NEMOSYNE

PRESS KIT

CREATED BY

KEVIN STEWART & LUC DELAMARE

FILM INFO

LOGLINE

In a not too distant future, a process called NEMOSYNE gives humans the ability to upload their consciousness to a sentient machine after they've died. This allows them one final day on earth to relive their memories through the eyes of a bionic vessel.

TITLE: NEMOSYNE

We chose the title "Nemosyne" as an homage to Mnemosyne, the Greek goddess of remembrance and memory.

REAL-TIME SHORTS CHALLENGE INFO

This short was created by two Live Action-turned-Virtual Production Cinematographers, Kevin Stewart & Luc Delamare, as a part of the MacInnes Studios Real-Time Shorts Challenge that took place June of 2020.

Participants were provided with a digital human and corresponding UE project (titled Grace), and were allowed to take any assets and recycle them into a new project of their own design.

WHAT DOES REAL-TIME MEAN IN THIS CONTEXT?

Nemosyne was filmed entirely inside of Unreal Engine, in real-time, with an HTC Vive Pro as our virtual camera.

Each shot was lit using real world cinematic lighting principles, and we operated the camera and recorded each move as we would have on a live action set. In a traditional CGI animated piece, you would typically have to spend days, if not weeks, to render shots of this quality. This real-time and ray-traced rendering of final "beauty pass" imagery allows for an extremely fast and efficient workflow, allowing two live action DPs to achieve near photo accurate lighting as they would on a live-action set.

THE STORY

We initially conceptualized a very abstract and simple idea for this short. The intention was to shoot macro closeups of the "Grace" asset in the vein of a high end title sequence such as Westworld. It was something we knew we could execute within our given constraints.

As we began to explore the project's aesthetic, it became clear something was missing. We recognize the significance of story and emotion- even when experimenting with new virtual production practices- and knew we had to make a change.

Ultimately, we decided to tell the story of a bionic woman reliving her memories from a past life as a human being.

The music box element was born from the desire to leave the audience with something that resonated on an emotional level. This connection to her favorite memory as a child is what completed the arc and helped bring the short full circle.

THE MUSIC

BY NICK SOOLE

To help the story reach it's full emotional potential, we brought on Nick Soole, a film composer and frequent collaborator based in LA. We talked about using the music as a way to transport us from scene to scene to take us on a soulful journey through the woman's memories. To elevate the ending, we had Nick filter in an antique music box motif that would blend in with the score seamlessly.

In the end, Nick gave us a memorable score that not only evoked strong cinematic melodies but also made the short work on a layered and emotional level.

LIGHTING MOODBOARD
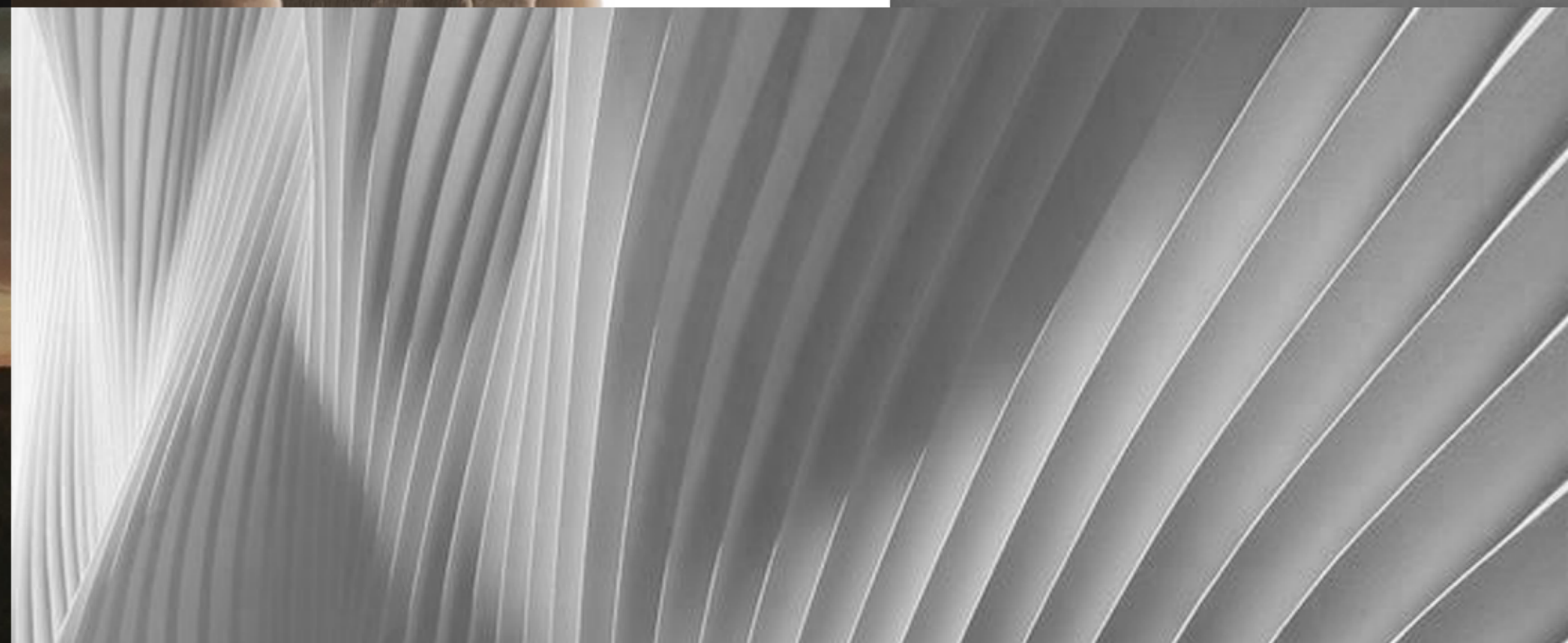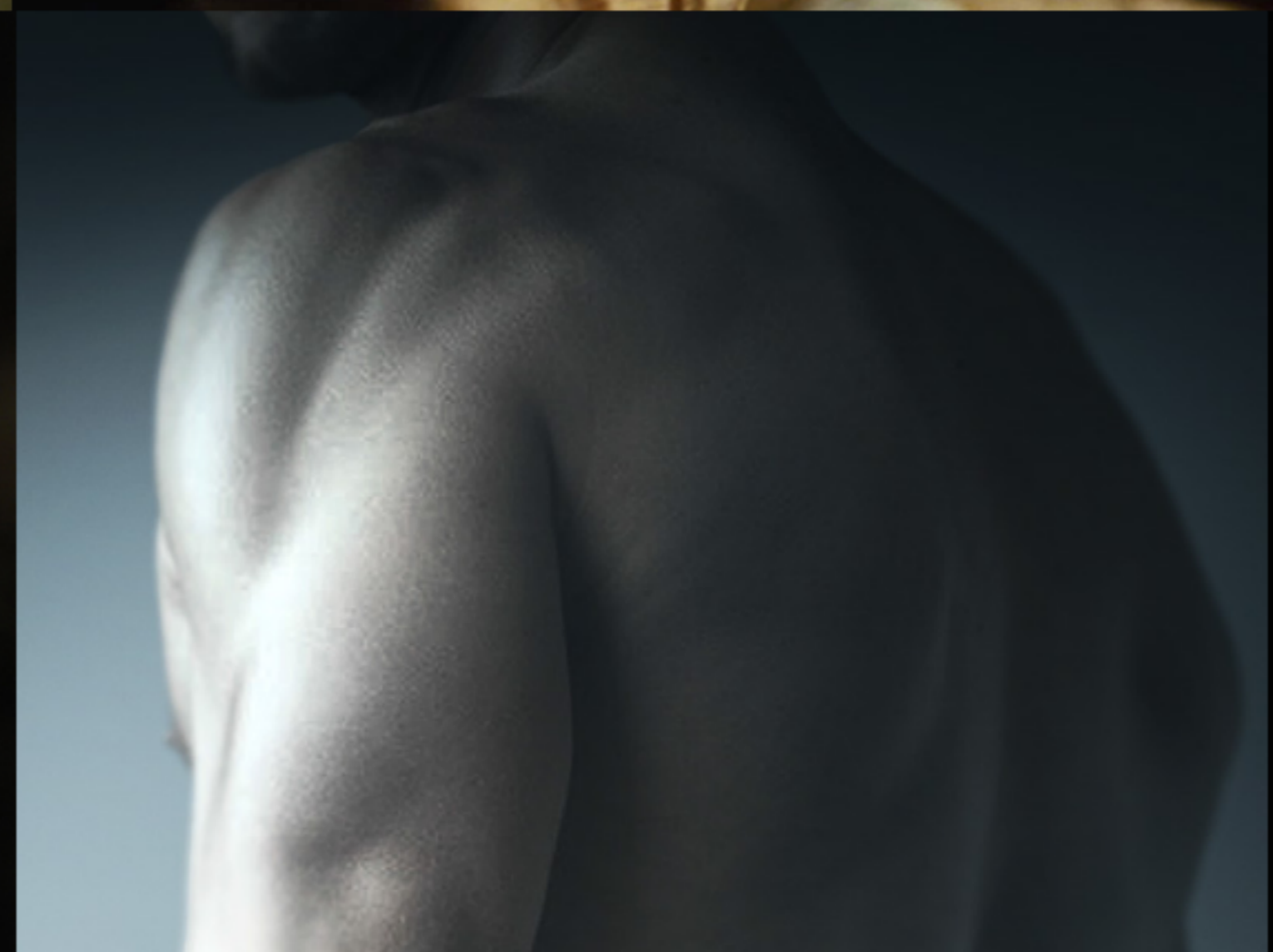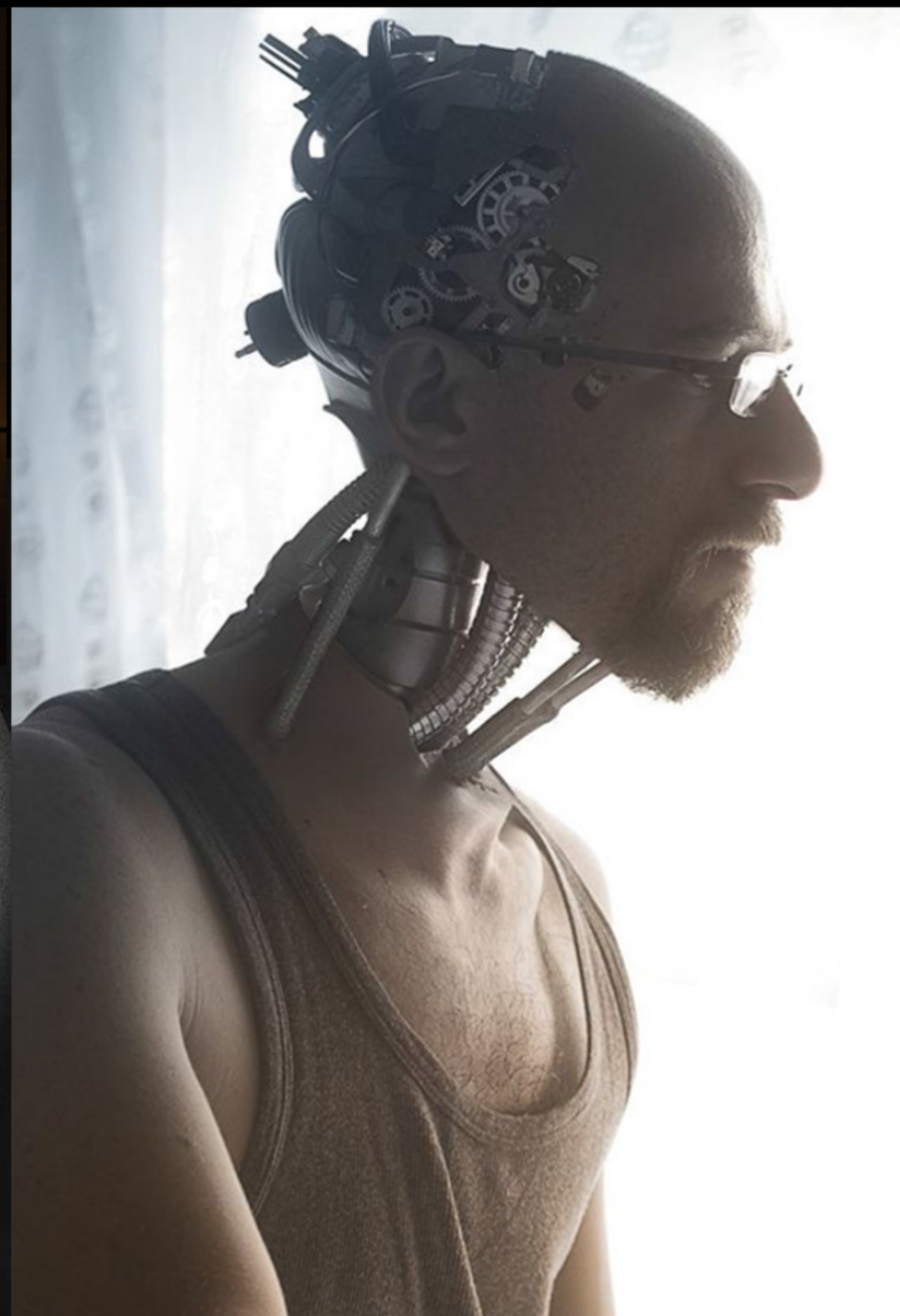
LEVEL DESIGN

Anything is possible in a virtual environment, but we aren't layout artists. We are however DP's with a trained eye for what looks good on a set. With a 30 day turnaround we knew we didn't have time to learn everything about level design and digital set dressing in Unreal Engine. To our pleasant surprise, we were able to kitbash both free and paid assets from the Epic Games Unreal Marketplace. This allowed us to quickly get to a place in which we were focusing on story and cinematography rather than set design.

UNREAL MARKETPLACE ASSETS USED

Modular SciFi Season 1
Starter Bundle

Forest - Environment Set

HQ Retro Farmhouse
(Modular)

CAMERA & BLOCKING

CAMERA MOVEMENT: HTC VIVE & CONTROLLERS

One of the most appealing aspects of Virtual Production to us as cinematographers is being able to operate a real world camera and have it translate into Unreal Engine in real time.

We've seen this done on big budget productions like Jon Favreau's *The Lion King*, but to be able to apply the same technology in our own living rooms, from different cities, felt groundbreaking and intuitive.

With the help of some tutorials provided by Aiden Wilson, we quickly learned how to incorporate our HTC Vive Controllers with Unreal Engine, and with just a few modified Blueprints (Unreal Engine's node based and visual scripting system) we found ourselves ready to start creating organic (yet subtle) camera moves based in real life.

MOCAP AND ORIGINAL ANIMATION

We knew we had to use the Grace asset (provided by MacInnes Studios) in situations where the included MOCAP wasn't suitable for the blocking we had in mind. With Adobe Mixamo's MOCAP library we were able to import simple actions and quickly apply it to Grace. While there are plenty of limitations with using preset and looped animations, we decided to embrace them and build it into the minimalistic style of the short.

L I G H T I N G

We could talk about real-time ray traced lighting for ages (see: *light is everything*), but to keep it simple here are the key points to know:

NVIDIA RTX & REAL-TIME RAYTRACING

With the combination of Nvidia 2080ti RTX GPU's and Unreal Engine 4.25, we no longer need to preview our scene lighting in some cheated manner or wait for a slow render. What we see is what we get, and we like what we're seeing! Real-Time Raytraced Lighting means that our light sources react in a physically accurate way, creating shadows and reflections that have true softness based on the size of the source. This meant we could also shape the light with realistic bounced light and negative fill, two very important tools in a DP's lighting arsenal. Basically, it comes down to this: your live action lighting experience will accurately translate to the lighting inside of Unreal Engine and we find that to be a massive step forward for virtual cinematography.

WHY THIS IS POWERFUL FOR DPs

Being able to light in real-time (with consumer hardware) is invaluable for the creative process that DPs work through when lighting a scene. Instead of framing up a wireframe and non-shaded character or environment, we were able to see final "beauty pass" imagery and thus were able to make informed lighting decisions without having to play a guessing game of "how's it going to look when rendered?"

EXPORT & GRADE

EXPORT PREP

The last step in our pipeline was getting our shots outside of Unreal Engine and into a familiar environment for live action cinematographers: the color grade. But before we made that jump there were a few steps we found were helpful in creating source files that were familiar to our live action eyes:

POST PROCESS VOLUME

It was important that in our Post Process Volume we shifted the look of the images towards a log or flat color space. We're used to working with production cameras like the Arri Alexa that record in LogC, and being able to start the color grade in a similar way was a crucial step in treating the footage like we're used to in live action films. Thanks to Unreal Engine's tonemapper film settings we were able to tweak the image into the flat look we needed for DaVinci Resolve.

EXPORT & GRADE

HIGH QUALITY MEDIA EXPORT

Working inside of UE 4.25, we decided to use the newer HQ Media Exporter (Movie Render Queue). It allowed us to generate or render our scene with a greater bit depth and additional settings we found useful.

Settings used:

16bit EXR
Anti-Aliasing
Movie Pipeline Camera Motion Blur
r.GlobalIllumination.Denoiser.TemporalAccumulation
r.RayTracing.GlobalIllumination.SamplesPerPixel

DAVINCI RESOLVE

In Davinci Resolve, we added the following:

Color Correction
Additional DoF Simulation
Chromatic Aberration
Film Halation
Filmic Grain
Film Print Emulation

DP STATEMENTS

THOUGHTS ON VIRTUAL PRODUCTION: LUC DELAMARE

As a former freelance VFX supervisor and compositor, I've always yearned for an opportunity to fuse VFX cinematography with my live action DP career in a way that would be advantageous to various productions and the stories they want to tell. Switching from a traditional 3D/VFX pipeline to using Unreal Engine has given artists like myself the opportunity to do just that.

Having the ability to use live action lighting and camera principles inside of a real-time virtual environment is incredibly freeing. Producers and directors can take comfort in knowing that they can interface with virtual production cinematographers like me and Kevin in the same way they would with a DP on a live action set, and the results are intuitive, real-time, and increasingly photorealistic.

It's been particularly exciting to learn that so much of the workflow, knowledge, and tools we use in live action filmmaking can be translated so efficiently to Virtual Production. At the end of the day though, story reigns supreme regardless of the filmmaking toolkit, as I wholeheartedly believe that good cinematography serves the narrative first. With that philosophy in mind, it was a blast to be able to quickly harness some of Unreal Engine's potential to help craft a story, and I look forward to continuing Virtual Production collaborations in all shapes and sizes.

DP STATEMENTS

THOUGHTS ON VIRTUAL PRODUCTION: KEVIN STEWART

My first dive into Virtual Cinematography began when I saw the potential for using it as a lighting pre-vis tool. As someone who likes to prepare lighting diagrams before coming to set, the idea that I could actually visualize it and communicate it to my crew was very exciting. I was able to do that with Matt Workman's CineDesigner and CineTracer which have been pioneering tools for this sort of lighting pre-vis. Fast forward a few years later and the technology has evolved into a photo-accurate and real-time solution. With Raytraced lighting, powerful graphics cards and Unreal Engine's ever-expanding platform I am now able to take what I have learned in my career as a professional DP and apply it to all sorts of new Virtual Production applications.

In the end, I got the same rush from filming this short as I would on a real set and that was incredibly exciting. I feel there is a true need for DP's with live action experience to come in and experiment in the world of Virtual Production. The potential is limitless and I have no doubt that it will be a widely used tool in the film industry going forward.

Q & A

HOW DID THE PROJECT START?

Luc: I joined the "Real-Time Filmmakers" facebook group and saw John MacInnes' post calling for entries to the Real-Time Shorts Challenge. Never having opened Unreal Engine before, I thought it would be a great opportunity to learn the software and take a deep dive into Virtual Production. Kevin and I connected on instagram about the challenge, and suddenly we were off to the races.

Kevin: I had known Luc from a project we worked on together years ago and we both had been actively posting our evolving work in the virtual cinematography world. I was doing it with CineTracer and Luc with Blender. So when we connected we knew there was potential to do some really interesting work together - even if both of us needed to learn Unreal Engine from scratch. With our combined visual effects experience, the ideas evolved and flowed effortlessly into a great virtual production collaboration.

GOALS WITH REGARDS TO VIRTUAL PRODUCTION?

K/L: We share a passion for translating our photographic skills and lighting knowledge to the virtual production space. In the near future, we hope we can bring our brand of high quality visual storytelling to any flavor of virtual production be it live-action mixed media, video games, or CG animations.

BIOS

LUC DELAMARE

Luc Delamare is a Los Angeles based Director of Photography whose initial passion for film developed as a self taught visual effects compositor. Born in Silicon Valley, Luc Delamare grew up splitting his time between his hometown of Los Altos and Southern France.

After studying graphic design and film production at the Freestyle Academy of Communication and Arts Technology, Luc moved to Los Angeles to attend the School of Film and Television at Loyola Marymount University where his passion for cinematography grew.

Following his formal education, Luc has built an extensive portfolio that encompasses a diverse array of formats and genres, including feature film, documentary, web series, music videos, and now virtual production. Luc's commercial DP work has featured personalities such as Olivia Munn, Alex Morgan and Canelo Alvarez. As a VFX supervisor he has worked with various clients including Apple, NASA, Western Union, Vivo, and 20th Century Fox.

Outside of film, Luc is a self-proclaimed "closet-musician," loves typography, and draws inspiration from his favorite painter, Rembrandt.

BIOS

KEVIN STEWART

Born in Paris, France and raised in Portugal until the age of 17, Kevin's early fascination with movies was so strong his parents moved the family to Portland, Oregon to help facilitate his dream. He got into the School of Film and Television at Loyola Marymount University in Los Angeles, where he realized being a cinematographer was his calling.

After graduation, he spent several years as one of the main shooters for Funny or Die, working on projects with Will Farrell, Don Cheadle, and Steve Carell. His commercial work includes brands such as Starbucks, Adult Swim and Walgreens.

Kevin recently shot the Rosa Parks biopic *Behind the Movement* for TV One, Blumhouse's *Unfriended: Dark Web* and the award-winning indie success *The Head Hunter*, which he co-wrote and produced. Kevin's unique background as a writer, producer, and cinematographer allows him to craft stories in more ways than one.
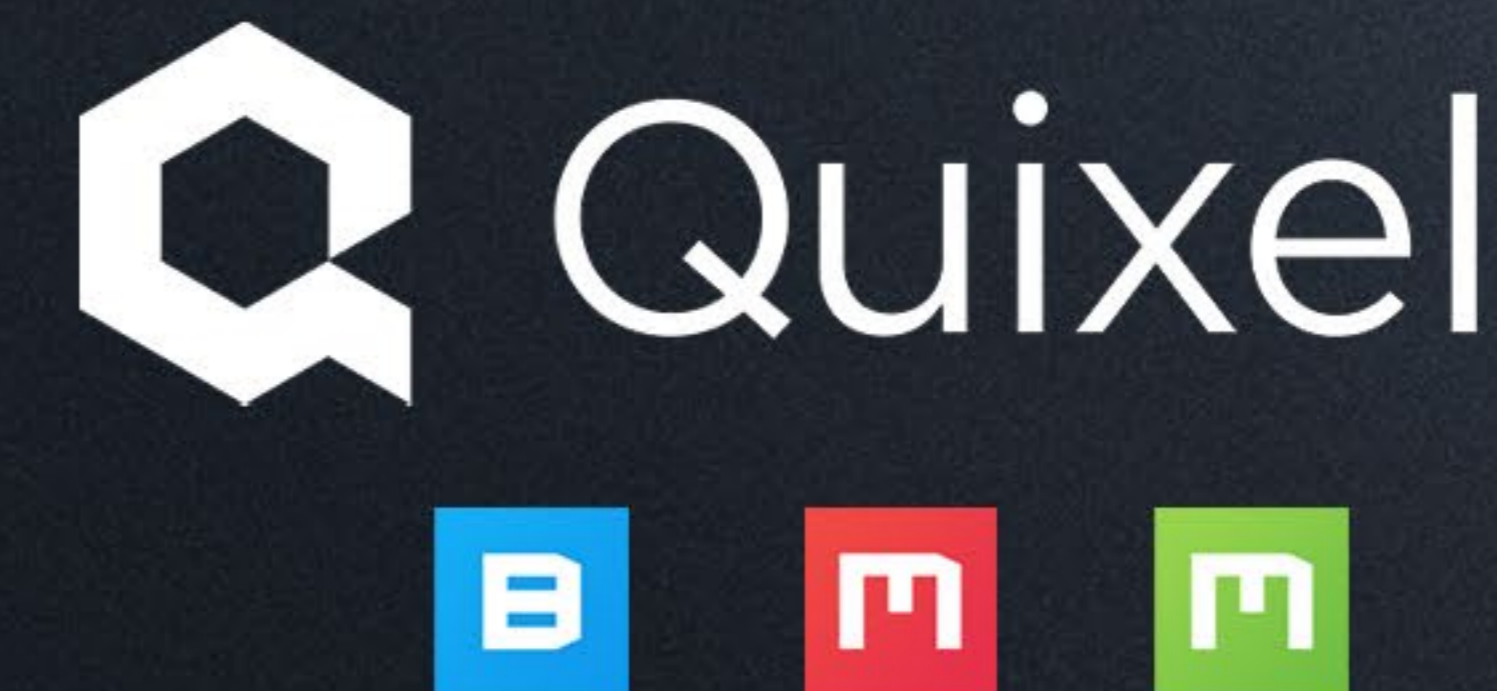
SPECIAL THANKS

John MacInnes
MacInnes Studios
The Real-Time Filmmakers FB Group

Matt Workman
Cinematography Database
Cinetracer
The Unreal Engine: Virtual Production FB Group

Epic Games & Unreal Engine

Quixel Megascans
Rebirth: Introducing Photorealism in UE4

MacInnes Studios   EPIC GAMES   UNREAL ENGINE   Quixel

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