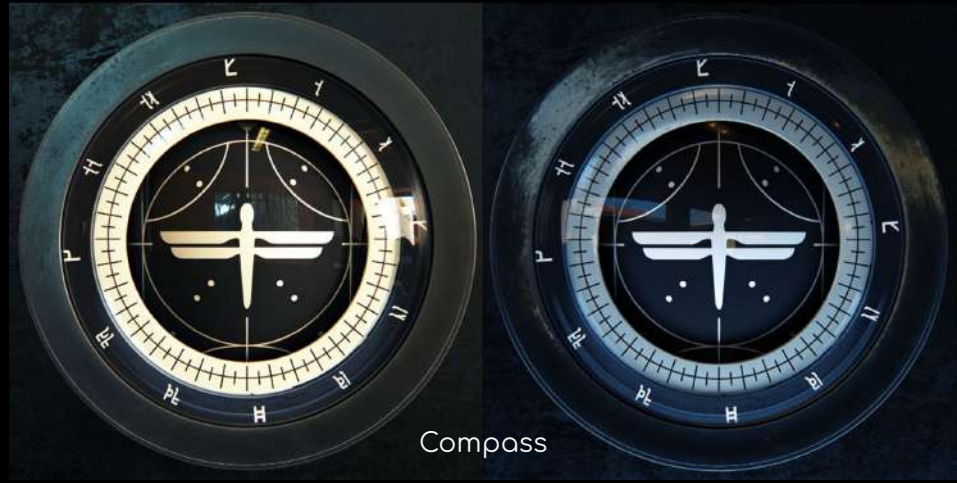
Unlike many sci-fi settings, the universe of Dune has very little technology and digital human interface that a contemporary audience might expect. The gyro controls of the Ornithopters, including two Atredies Models as well as Harkonnen, and the Sonic Probe device.

ORNITHOPTER
CONSOLE CONTROLS

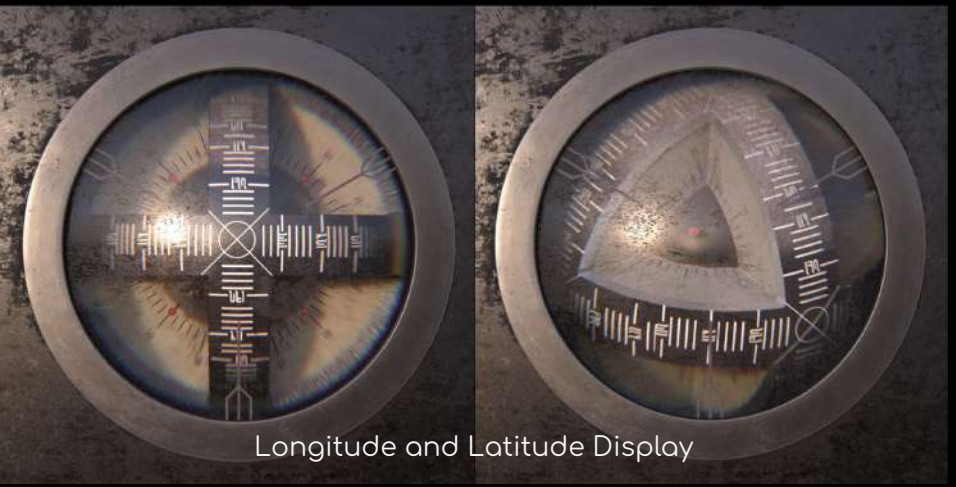
ORNITHOPTER

The ornithopter is a beautiful, dragonfly looking aircraft that characters use to fly around the desert planet of Arrakis. The inhabitants in the story are advanced enough to enable inter planetary travel yet the ornithopter cockpit relies on fairly basic and low-fi looking instruments. This retro-future approach is quite reminiscent of the world created in Blade Runner.

Pitch Indicator



Compass



Longitude and Latitude Display

Long Range Finder

UI initial look development in 3D exploring light and texture drawing upon real-world references of old flight controls.

PROJECTED LIGHT

The Atreides Ornithopter Model 1 is the ‘newer’ more advanced version of Model 2. Therefore the functionality of the controls from Ornithopter Model 2 was updated and move it forwards 80 years.

They enhance the premise of how it actually works. They developed a functioning control system that is an evolution from Model 2 by maintaining the same principles in which a gyro operates, ie. relying upon the laws of physics.

From this, other physical qualities we could employ such as light, magnetism or chemicals.

Taking inspiration from WWII Fighter Planes used lights projected through a lens onto glass

ORNITHOPTER

The ornithopter is a beautiful, dragonfly looking aircraft that characters use to fly around the desert planet of Arrakis. The inhabitants in the story are advanced enough to enable inter planetary travel yet the ornithopter cockpit relies on fairly basic and low-fi looking instruments. This retro-future approach is quite reminiscent of the world created in Blade Runner.

ANALYSIS - DUNE

Physiological

Technology provide them with advanced life support systems, medical equipment, and transportation. For example, the characters use advanced spaceships, suits, and vehicles to travel long distances and survive in harsh desert environments.

Safety

The HMI and technology provide with advanced weapons, communication systems, and defense mechanisms. The characters use shields and other protective gear to defend themselves against physical threats and communicate with each other through advanced technology.

Love and Belongings

The relations between the characters helps the overall plot of the movie to work together and prevent events that can harm the future.

Esteem

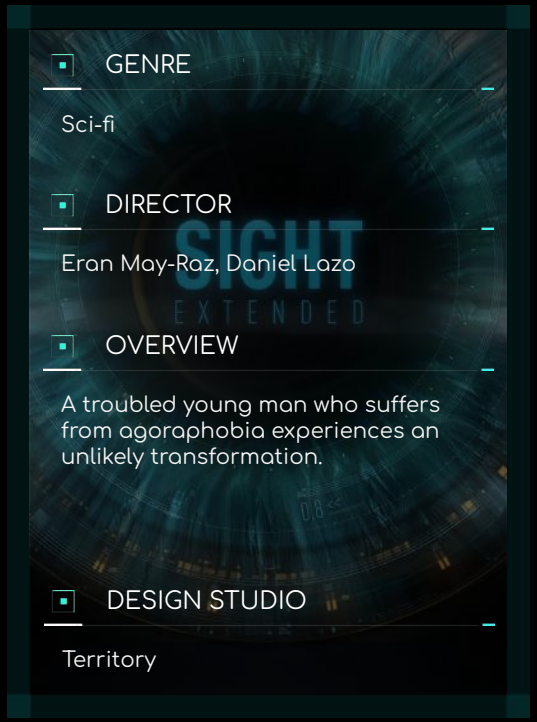
The characters use advanced combat skills and strategic thinking to gain respect and admiration from their peers and allies.

Self-Actualization

Technology enables them to explore new frontiers and become more fully actualized individuals. The characters use advanced technology to navigate through space, discover new worlds and civilizations, and uncover hidden secrets about their own past and destiny.

MOVIES: CASE STUDY 07

SIGHT EXTENDED(2021)



GENRE

Sci-fi

DIRECTOR

Eran May-Raz, Daniel Lazo

OVERVIEW

A troubled young man who suffers from agoraphobia experiences an unlikely transformation.

DESIGN STUDIO

Territory

In a near future dominated by augmented-reality eyepieces, a troubled young man who suffers from agoraphobia experiences an unlikely transformation when he comes across a mysterious app that transforms every facet of his life into a game.

Sight Extended is a re-imagination of the short film SIGHT (2012). SIGHT was viewed by over 5 Million people, received multiple awards, and has become somewhat of a cult film for many AR and VR enthusiasts.

SIGHT
EXTENDED

Set in the near future, most of the interfaces revolve around augmented reality eyepieces,Films can have a great influence on how we shape the future and it's so interesting to see different interpretations of what it could be.

A lot of the UI focuses on gamifying everyday life chores, so you'll see nice examples of AR game interfaces.

The UX design is quite understated but does a really great job of demonstrating the function of each interface in the story. It's intuitive and believable and the animation and transitions do a nice job of directing your focus.

TECHNOLOGY AND UI

The smart contact lenses depicted in the film enable holographic user interfaces and games to be projected over the real world. Therefore you'll see a mix of spatial, volumetric, and HUD based UI's. This posed an interesting challenge, trying to reimagine how traditionally flat UI such as social media / navigation / gaming would be adapted to spatial scenarios where they are embedded onto real world surfaces and locations.

HOLOGRAPHIC PROJECTION IRIS

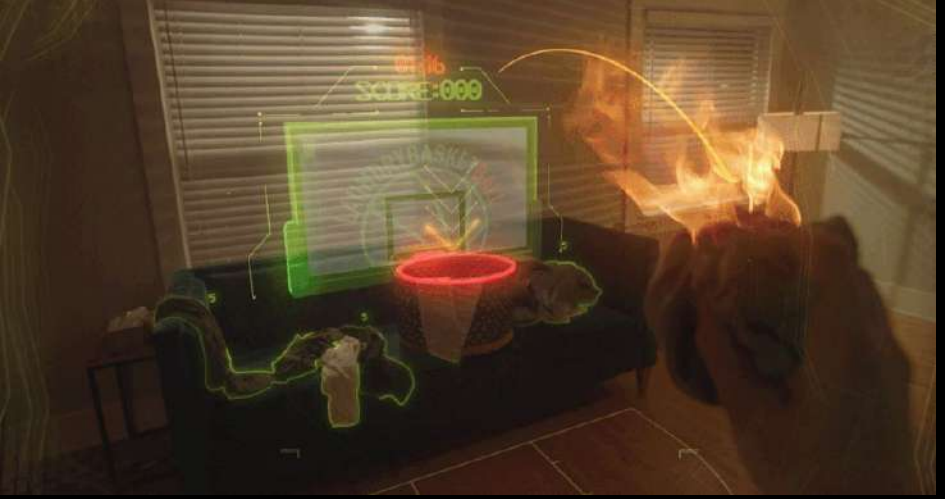
In each P.O.V shot, there's a subtle halo around the edge of the frame. This represents the operating system built into the Sight lenses that project the holograms over the real world.

In the film there are three distinct phases where the iris changes its appearance:
Blue - The 'vanilla' Sight O.S that everyone has
Green - Sight O.S modified with REFRESH custom A.I
Yellow - The Parabelle facility's own custom O.S

VISUAL LANGUAGE

Each operating system phase has a visual language playbook designed, with it's own distinctive look and personality.
Later, all the shots and games in the film we're designed based on these basic visual components.

The UI also touches on social interactions, content browsing and also OS UI, installation progress bars and loading screens etc.



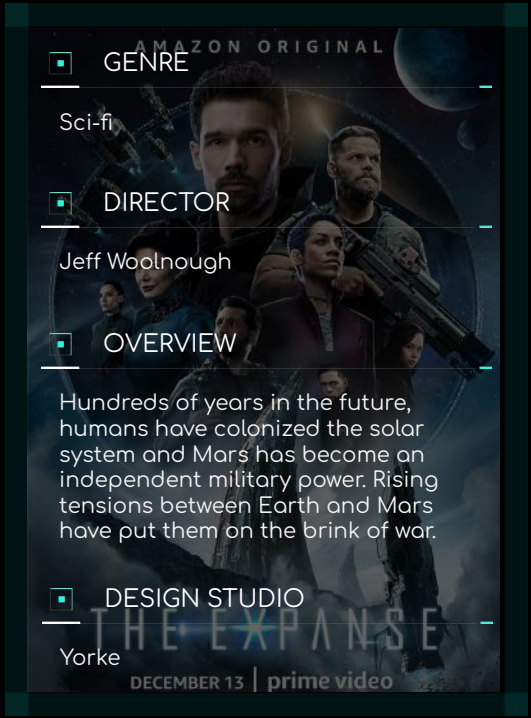
In addition to that, the ideas for how to gamify everyday chores are really fun and creative. I really enjoyed seeing all the different ways to make mundane tasks like washing the dishes or taking out the garbage entertaining and rewarding.

ANALYSIS - SIGHT EXTENDED

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The main character is fitted with a "sight" device that helps him to discover new way of seeing life through his eyes in his daily routine.	The main character uses a communication device to stay in touch with her loved ones and alert them in case of danger.	The main character uses the technology to communicate, see and alert them.	The character uses her sight device to become a successful person and gain recognition for his work.	The main character uses his sight device to experience the world in new and exciting ways, which allows him to connect more deeply with herself and others.

MOVIES: CASE STUDY 08

THE EXPANSE(2015)



GENRE

Sci-fi

DIRECTOR

Jeff Woolnough

OVERVIEW

Hundreds of years in the future, humans have colonized the solar system and Mars has become an independent military power. Rising tensions between Earth and Mars have put them on the brink of war.

DESIGN STUDIO

Yorke

The series is set in a future where humanity has colonized the Solar System. It follows a disparate band of protagonists—United Nations Security Council member, police detective, ship's officer and his crew, as they unwittingly unravel and place themselves at the center of a conspiracy that threatens the system's fragile state of cold war, while dealing with existential crises brought forth by newly discovered alien technology.

They come together to investigate the case of a missing young woman. The investigation leads them on a race across the solar system that could expose the greatest conspiracy in human history.

It is described as space opera. A blend of science fiction and noir-infused detective drama and political intrigue.

CURVED DISPLAYS
AIRLOCK
TENSIONS RISE
AGGREGATE RELAY

HOLOGRAPHIC DISPLAYS

Viewing maps of space is perfectly suited to holographic displays. A 2D map is simply not adequate. Having a map of space projected in a hologram or even VR allows you to grasp the position of objects accurately in three dimensions. The ability to scale and rotate using hand gestures makes a lot of sense.

The Expanse demonstrates this nicely and I really like the inclusion of orbit lines and even a faint grid to give a reference to distance but also for film aesthetics.

The other holographic displays are just a nice way to present a futuristic look but also allow the actors faces to be presented alongside the UI.

Ceres
MAO

MOBILE DEVICES

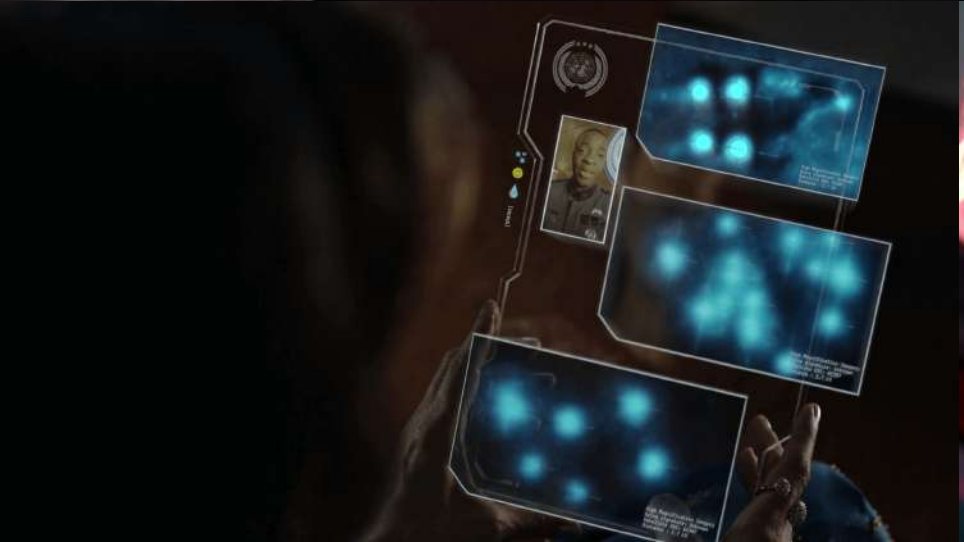
There are several handheld devices in The Expanse, many of them use see-through materials. The phone device is particularly interesting, with no visible signs of hardware besides for a small square at the bottom. It's edge lit, projects holographic UI elements and also seems to be able to change it's opaqueness (like switchglass or electrochromic glass) which is a great UI concept for transparent interfaces.

MAD, JULIETTE A.

COURSE SET

POLANSKI LIONEL

SN21875



TOUCH SCREENS

There's plenty of touch screens and kiosks seen throughout and they are fairly functional with hints of personality depending on the context. It's worth pointing out an example below of someone using a touch screen whilst wearing heavy industrial gloves, which is a common challenge when dealing with interfaces in space or any other scenarios where the user may be wearing gloves. In those instances, you would normally make the UI slightly larger to cater to the larger touch area or perhaps switch to a more tactile interface.

Type in updated transponder name and hit return

CACHE
CLOSE
INIT
MOON

AIRLOCK INNER DOORS
OPEN
CLOSE
OXYGEN/CO2
0.8 ATMOSPHERE
AIRLOCK SECURE
INITIATE
OXYGEN/CO2
0.71 ATMOSPHERE

DELIGHTINGALE
VITAL STATS
CANTERBURY. STATUS UPDATE: MISSING.

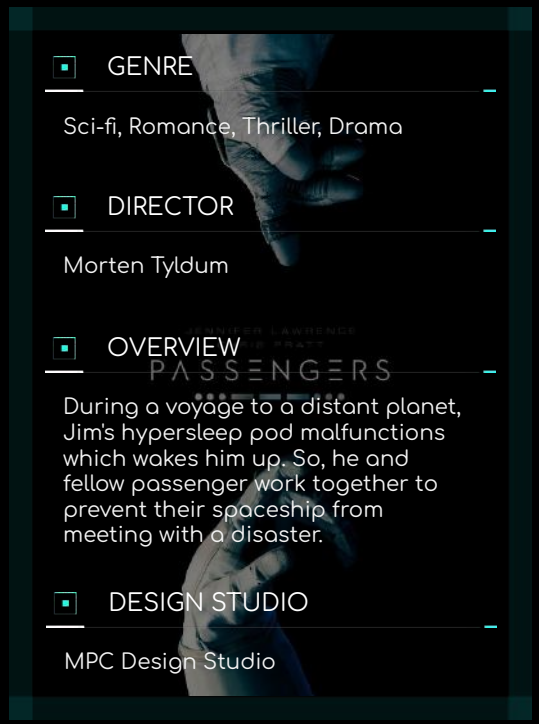
MISCELLANEOUS DISPLAYS

ANALYSIS - THE EXPANSE

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The characters on spaceships have access to advanced medical bays to treat injuries and illnesses.	The technology provide them with advanced communication and navigation systems, as well as advanced weapons and defense systems to protect them from hostile forces.	The expanse do not directly cater to the love and belonging needs of the characters.	The advanced propulsion systems on the spaceships enable skilled pilots to perform incredible feats of maneuvering and gain respect and recognition for their abilities.	The characters on the show use advanced technology to explore new worlds and uncover the mysteries of the universe, which allows them to connect more deeply with themselves and others.

MOVIES: CASE STUDY 09

PASSENGERS(2016)



GENRE

Sci-fi, Romance, Thriller, Drama

DIRECTOR

Morten Tyldum

OVERVIEW

During a voyage to a distant planet, Jim's hypersleep pod malfunctions which wakes him up. So, he and fellow passenger work together to prevent their spaceship from meeting with a disaster.

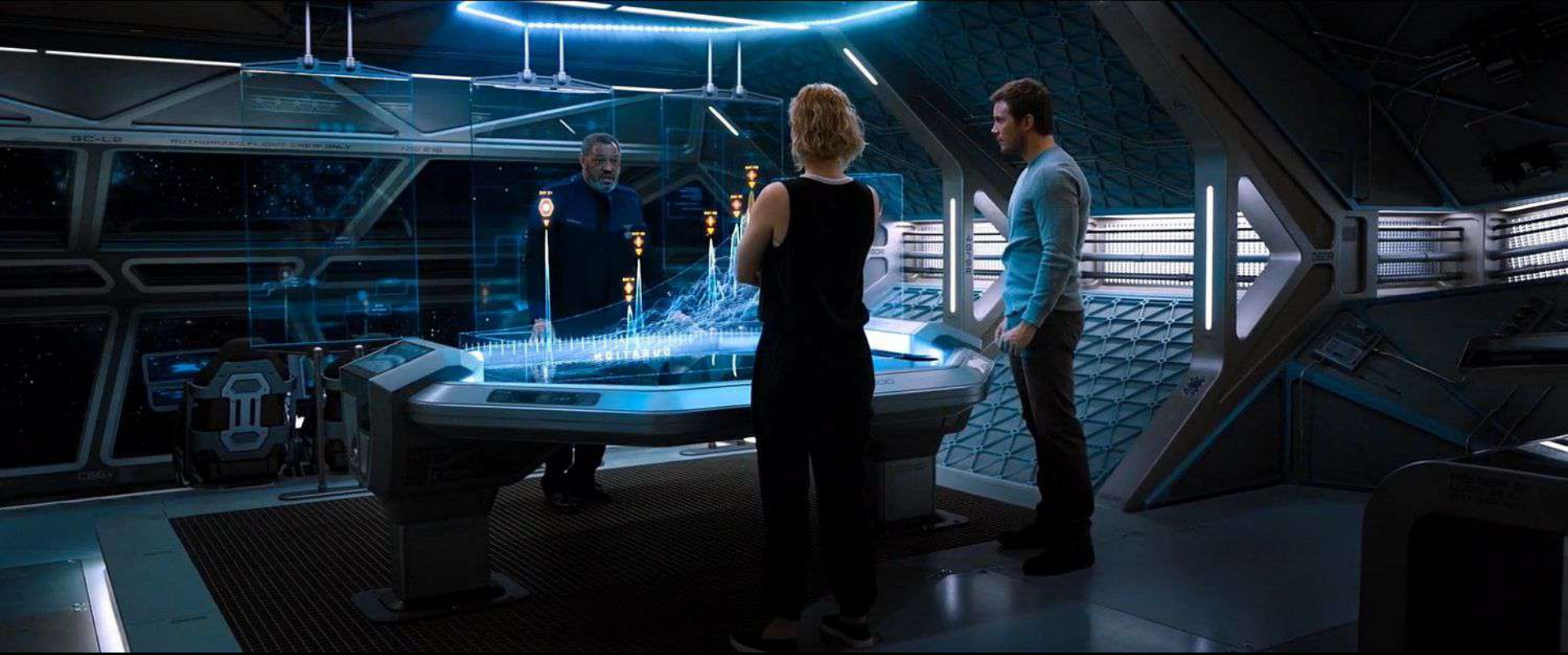
DESIGN STUDIO

MPC Design Studio

The Avalon, a sleeper ship transporting 5,000 colonists and 258 crew members in hibernation pods, is traveling from Earth to the planet Homestead II, a 120-year journey.

The film follows two passengers on an immense interstellar spacecraft carrying thousands of people to a colony 60 light years from Earth, when the two are awakened 90 years early from their induced hibernation.

The ship features various interfaces to serve the crew and the colonists with varying levels of complexity.



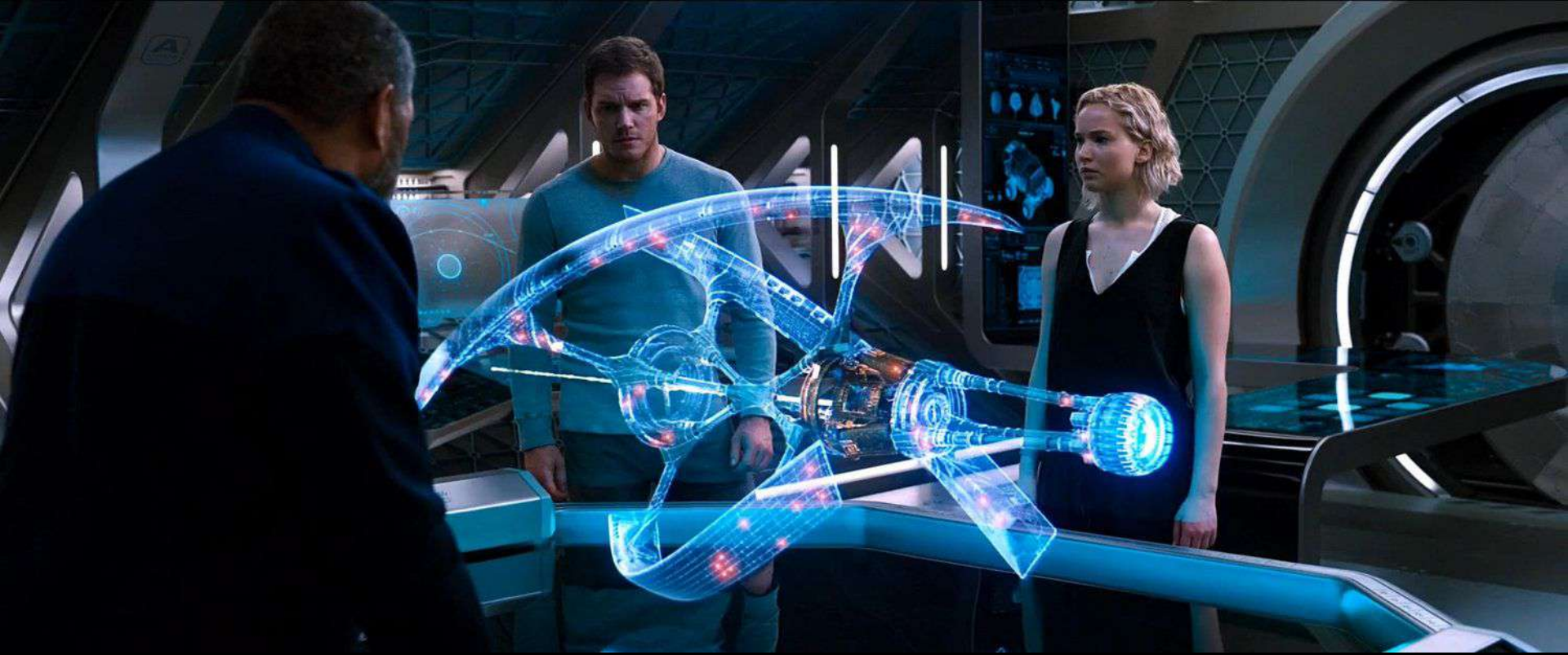
MPC Design worked closely with MPC Film – including VFX Supervisor Pete Dionne and Sony Pictures' Erik Nordby to create a vast array of graphics for the feature film Passengers. Covering 423 shots, a team of 10 artists produced work that included concept design, virtual set dressing and traditional screen graphics. MPC Design were heavily involved in creating visuals that both supported and pushed the narrative throughout the film.

HIBERNATION POD

The hibernation pod UI has the muted colour palette and the UI curves along the unnaturally clear curved screen. The UI is surprisingly clear given how transparent the screen is and the UI itself is what gives the screen its shape. The UI complements the shot so well, it's absolutely fantastic.

INFORMATION STATIONS

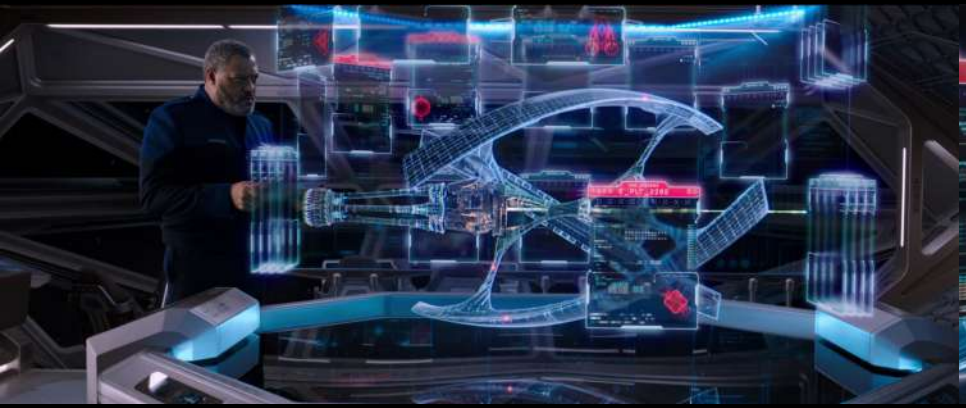
Another interesting one to pay attention to are the information stations that display a series of icons on a rotating sphere. The visualisation and concept of this UI is quite unique. The way the interface moves around to face the user gives it an impression of a living AI. I like how the icons move forward in position when selected and how the icons fade towards the back. The UI feels quite plausible and the fading icons at the back of the sphere gives the impression that there could be an infinite amount of icons and possible options. It's very attractive interface and much more interesting than a flat screen.

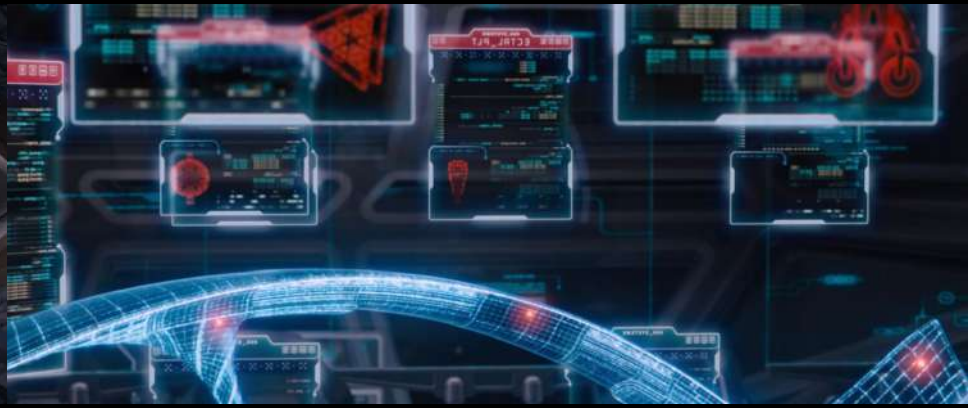


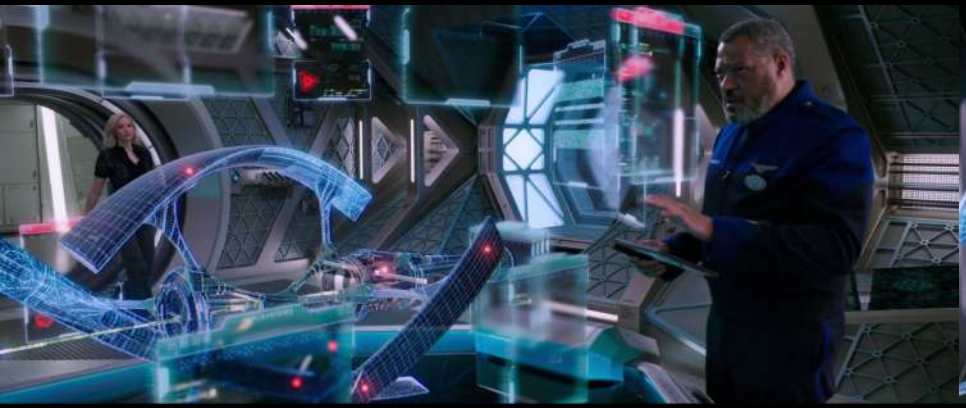
HOLOGRAPHIC DISPLAYS

They are used as a futuristic and interactive way of displaying information and communication between characters.

The interface of the Avalon spacecraft, which uses holographic displays to show data and control the ship's systems. The displays are interactive and allow characters to manipulate and access information by touching or gesturing in mid-air.



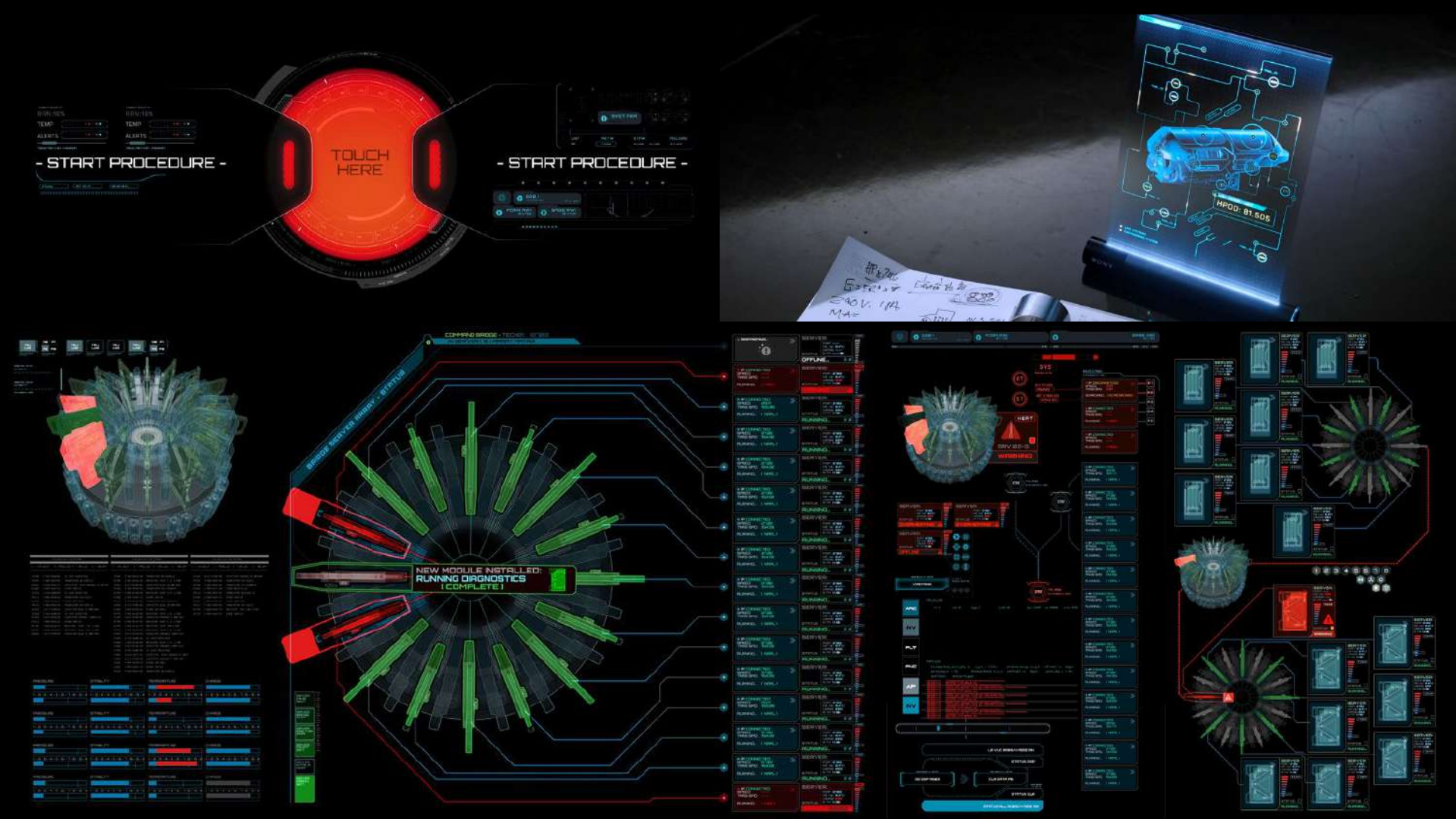




Another use of holographic displays in the movie is for entertainment purposes.

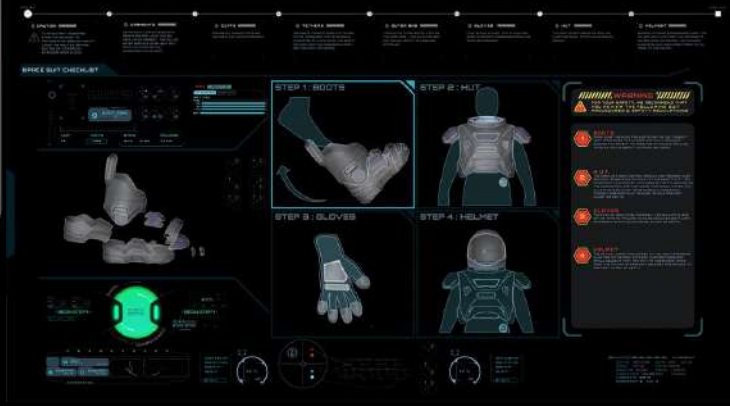
The character room includes a holographic display that can create a virtual reality environment, allowing them to experience different places and activities without leaving the ship.

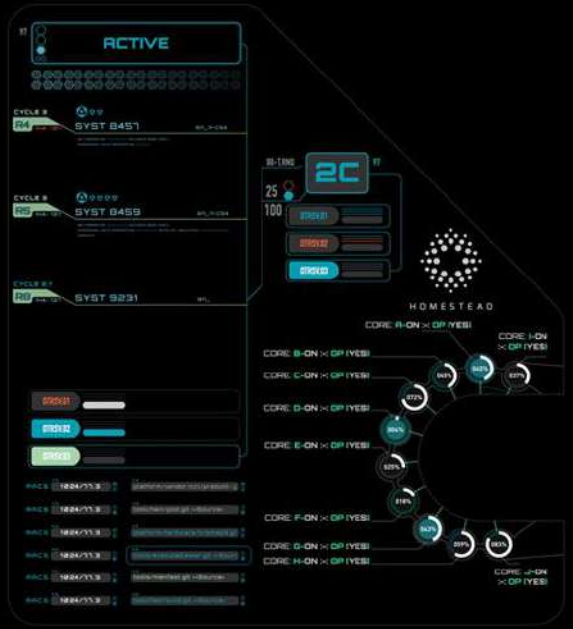
The design of the UI is not so far off what we expect to see today, but more playfully arranged and with less structured layouts. The form factor of the various interactive displays and devices does a lot in the way of making the UI feel futuristic.

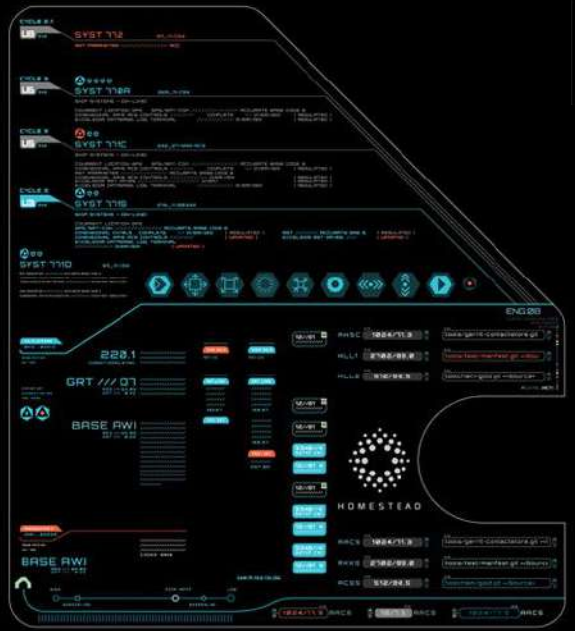

- START PROCEDURE -
TOUCH HERE
- START PROCEDURE -
HPOD: 81.505
COMMAND BRIDGE
BRIDGE SERVER ARRAY - STATUS
NEW MODULE INSTALLED:
RUNNING DIAGNOSTICS
[COMPLETE]
OFFLINE
SERVER
RUNNING
HEAT
WARNING

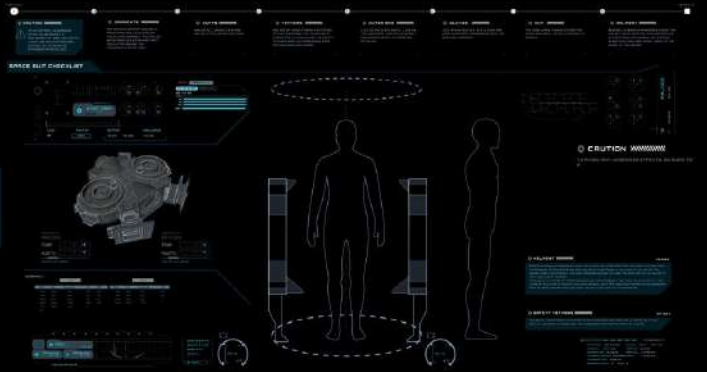
S27
S18
S29
S20
S34
S19
S83
S02
HOMESTEAD
COMMS
25
25
100

CORE A-ON × OP (YES)
CORE B-ON × OP (YES)
CORE C-ON × OP (YES)
CORE D-ON × OP (YES)
CORE E-ON × OP (YES)
CORE F-ON × OP (YES)
CORE G-ON × OP (YES)
CORE H-ON × OP (YES)
CORE I-ON × OP (YES)
CORE J-ON × OP (YES)
CORE K-ON × OP (YES)
CORE L-ON × OP (YES)
CORE M-ON × OP (YES)
CORE N-ON × OP (YES)
CORE O-ON × OP (YES)
003%
25
100


SPACE SUIT CHECKLIST
STEP 1: BOOTS
STEP 2: HUT
STEP 3: GLOVES
STEP 4: HELMET
WARNING


ACTIVE
SYST 8457
SYST 8459
SYST 9231
2C
25
100
HOMESTEAD
CORE A-ON × OP (YES)
CORE B-ON × OP (YES)
CORE C-ON × OP (YES)
CORE D-ON × OP (YES)
CORE E-ON × OP (YES)
CORE F-ON × OP (YES)
CORE G-ON × OP (YES)
CORE H-ON × OP (YES)
CORE I-ON × OP (YES)
CORE J-ON × OP (YES)


SYST 772
SYST 770A
SYST 771C
SYST 771B
SYST 771D
ENG 08
220.1
GRT /// 07
BASE AWI
HOMESTEAD
BASE AWI

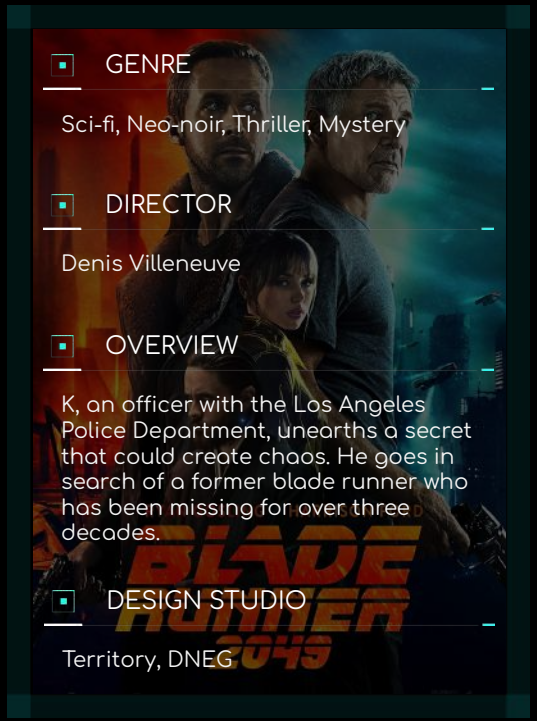

SPACE SUIT CHECKLIST
CAUTION

ANALYSIS - THE PASSENGERS

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The characters are put in a medically induced sleep during the long journey to their destination.	The technology provide them with advanced communication and navigation systems, as well as advanced safety protocols to protect them from hazardous situations.	The relationship that develops between the two main characters, Jim and Aurora, contributes to their sense of connection and belonging.	Jim's engineering skills enable him to solve technical problems and gain recognition for his abilities.	The characters are traveling to a distant planet in order to start a new life and fulfill their dreams.

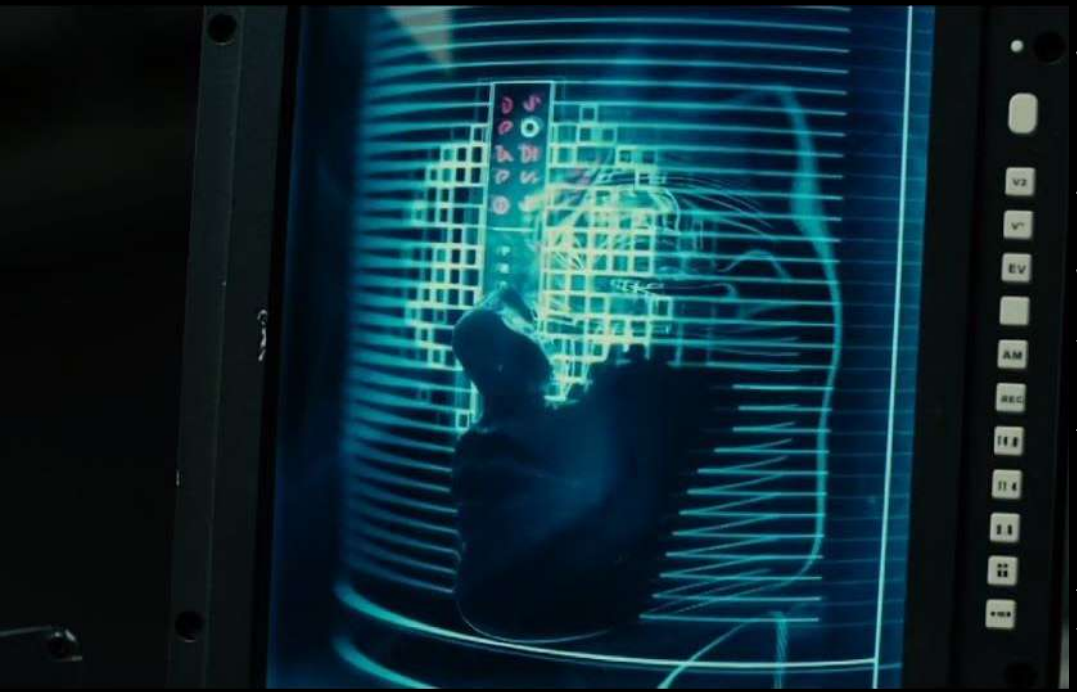
MOVIES: CASE STUDY 10

BLADE RUNNER 2049 (2017)



The film is set after a technological meltdown or 'blackout, where all digital data was either erased or compromised. This set up a world where advanced technology exists but is available only to a specific set of the population, such as large corporations.

In 2049, bioengineered humans known as replicants are slaves. K, a Nexus-9 replicant, works for the Los Angeles Police Department as a "blade runner", an officer who hunts and "retires" rogue replicants. He retires Nexus-8 replicant and finds a box buried under a tree at Morton's protein farm. The box contains the remains of a female replicant who died during a caesarean section, demonstrating that replicants can reproduce biologically, previously thought impossible. K's superior, Lt. Joshi, fears that this could lead to a war between humans and replicants. She orders K to find and retire the replicant child to hide the truth.



UI

The UI design in Blade Runner 2049 is an amazing piece of work. The team have really nailed the art direction, which compliments the film tremendously. The UI is unique and stylised perfectly for the film and seeing the grittier, more textured screens.

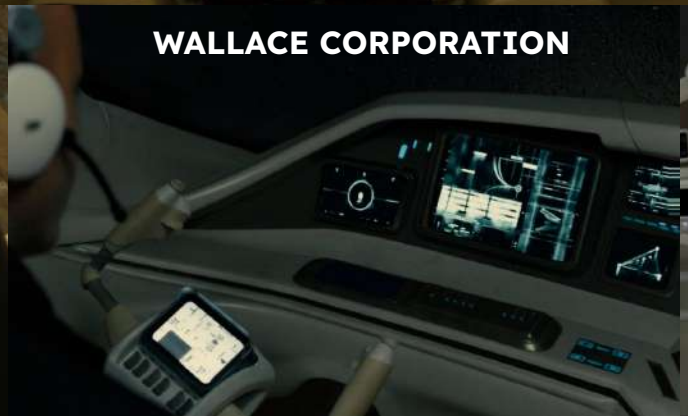
As a result the UI designs can be broken down based on different class structures.

Wallace Corporation, the leading technological superpower in the film, have the most advanced technology and their UI design is the most elegant and minimalist of the lot.

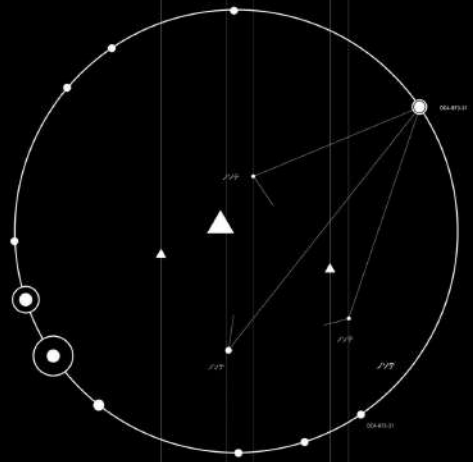
The system used by the LAPD is much less advanced, but still much better than what the general public has access to. They are a bit clunky and gritty in comparison to the Wallace UI.

Then there's K's spinner, which is dilapidated and barely functional and helps reinforce K's low status as a Blade Runner.

This approach to UI design helps provide context to the story and adds depth to the characters.



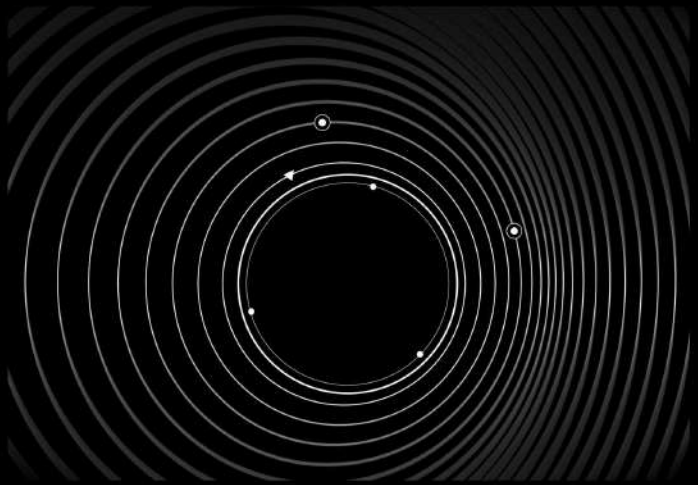
WALLACE CORPORATION



ALT
1289

VEL
429

PITCH
1277



8271 11 14 8472 11 GUIDANCE DATA LOADED

9812 NW

RECOVERING DATA

SIGNAL LOST

12022 SE

SECTOR 05//SCANNING

ACCESS ROUTE 3

THRUSTERS ACTIVE

XN-705

ATTACK MODE

SPNR - M22

INCOMING COMM.

1 U FS C7

8271 11 ACCESS NODE 14 8472 11

029

S88	//0189 89.N	RRP-8241//9890329	TRAJECTORY ID 748.389	●
S22	//0189 89.NW	NHH-5438//0996617	TRAJECTORY ID 748.389	○
S19	//0189 89.SE	HENL-SPIN-ID-837//29	TRAJECTORY ID 009.138	●
ERROR	DIRECTION UNKOWN	SYSTEM FAILURE	TRAJECTORY CALCULATION ERROR	
S85	//0189 89.SE	HENL-SPIN-ID-837//29	TRAJECTORY ID 748.389	○
ERROR	DIRECTION UNKOWN	SYSTEM FAILURE	TRAJECTORY CALCULATION ERROR	
S36	//0189 89.SE	HENL-SPIN-ID-837//29	TRAJECTORY ID 748.389	●
S03	//0189 89.SE	HENL-SPIN-ID-837//29	TRAJECTORY ID 748.389	●
S11	//0189 89.SE	HENL-SPIN-ID-837//29	TRAJECTORY ID 748.389	○
S41	//0189 89.E	PEZ-2139//5090194	TRAJECTORY ID 748.389	●
S72	//0189 89.SW	RCK-2202//8819243	TRAJECTORY ID 748.389	○

621

SPNR R22
DISTRESS SIGNAL

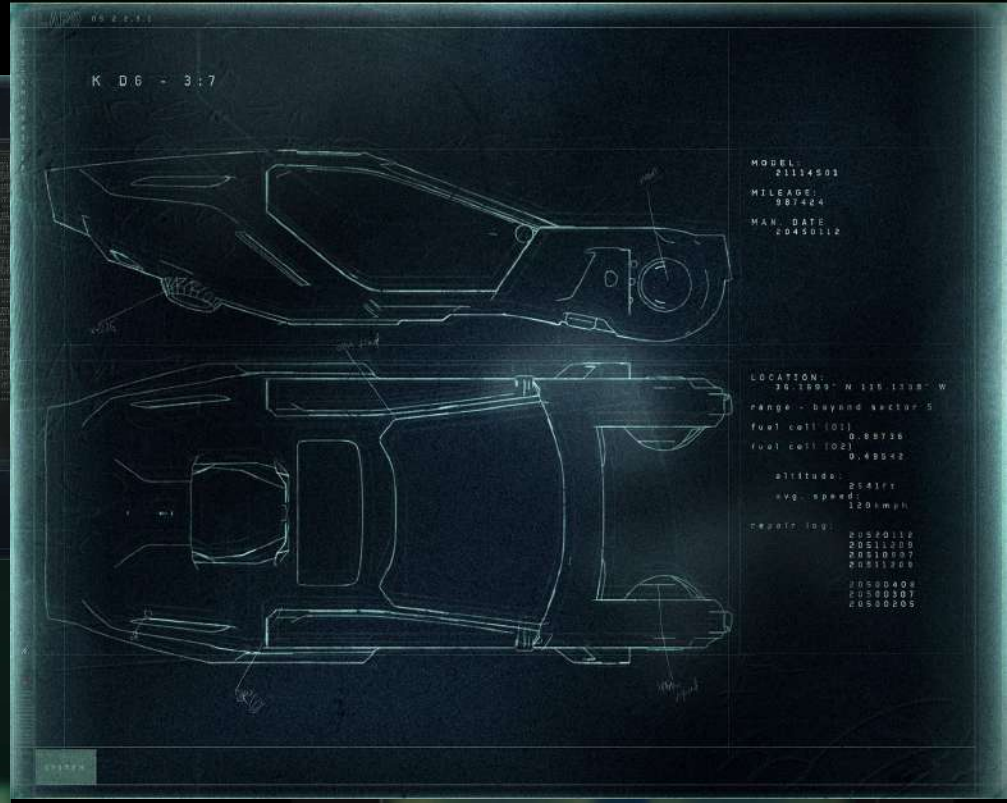
ACK723955

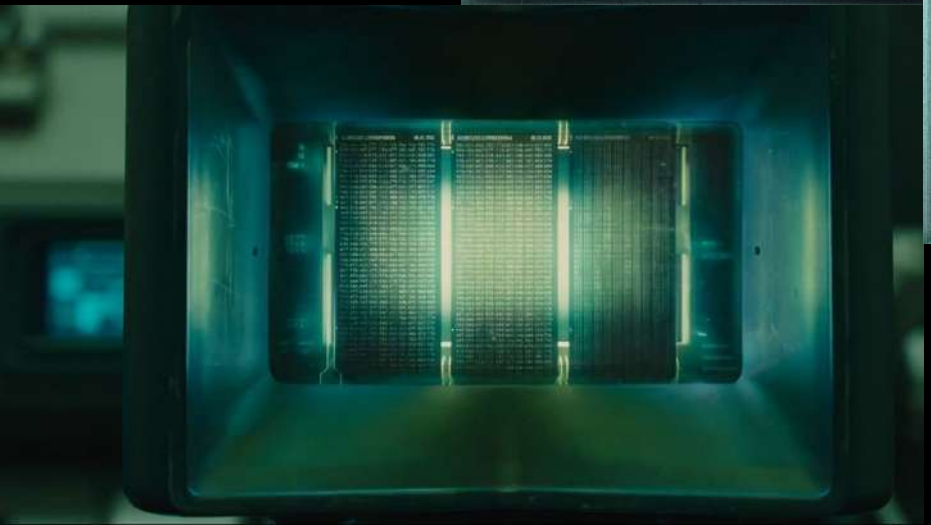
883

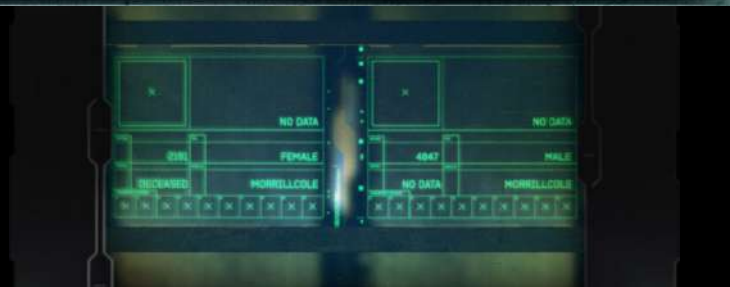
959

F 21

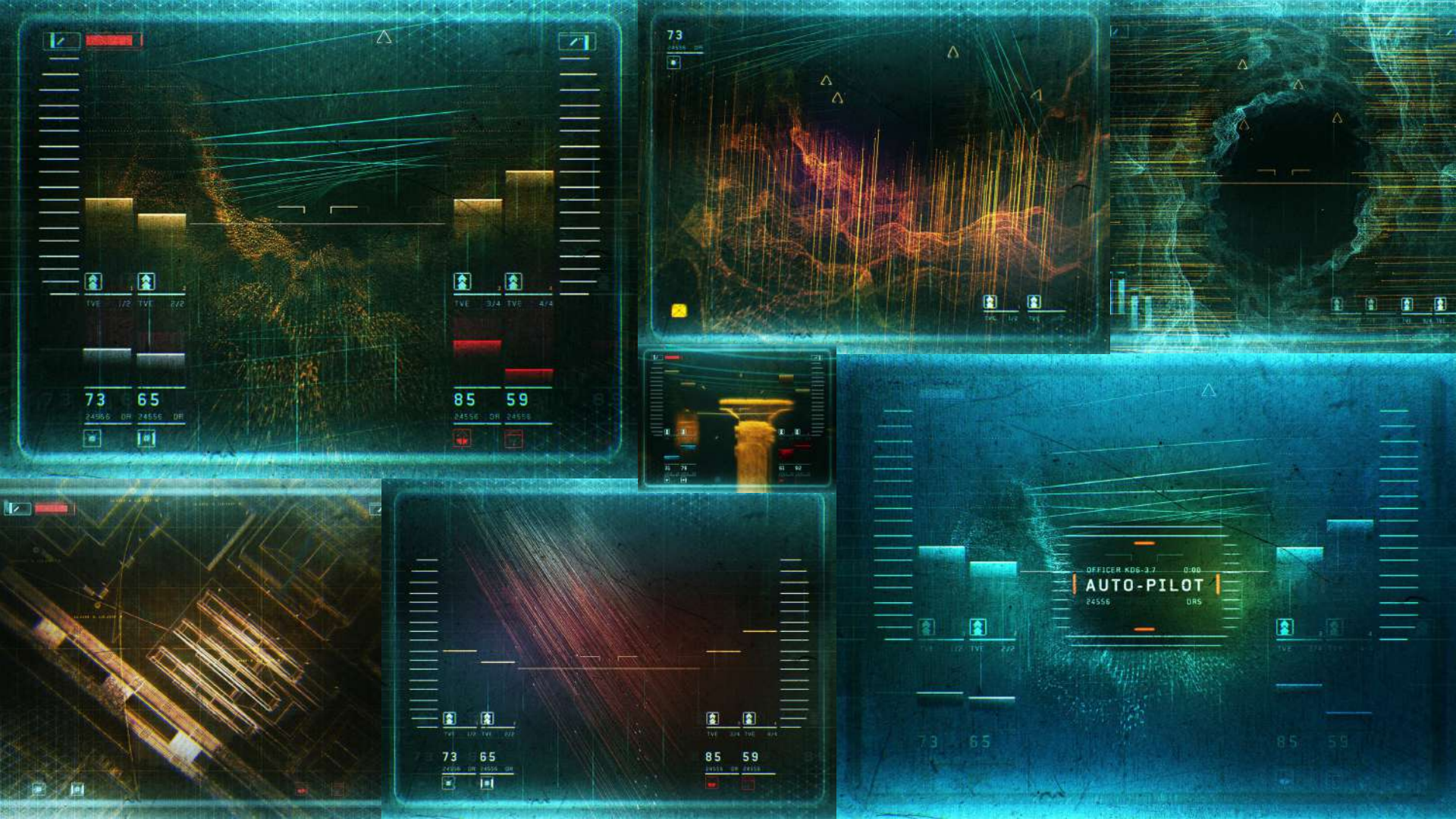
LAPD

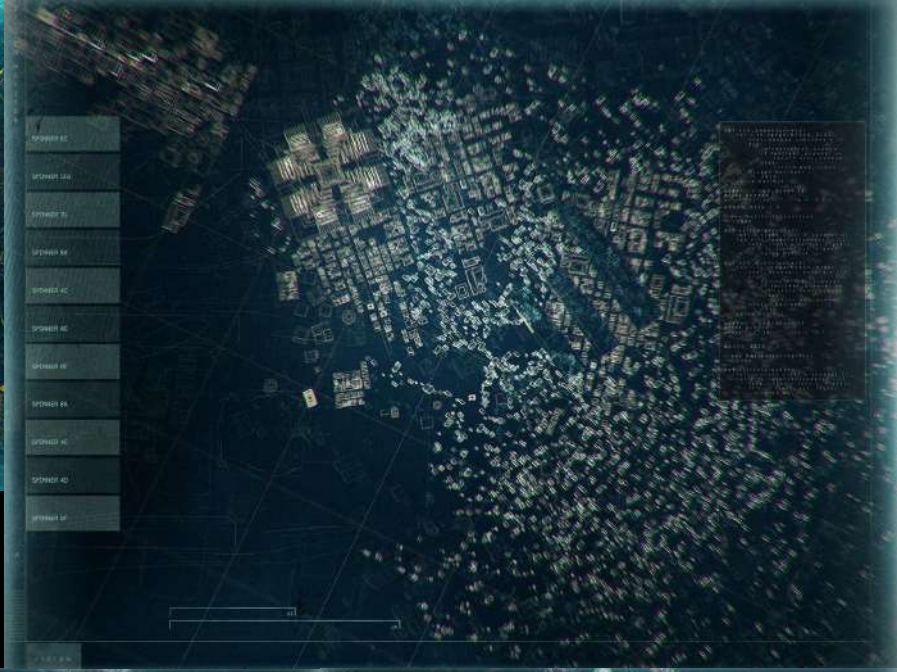

K D6 - 3:7
MODEL:
21114501
MILEAGE:
987424
MAN. DATE
20450112
LOCATION:
range - beyond sector 5
fuel cell [01]
0.85736
fuel cell [02]
0.48542
altitude:
2541ft
avg. speed:
120kmph
repair log:
20540112
20511209
20510907
20511209
20500408
20500307
20500205




NO DATA
FEMALE
DECEASED
MORRELLCOLE
NO DATA
MALE
NO DATA
MORRELLCOLE

K’S SPINNER


73
65
85
59
OFFICER KD6-3.7
0:00
AUTO-PILOT
24556
DRS

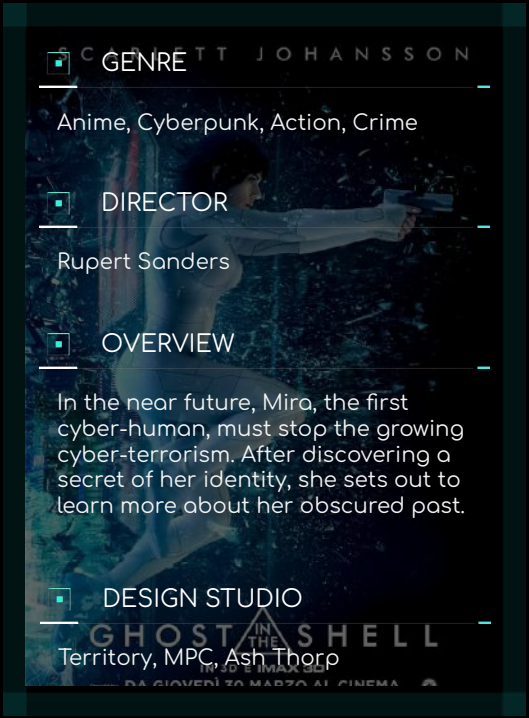


ANALYSIS - BLADE RUNNER 2049

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The technology provide them with advanced medical technology, artificial organs, and advanced prosthetics.	The technology provide them with advanced security and surveillance systems, as well as advanced weaponry to protect them from danger.	The relationship between the main character, K, and his holographic girlfriend, Joi, contributes to his sense of connection and belonging.	K's detective work requires him to use advanced technology to solve complex cases.	K's experiences and interactions with the replicant community and the holographic technology cause him to question his own identity and place in the world.

MOVIES: CASE STUDY 11

GHOST IN THE SHELL (2017)



GENRE

Anime, Cyberpunk, Action, Crime

DIRECTOR

Rupert Sanders

OVERVIEW

In the near future, Mira, the first cyber-human, must stop the growing cyber-terrorism. After discovering a secret of her identity, she sets out to learn more about her obscured past.

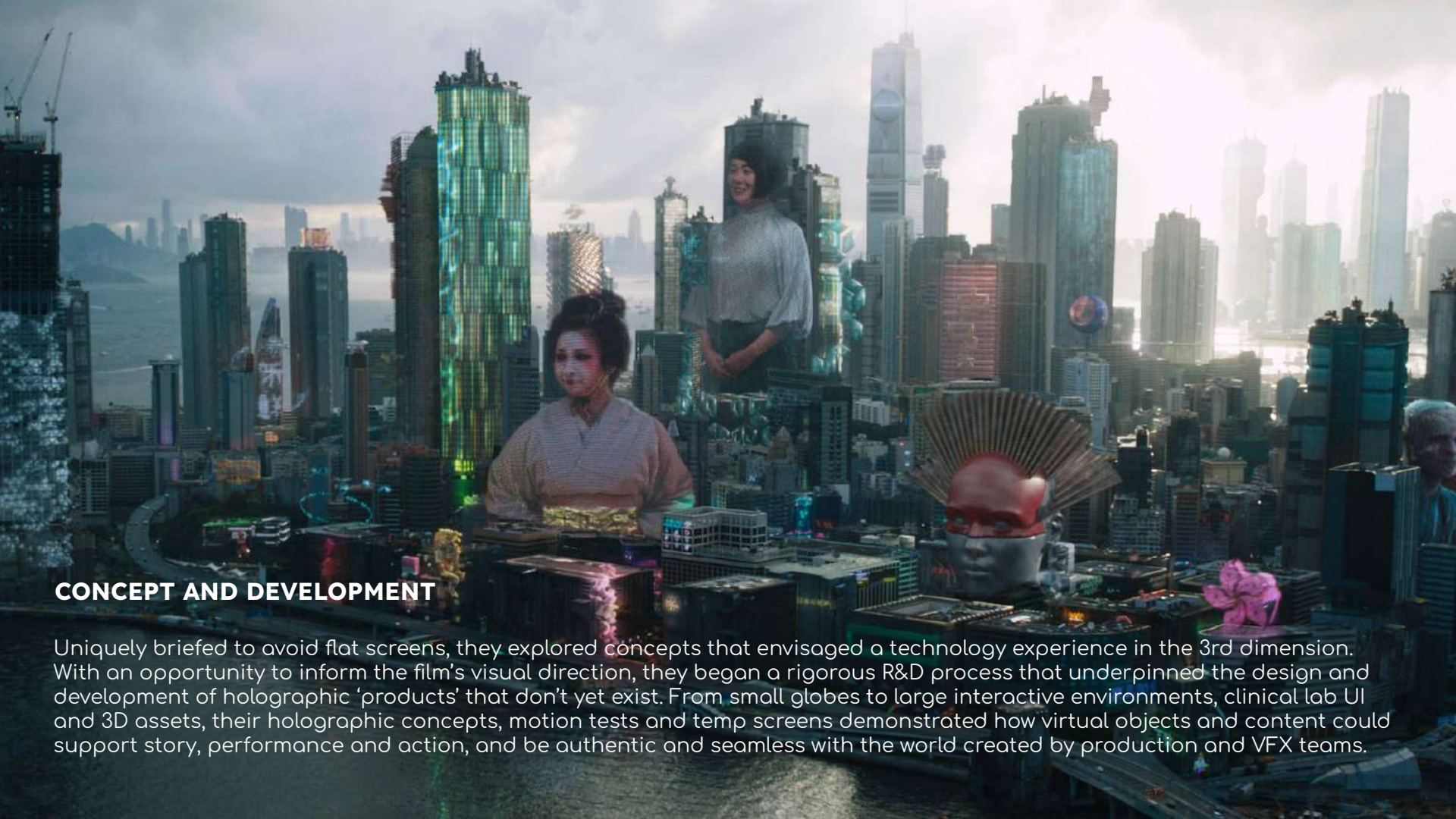
DESIGN STUDIO

Territory, MPC, Ash Thorp

Set in a near future when the line between humans and robots is blurring, the plot follows the Major, a cyborg super soldier who investigates her past.

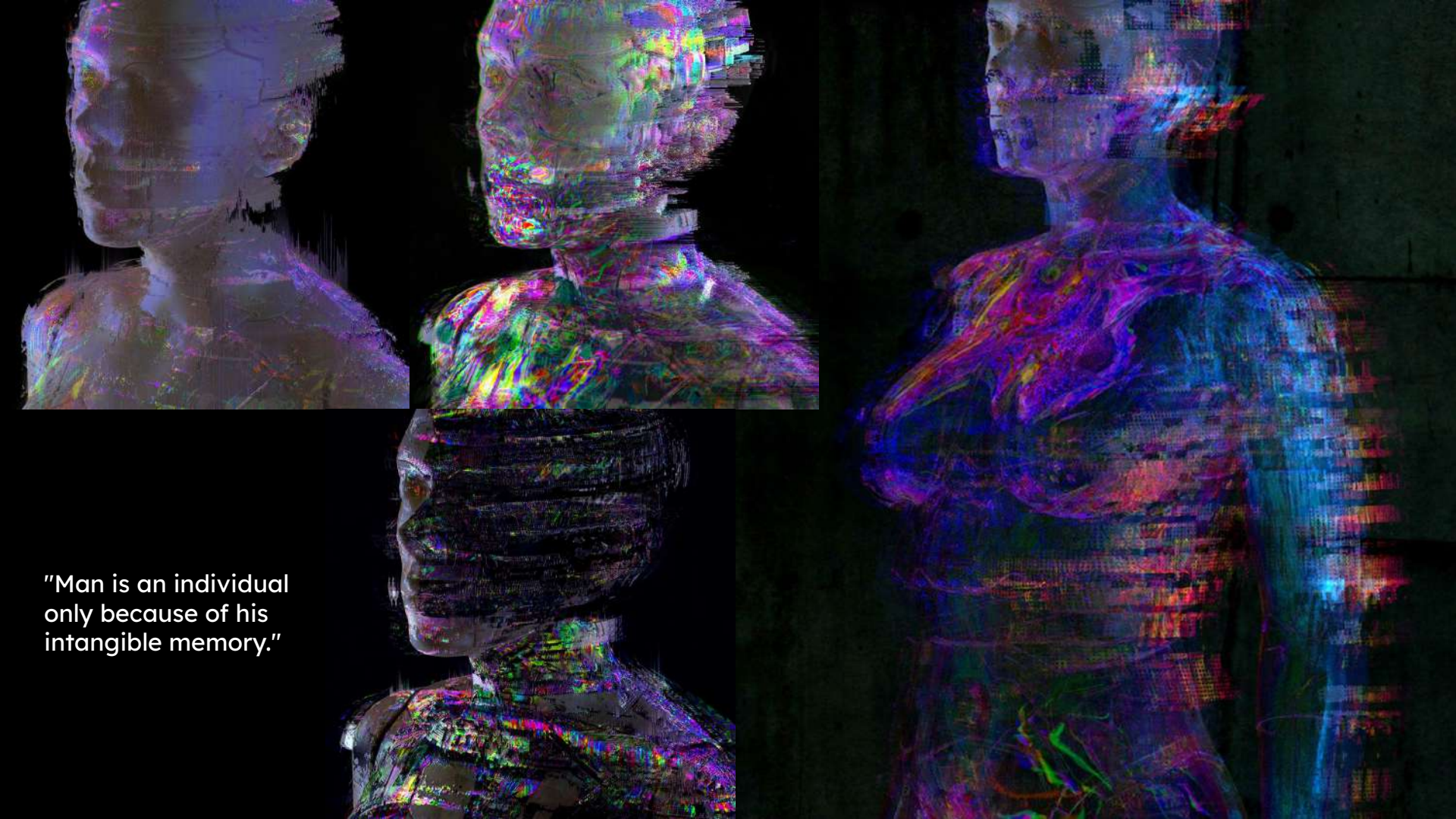
Humans are augmented with cybernetic improvements such as vision, strength and intelligence. Augmentation developer Hanka Robotics establishes a secret project to develop an artificial body, or "shell", that can integrate a human brain rather than an AI.

Mira Killian, the sole survivor of a cyberterrorist attack which killed her parents, is chosen as the test subject after her body is damaged beyond repair. Over the objections of her designer Dr. Ouelet, Hanka Robotics CEO, Cutter, decides to use Killian as a counter-terrorism operative.

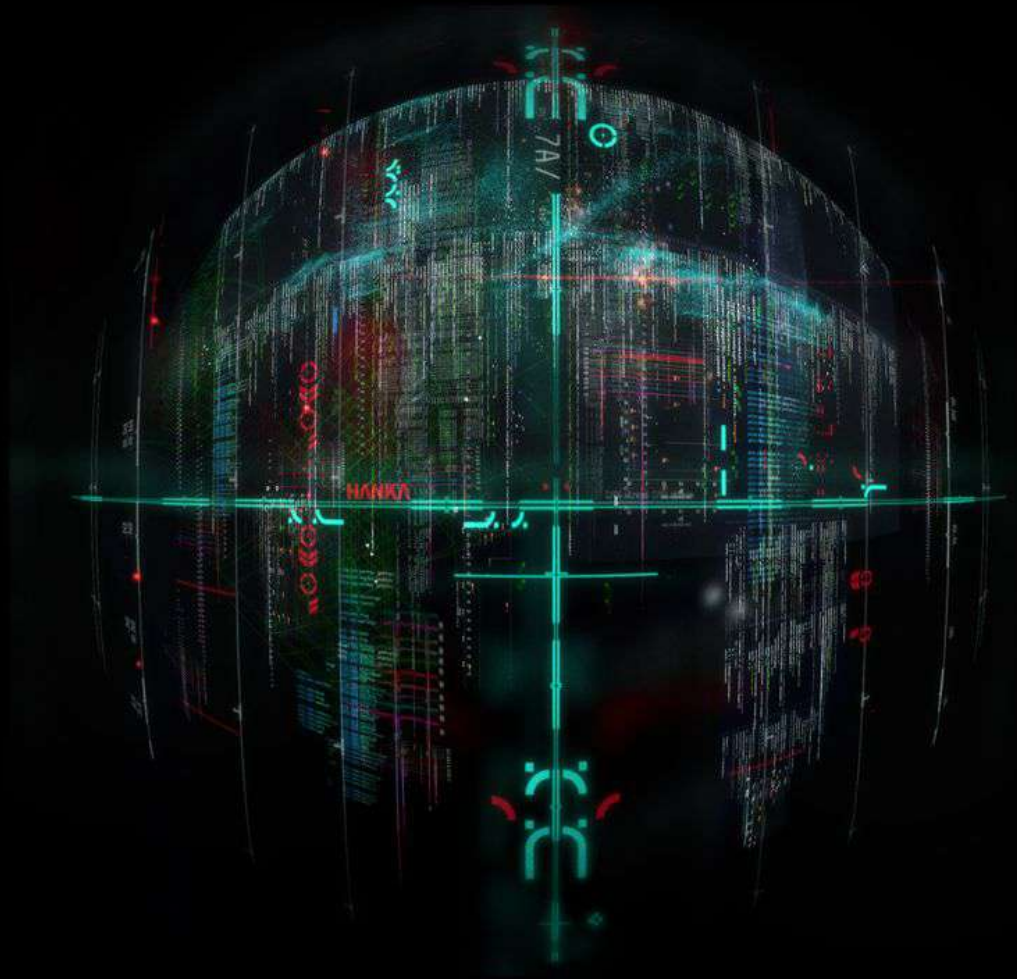


CONCEPT AND DEVELOPMENT

Uniquely briefed to avoid flat screens, they explored concepts that envisaged a technology experience in the 3rd dimension. With an opportunity to inform the film's visual direction, they began a rigorous R&D process that underpinned the design and development of holographic 'products' that don't yet exist. From small globes to large interactive environments, clinical lab UI and 3D assets, their holographic concepts, motion tests and temp screens demonstrated how virtual objects and content could support story, performance and action, and be authentic and seamless with the world created by production and VFX teams.



"Man is an individual only because of his intangible memory."



HOLOGRAM CONCEPT DEVELOPMENT

They explored the relationship of form and function with design and aesthetics.

They developed various creative routes for how holographic content and interaction can exist in a futuristic context; how organic qualities and behaviours could be applied to digital technology; how subtle cultural textures could contribute to story, character and form; and researched the aesthetics of how virtual content can form, transition and occupy space.

The holo-globe, holo-conference room and the virtual Zen Garden were all concepts that were given form and substance through this concept work.

SOLOGRAMS

The city is absolutely saturated in holograms, from eye catching advertising to street signs and road signals. Director Rupert Sanders, referred to them as 'Sologrames'. The abundance of hologram advertising taking over buildings and encroaching into the city makes it feel like an artificial world, a world that has one foot in reality and the other in virtual reality. The designs are beautiful, eye-catching and vibrant. It reminds me a lot of the Hyper-Reality world, which has a more dystopian view of the future.

CITYSCAPES AND STREET SCENES

As a futuristic society in which technology is seamlessly integrated at all levels of the city, they created a vast number of holographic and 3D assets to populate the cityscape and street scenes in support of the director's vision for a dynamic and original world. From giant hi-definition sologrames and building wrappers to 3D brand logos, advertising signs, character animations and traffic signs, the assets contributed to the unique look and feel of this world.

#1

The air hostess presents the OMNI AIR logo by holding her hands forwards.

#2

As the hostess opens the fan at her hip a larger version opens out behind her that mirrors the action (See next page for more detail).

Suggested Logo.

OMNI AIR

Suggested slogan 1.

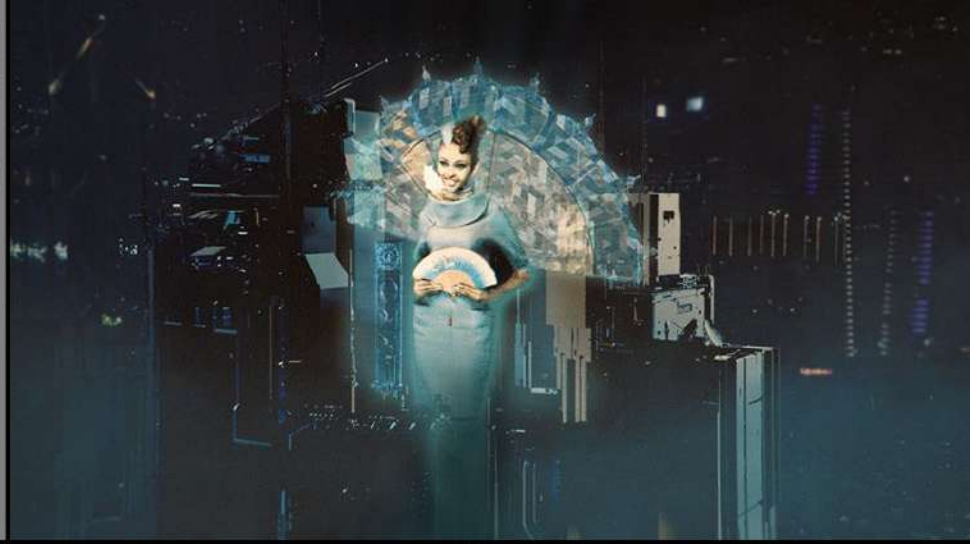
A pill for every mood.

Suggested slogan 2.

Let us drive your subconscious.

Suggested slogan 3.

Your imagination is our pleasure.



#01

Robotic Arm Rotates revealing the complex systems

#02

An hand forms underneath the robotic glove to reveal its postion in the hand

Multiple finger detach detail

#03A

Hand uses building windows as keyboard revealing super fast typing abilities

#03B

Hand reveals PowerGlove 5000 Logo

#04

Hand closes smashing logo into pieces

Suggested logo.

POWER GLOVE 5000

Suggested slogan 1.

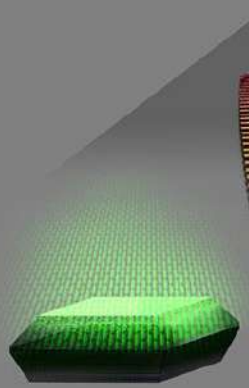
Stronger. Faster.

Suggested slogan 2.

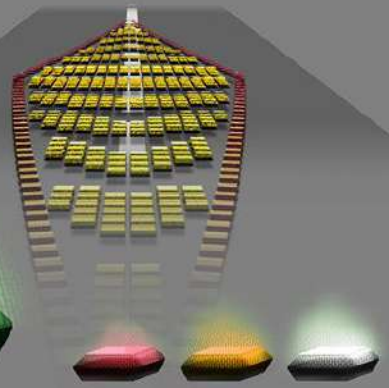
True Power in your hand

Vector of final pattern.

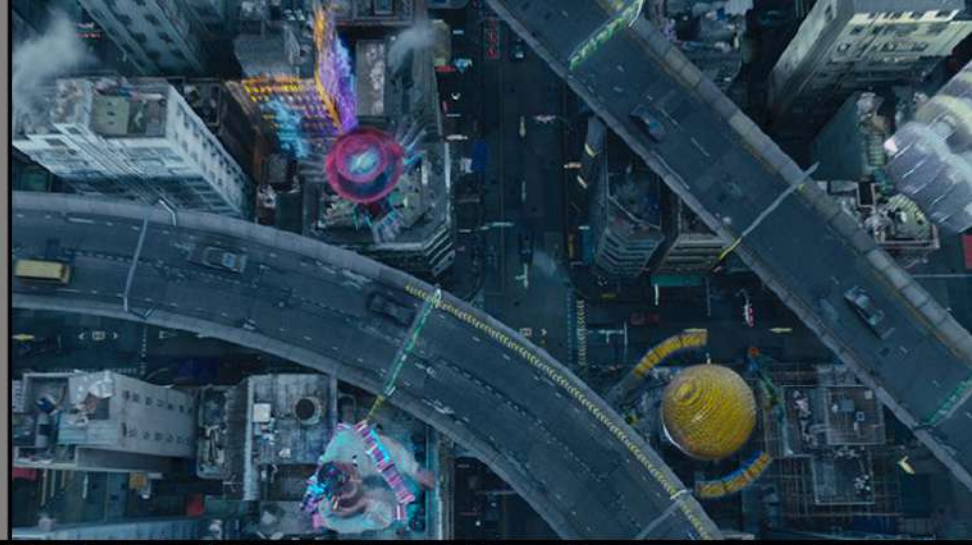
Road markings are made up of clusters of individual Cat's Eyes that flow together between different patterns, sequences and colours depending on their function.



Individual Cat's Eye.



Cat's Eyes change between four signal colours as needed.



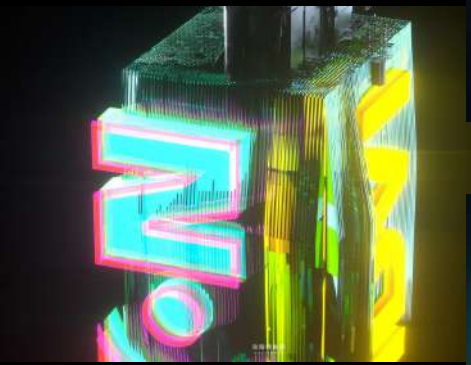
highwaySign_01

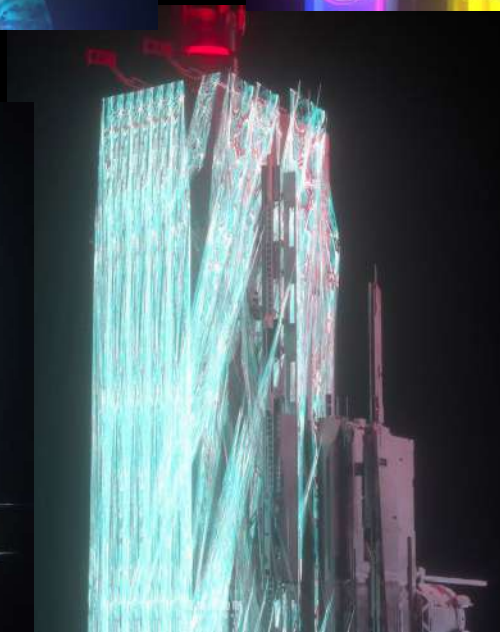
Japanese 'Direction'

Flat Vector

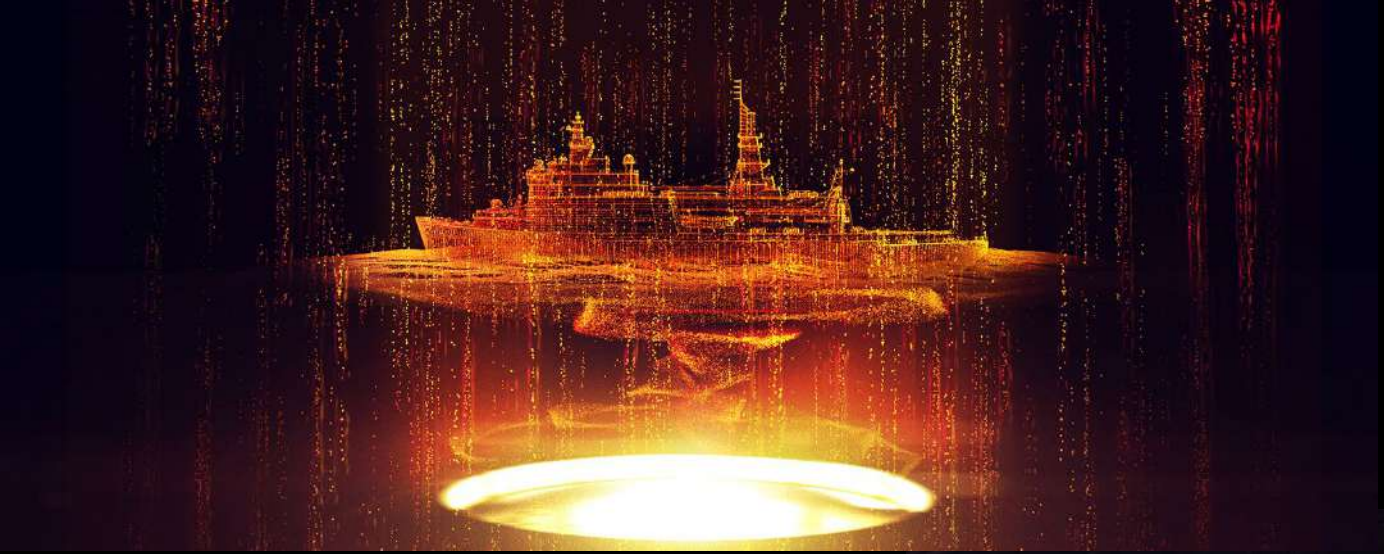
Treatment Mock-Up

HITACHI
香港航空
香港航空
香港航空
正官庄





香
主
香

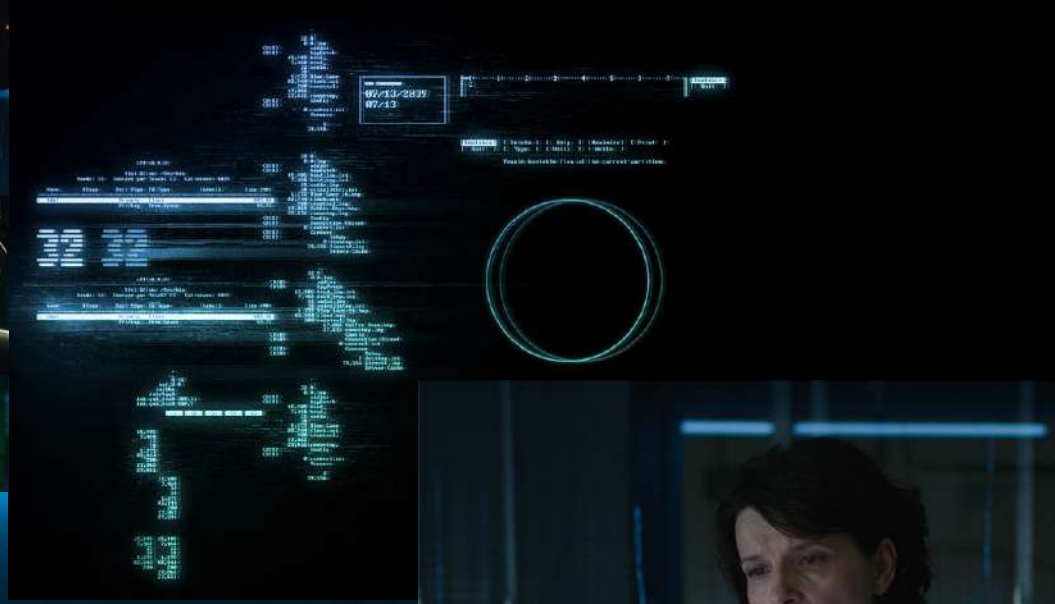


HOLOGLOBES

A holographic device that could function much like a personal computer, how people and objects could be generated in a holographic context. With the form of a globe or spherical as a starting point, visualization of digital content – data, images, animations, movies, memories – could dynamically generate according to need. Exploration of a range of possible expressions with varying degrees of roughness and refinement.

HANKA UI

UI for clinical lab and reception environments were created to support the advanced world of Hanka Robotics, the film's corporate developer of augmentative and cyber technology. Design was clean and minimal code, stripped of a graphic user interface to convey the highly specialised and scientific nature of the work and brand.



HOLOGRAPHIC ENVIRONMENTS

Extending the premise of the hologlobe's content and functionality to a large scale environment, they created concepts for a holographic briefing room in which a crime scene could be recreated and examined at varying levels of detail.

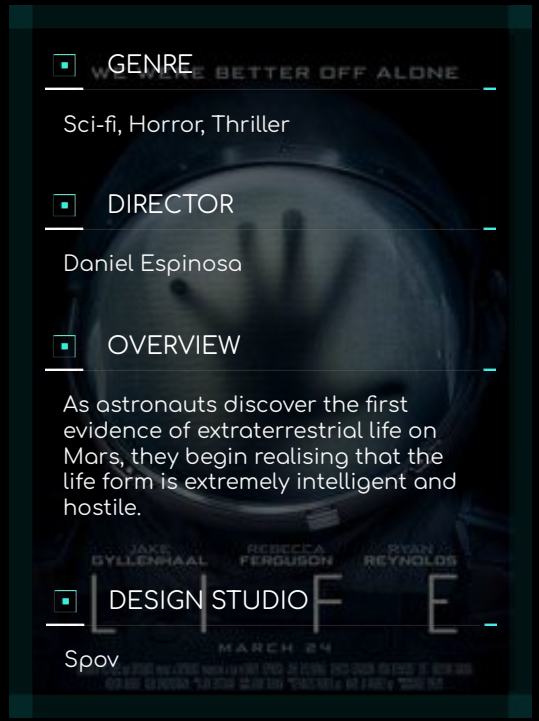
As part of this, they explored how to generate and represent human figures in 3D. This work led to the concept for the Zen Garden sequence in which a holographic representation of both a machine and environment is generated and manipulated in real time.

ANALYSIS - GHOST IN THE SHELL

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The technology provide them with advanced prosthetics and cybernetic enhancements that allow them to survive and operate in a dangerous and high-tech world.	The technology provide them with advanced surveillance and security systems, as well as advanced weaponry to protect them from danger.	The relationship between the main character, Major, and her partner, Batou, contributes to their sense of connection and belonging.	Major's cybernetic enhancements allow her to become a highly skilled and effective special agent.	Major's journey of self-discovery and questioning of her own identity leads her to transcend her physical limitations and embrace her own unique humanity.

MOVIES: CASE STUDY 12

LIFE (2017)



GENRE

Sci-fi, Horror, Thriller

DIRECTOR

Daniel Espinosa

OVERVIEW

As astronauts discover the first evidence of extraterrestrial life on Mars, they begin realising that the life form is extremely intelligent and hostile.

DESIGN STUDIO

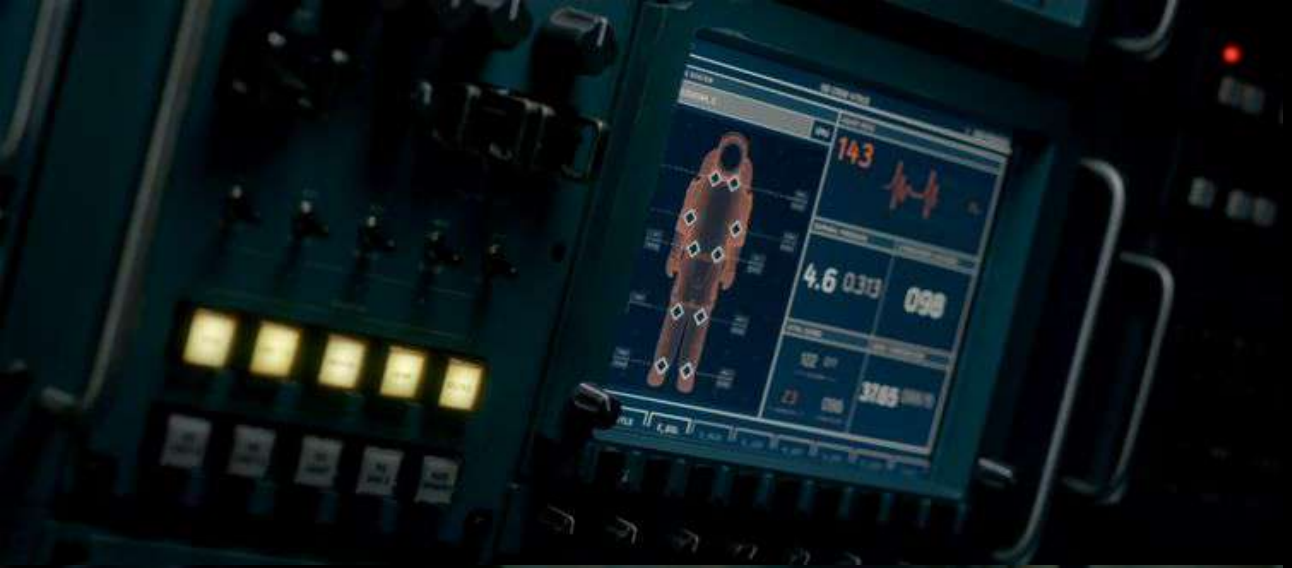
Spov

In the film, a six-member crew of the International Space Station uncovers the first evidence of extraterrestrial life on Mars. When members of the crew conduct their research, the rapidly evolving life-form proves far more intelligent and terrifying.

Espinosa's sense of drama is efficient, familiar, and narrow; if there's a moral sentiment to his direction, it's precisely in the limits that he imposes on the movie's dose of pain and gore. Life whips along at a decent pace and deploys enough engaging action sequences to make it work.

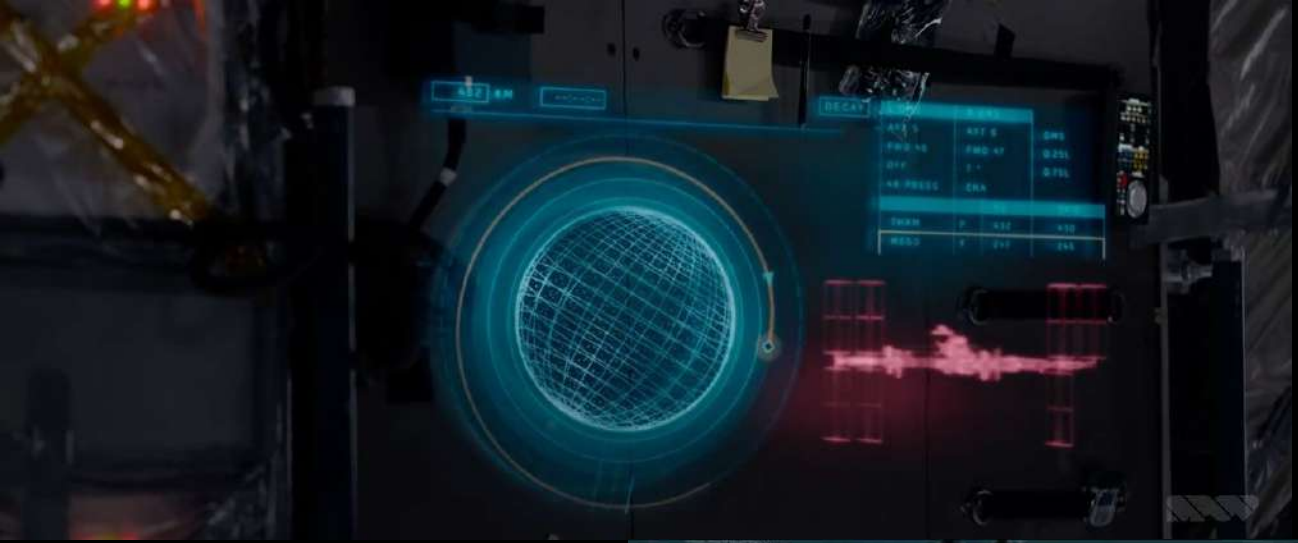
INTERNATIONAL SPACE STATION (ISS)

There are various sets of UI for each modules at the ISS

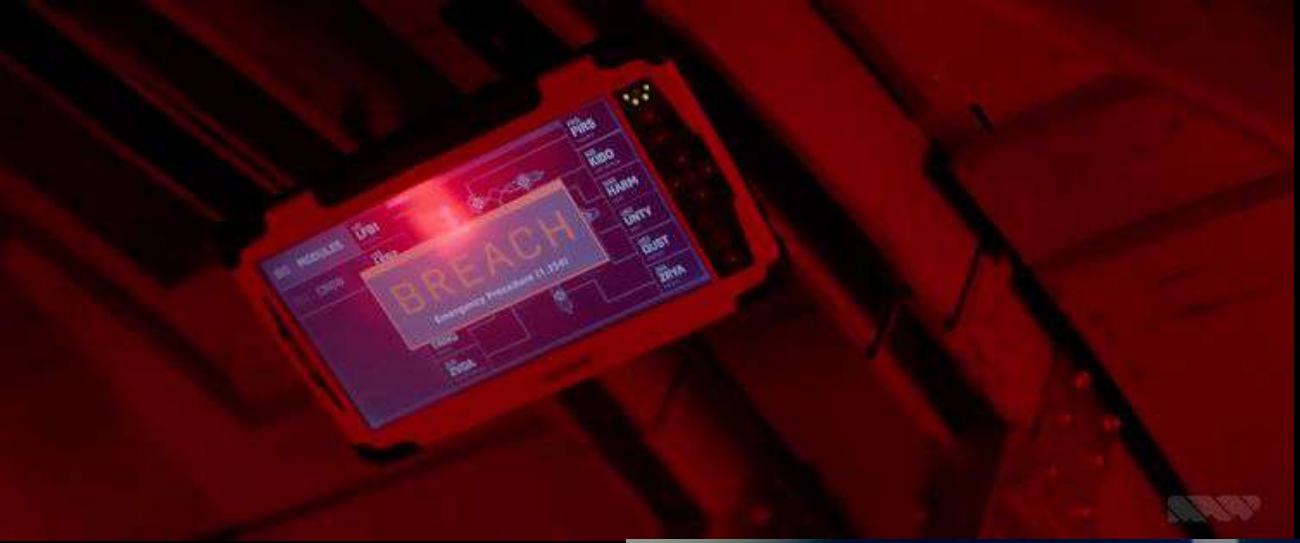


OPERATING SYSTEM OF ISS

Each UI set is differentiated mainly through varying colour schemes. Universally the designs all basically follow the same rules. This works nicely to establish a cohesive OS that runs the ISS.


432 KM
DECAY

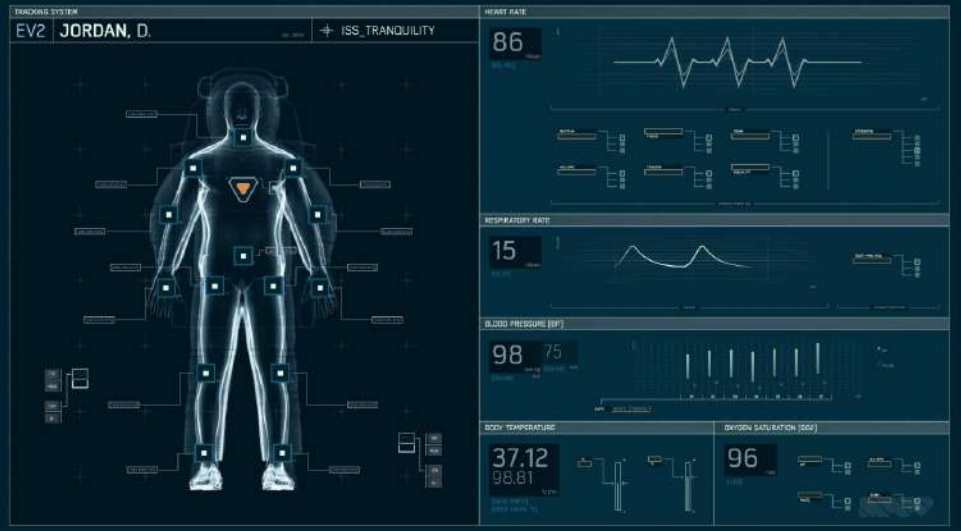
ORBIT TRAJECTORY
432 KM
DECAY

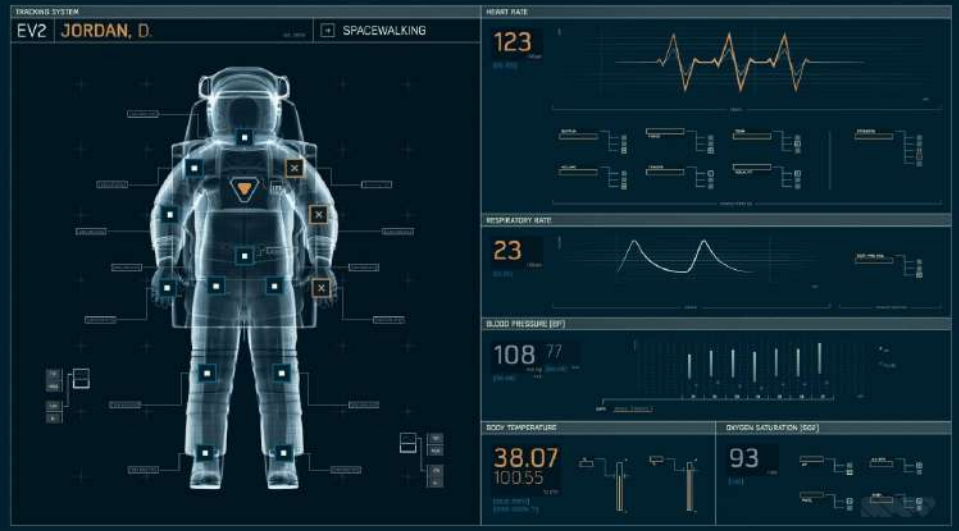

BREACH

COMMUNICATIONS
--- OFFLINE ---

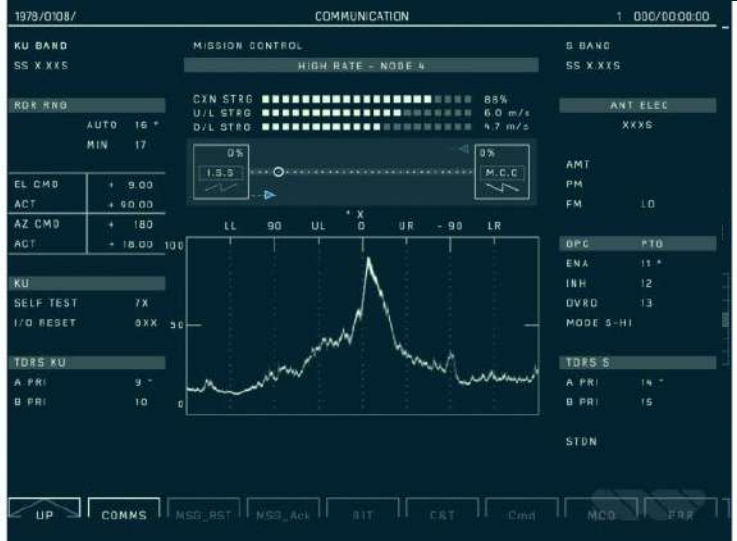
UI THEME

Overall the UI can be described as scientific, organised and modern. The design looks as though everything could have been created using Illustrator. The majority of the screens have a clean, vector look to them. There are a lot of lines and shapes but they only use solid fills and there doesn't seem to be any use of gradients. This creates an almost clinical feel, the UI is removed of any decorative elements and instead is more in favour of efficiency.

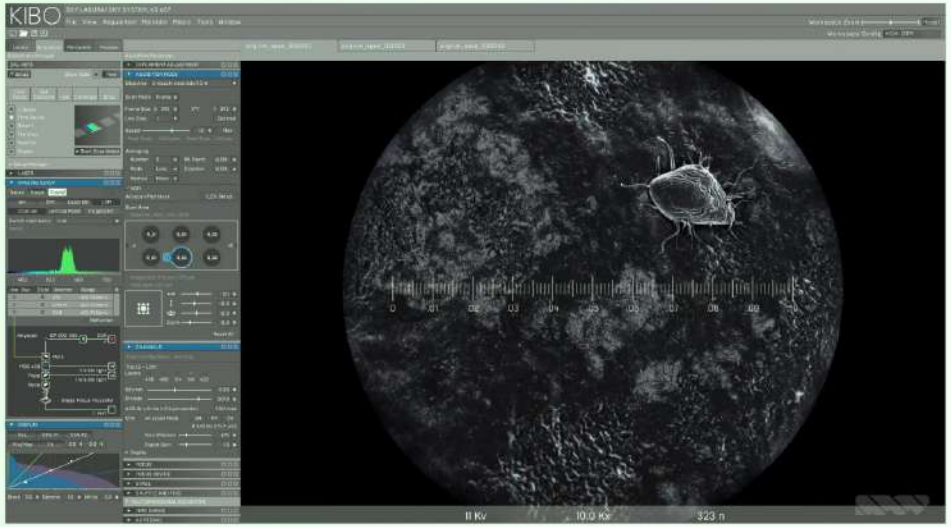

TRACKING SYSTEM
EV2 JORDAN, D.
ISS_TRANQUILITY
HEART RATE
86
RESPIRATORY RATE
15
BLOOD PRESSURE (BP)
98 75
BODY TEMPERATURE
37.12
98.81
OXYGEN SATURATION (SO2)
96


TRACKING SYSTEM
EV2 JORDAN, D.
SPACEWALKING
HEART RATE
123
RESPIRATORY RATE
23
BLOOD PRESSURE (BP)
108 77
BODY TEMPERATURE
38.07
100.55
OXYGEN SATURATION (SO2)
93

1833/266/
LIFEBOAT RE-ENTRY
1 000/00:00:00
RE-ENTRY
UP
MSG RST
MSG Ack
RCS
LB_SYS
RE-NTY
O2_SUP
OMS
PRR


1978/0108/
COMMUNICATION
1 000/00:00:00
KU BAND
SS X.XXS
MISSION CONTROL
HIGH RATE - NODE 4
S BAND
SS X.XXS
RDR RNG
AUTO 16 °
MIN 17
EL CMD + 9.00
ACT + 90.00
AZ CMD + 180
ACT + 18.00
ANT ELEC
XXXS
AMT
PM
FM LO
OPC PTO
ENA 11 °
INH 12
OVRD 13
MODE S-HI
KU
SELF TEST 7X
I/O RESET 9XX
TDRS KU
A PRI 9 °
B PRI 10
TDRS S
A PRI 14 °
B PRI 15
STDN
UP
COMMS
MSG_RST
MSG_Ack
BIT
C&T
Cmd
MCO
PRR

2547/357/
ORBIT TRAJECTORY
432 KM
DECAY
UP
MSG RST
MSG Ack
ORB_TRJ
LB_SYS
RE-NTY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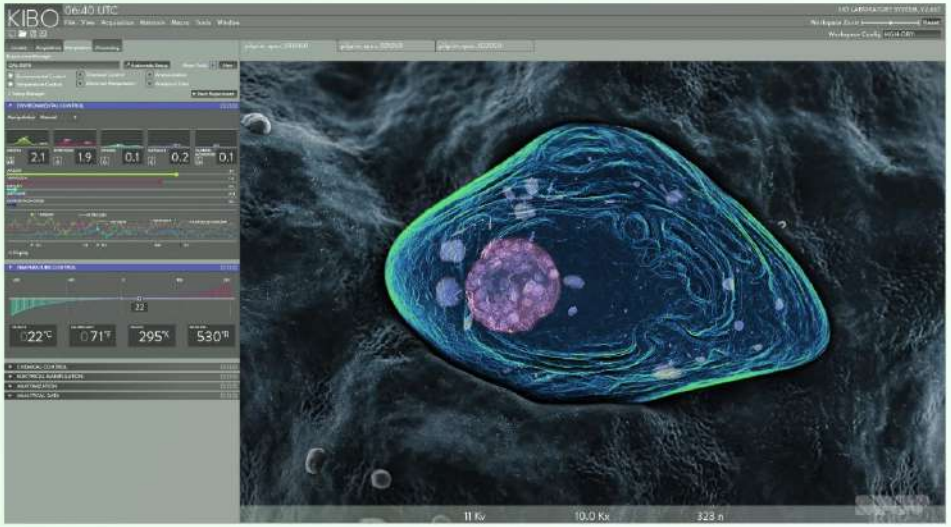
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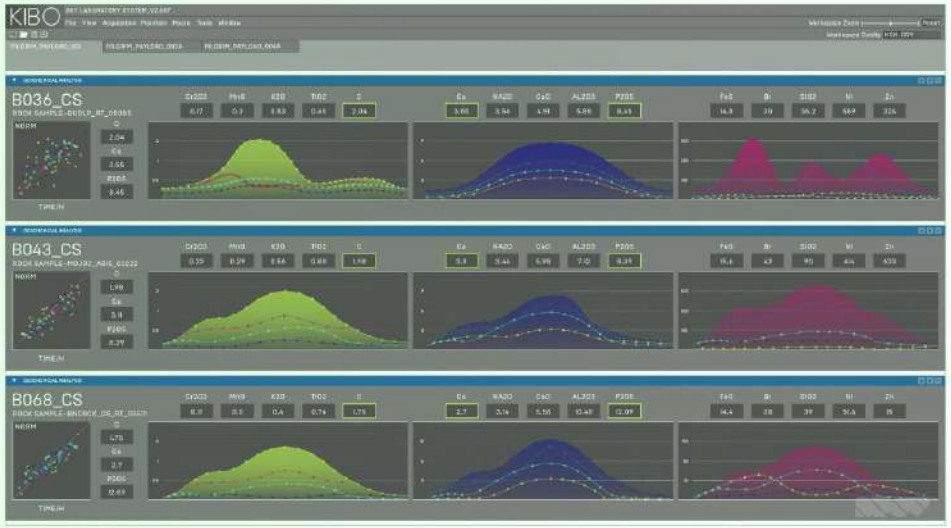
KIBO
B036_CS
B043_CS
B068_CS

KIBO
Pluto
RESPIRATORY RATE
92
HEART RATE
458
BODY TEMPERATURE
37.1
ENVIRONMENT TEMP
22.8
H2O LEVEL
0.65
OXYGEN LEVEL
62.0

HOLOGRAM DISPLAY SUITS

GRAPHICAL STORYTELLING

SPOV design studio worked alongside Art Director Felicity Hickson to produce a suite of graphics for each set, appearing throughout the movie, and bringing an element of authenticity to the graphical storytelling whilst imbuing the craft with a character of its own.

ANALYSIS - LIFE

Physiological	Safety	Love and Belongings	Esteem	Self-Actualization
The technology provide them with the necessary life support systems to survive in space, such as oxygen, water, and food.	The technology provide them with advanced monitoring systems and protocols to ensure the safety and security of the crew.	The HMI and technology in Life do not directly cater to the love and belonging needs of the characters.	The character Hugh's expertise in biology and his use of advanced technology to study the alien organism lead to him gaining recognition and respect from his fellow crew members.	The HMI and technology in Life cater to the self-actualization needs of the characters by enabling them to discover new forms of life, and gain new knowledge and understanding of the universe around them.

CONCLUSION

The analysis of human machine interfaces, HUD, AI and technology used in above science fiction movies reveals that these movies provide a glimpse into the future of technology and human-machine interaction. The advanced technologies used in these movies range from 3D holographic displays to augmented reality interfaces, from advanced AI systems to biomechanical suits, and from mind-machine interfaces to advanced medical technologies.

The classification of these HMIs and technologies according to **Maslow's hierarchy of needs** reveals that they primarily cater to the higher-order needs of self-actualization and self-transcendence. For example, the mind-machine interfaces and holographic displays in these movies enable characters to explore new frontiers and transcend their physical limitations, while the advanced AI systems and medical technologies help them to achieve their full potential and live fulfilling lives. However, it is important to note that these technologies also have the potential to meet the lower-order needs of safety and physiological needs, such as providing life support systems and emergency medical care. The use of human machine interfaces, HUD, AI, and advanced technologies in these movies highlights the potential of technology to enhance human capabilities and improve the quality of life, while also presenting potential risks and ethical considerations.

As we move towards a future where these technologies become more commonplace, it is important to consider the ethical implications and ensure that they are used responsibly to benefit society as a whole. The analysis of these technologies and HMIs in science fiction movies provides a valuable insight into the potential of these technologies and serves as a reminder of the importance of responsible and ethical use.

This project aims to shed light on the ways that science fiction movies envision the future of technology and how it will meet the needs of individuals. By applying Maslow's hierarchy of needs theory, the project will provide a framework for understanding how these technologies and interfaces are designed to cater to the basic needs of humans, as well as exploring how they might be improved in the future to meet these needs even more effectively.

REFERENCES

- https://en.wikipedia.org/wiki/Main_Page
- https://www.sitepoint.com/14-top-sci-fi-designs-to-inspire-your-next-interface/
- https://www.sitepoint.com/tom-cruise-scifi-future-eye-tracking/
- https://danilab.eu/ui-ux-inspiration-movies-every-designer-should-watch/
- https://stuff.co.za/2021/05/18/dumb-movie-sci-fi-tech/
- https://www.hudsandguis.com/home/2022-recap
- https://www.pushing-pixels.org/2014/02/12/the-craft-of-screen-graphics-and-movie-user-interfaces-interview-with-john-koltai.html
- https://madebyloop.co.uk/blog/5-examples-of-great-sci-fi-interfaces-in-films/
- https://www.chriskieffer.com/
- https://www.mrmattdavies.me/post/2018/02/22/tool-maslows-hierarchy-of-needs
- https://simplypsychology.org/maslow.html