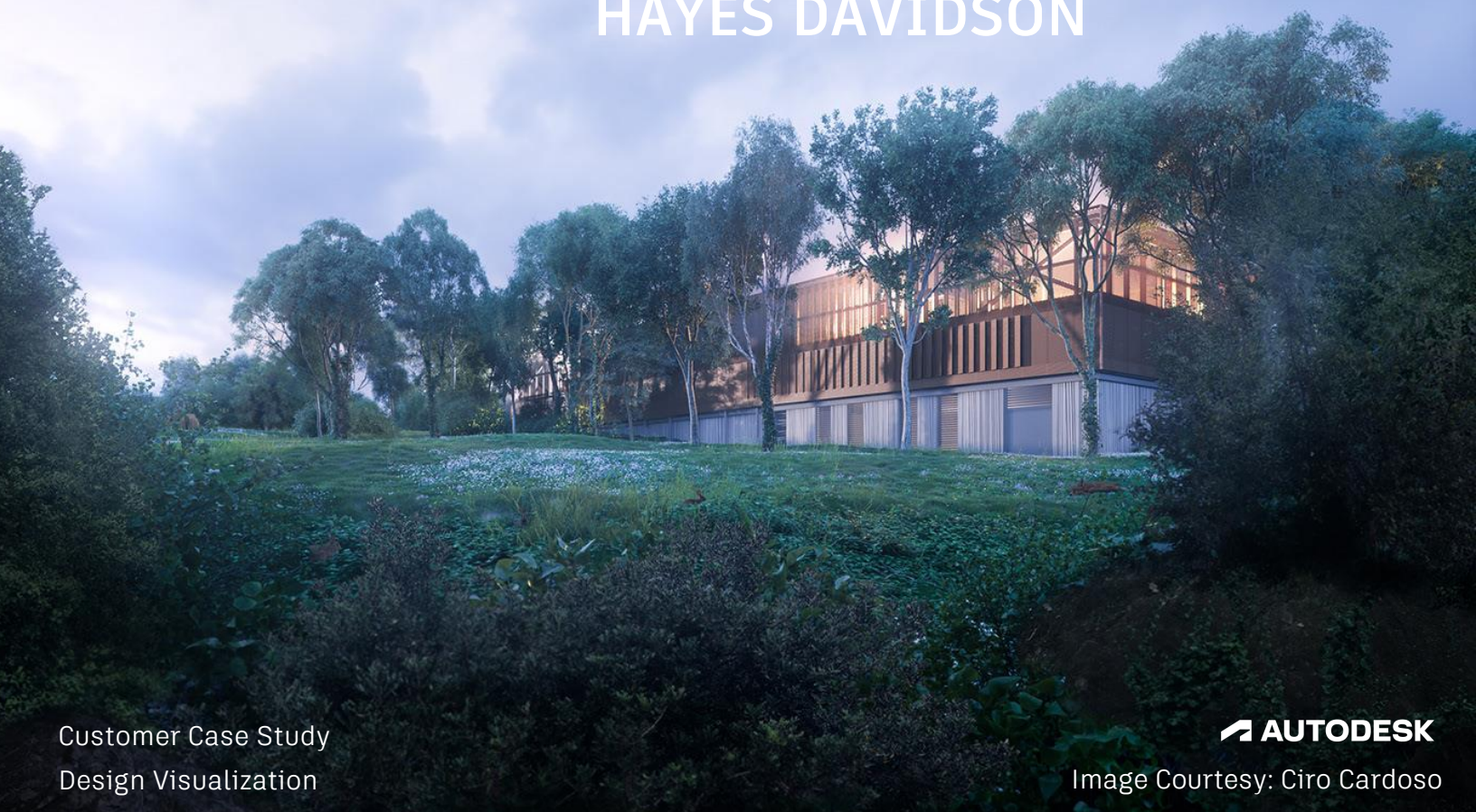
DAY IN THE LIFE OF AN INNOVATION ARTIST

WITH CIRO CARDOSO AT HAYES DAVIDSON



Customer Case Study
Design Visualization

AUTODESK

Image Courtesy: Ciro Cardoso

Image Courtesy: Hayes Davidson

CUSTOMER SPOTLIGHT

INSIDE THE LIFE OF A SENIOR INNOVATION ARTIST AT HAYES DAVIDSON

From a young age, Ciro Cardoso developed a penchant for visual art. After refining his paint and illustration craft, he set his sights on digital art and was introduced to 3ds Max and Maya through a friend in architecture, an introduction that set the stage for his career in arch viz. Today he's an innovation artist at international design firm Hayes Davidson. A self-taught creative with more than 16 years of experience, his curiosity and continuous passion for learning drive him to push the boundaries of what can be done and how it's done. He recently sat down with us to talk about his work and secrets of the trade.

Q. WALK US THROUGH AN AVERAGE DAY AT THE OFFICE.

I've been working at Hayes Davidson for more than four years. Based out of London, the illustration studio transforms the visions of international architects, real estate developers and designers into stunning CG visualizations, and has worked with some of the biggest names in architecture.

AUTODESK

Image Courtesy: Hayes Davidson

I spend most of my time producing architectural visualizations, but also manage R₹D efforts and mentor new team members. The tasks I'm assigned vary based on the stages of project development. For instance, if a building is going into approval, I might be on deck to assist in tweaking a visualization, but at the same time be developing a concept design for a new project bid.

A majority of my work starts after we've won a project bid. Client collaboration is a key part of the process, and I work closely with the client to understand their vision. This means that one day I may be working on the creative brief, while the next I'm image planning and reviewing the space to determine optimal camera views for marketing efforts. If working on a residential high rise, for instance, we might explore angles from one of the flats that highlights an adjacent park, skyline or water view. Yet another day I may be culling assets and looking at references provided by the client's design team, whether furniture, materials or vegetation. Every day is different, which keeps me on my toes but also makes the job fun.

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Q. WHAT TOOLS DO YOU LIKE TO USE AND WHY?

As an artist, I use a range of tools, but 3ds Max is the base for most everything I do, from image planning to lighting and beyond. I also use Substance Designer and Substance Painter for materials. These tools allow me to create nearly any material for clients. I use Speedtree for vegetation, as it is a procedural workflow tool that not only allows me to create hero trees, but also very easily create wind animations.

I also tap Houdini for procedural modeling for creating elements such as terrains or clouds, and for procedural scattering. For post and grading I use Nuke, Photoshop and Fusion, and I typically use Arnold, Corona or V-Ray for rendering, depending upon the project. The fact that I'm using tools that are fairly standard at film and TV animation and VFX shops speaks volumes to the shift in quality standards that I've seen in design viz in recent years.

In the last year, I've seen some amazing improvements in 3ds Max. The most recent one being the retopology toolset, which is incredibly robust and makes my life easier. I can spot and fix any geometry issues in 3D models provided by the furniture manufacturers early on. The new slice modifier updates in 3ds Max 2022 have also been helpful; modeling with 3ds Max became way easier with these new tools and they've sped up the process of preparing 3D models, helping to save us precious time. In Arnold, I have production tools, such as Cryptomatte, Arnold Render View, AOV Manager, TX, and uber shaders, that have all provided a flexibility that other renderers just can't match. At the same time, Arnold Operator nodes have given us more control over a scene. Support for ASS/USD files has been instrumental to my workflow across personal and professional projects as well, in that we can save an entire scene as an Arnold Scene Source file and export everything, including materials, geometries, lights and cameras. Essentially, we can have one master scene with all the information included in a manageable file size, so that we can open and save scenes quicker, and when a scene change is needed, it's a simple fix. Tasks that previously took two days now take just a few hours with Arnold.

Arnold is a powerful renderer as it can crunch a massive amount of data. This means I don't have to worry if I am working with 4K, 8K and even 16K textures, heavy geometry, or scanned objects.

Image Courtesy: Ciro Cardoso

Arnold can handle them all very smoothly which helps dramatically improve the quality of the work I can produce. This is crucial as my projects continue to get bigger and more elaborate, and deadlines tighten.

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Q. TALK TO US ABOUT YOUT TYPICAL PROJECT WORKFLOW.

Depending upon the project, I often start with a Revit or Rhino file, reference materials and other information provided. I clean up these models and bring them into 3ds Max, and then link or XREF the different files to ensure everything is in the correct position and merge it if necessary. The geometry is then organized into layers and cleaned up using the retopology toolset in 3ds Max when necessary.

Following, I start the look development process. Using Substance Designer and Substance Painter, materials are created and then altered in 3ds Max. Arnold shaders help streamline the process, especially for fabric, making it easy to achieve a realistic look in a few simple steps. Something that helps this process as well is the combination of Physical Materials and OSL (Open Shading Language) nodes.

Image Courtesy: Ciro Cardoso

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OSL is an extremely powerful tool. For example, I can use OSL to load a couple of HDRI maps and very easily switch between them. This allows me to see how the materials will look under different lighting scenarios. Image planning is the next stage to explore, followed by cameras, composition, and framing. All are vital to the process; my ultimate goal is to deliver photorealistic imagery that will sell the idea that you are inside whatever space I'm working on.

> **"My ultimate goal is to deliver photorealistic imagery that will sell the idea that you are inside whatever space I'm working on"**

Once the camera and lighting are finalized, I review reference material, mostly based on real-world photography, and dive into further look development. Along with the team, I then run through the model and furniture assets provided by the client for incorporation into the visualization. After the materials are complete, we create a material library for use across the project, which allows anyone on the team to update everything for the project in one go. I then jump into the scene in 3ds Max and merge the models, using Alembic files because they make the scene easier to work with. Lighting is the next phase, and using Arnold RenderView, I can quickly and easily save lighting options with comments.

Image Courtesy: Hayes Davidson

From there, it's a matter of iterating the visualization. I go back and forth between 3ds Max and Nuke, refining it with the team until it's client ready. The Arnold Denoiser then helps to produce a clean render for more complex scenes. Fortunately, the workflow between 3ds Max, Arnold and Nuke has made it easier to deliver, even with a tight turnaround time.

Q. WHAT RECENT PROJECTS THAT YOU'VE WORKED ON STAND OUT IN YOUR MIND?

Twelve Architects' Escapade Silverstone, which is expected to open in 2022, is a major project I worked on last year using the 3ds Max and Arnold workflow that I've been developing for the studio. Working alongside their team, I helped the Hayes Davidson team to develop a combination of marketing images and CG animations as well as a short film designed to sell a new development geared toward motorsports fans. It includes residences and vacation villas that overlook the iconic British Grand Prix race track, a clubhouse and more. This project started with a Rhino file and was the first project where I really started to explore the 3ds Max and Arnold workflow.

When I got the opportunity to work on a Westbank development in Vancouver, Canada for a quick turnaround project, I opted for this workflow again, but this time started with a Revit file. I was rendering the final three images the morning of our deadline, which wouldn't be possible to meet without Arnold. I've also noticed on projects like this one and others that even if I haven't disclosed the renderer used, it draws attention from other artists because the look is so well lit, polished and photoreal.

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Q. HOW HAS THE PANDEMIC IMPACTED YOUR WORK?

Fortunately, Hayes Davidson is a company that works on global projects across multiple sectors at differing stages of the building design and build process. With an international team of artists, we already had a remote collaboration pipeline in place to keep projects moving. That was crucial, as our project flow didn't cease. In fact, the demand for design visualization has remained steady in the last year and has started to evolve towards more interactive and immersive experiences with less people venturing outside amidst global lockdowns. In this respect, tools such as Arnold and Unreal Engine have helped us accelerate project turnaround times and equipped us to better handle large-scale development projects. We don't have to wait 15 hours or more for an image to render as we do with other renderers, which means we can spend more time focusing on the art.

Image Courtesy: Hayes Davidson

WANT TO LEARN MORE ABOUT CIRO'S WORKFLOW?

Check out his Autodesk University presentation.

Image Courtesy: Ciro Cardoso