PREDATOR CYCLING SPEEDS TIME TO MARKET WITH NVIDIA OMNIVERSE
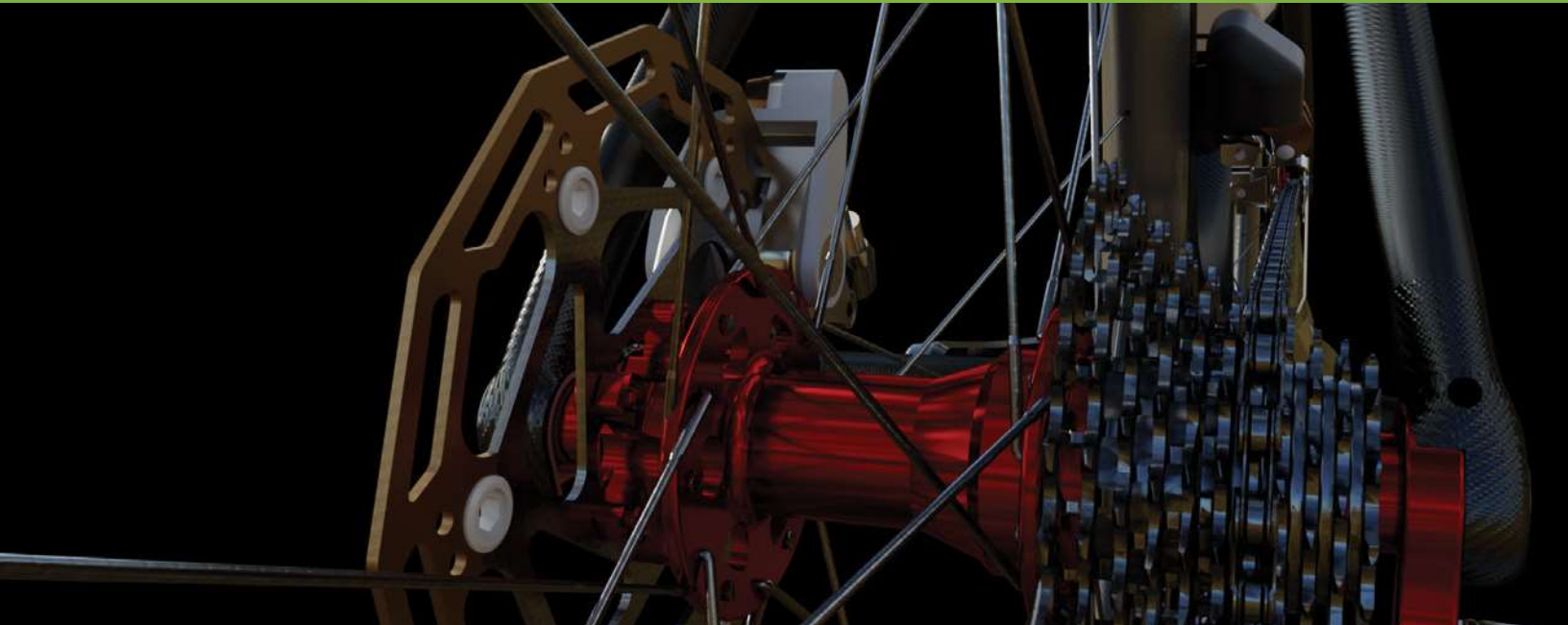
Image courtesy of Predator Cycling

Predator Cycling accelerates the design, engineering, and production of custom bicycles using NVIDIA Omniverse Enterprise.

Image courtesy of Predator Cycling

SUMMARY

With NVIDIA Omniverse™ Enterprise, the designers at Predator Cycling have transformed manufacturing and development workflows, turning concept designs into reality:

> Previously, there have been times where it took months for Predator to launch a product from concept to completion.

> Using Omniverse Enterprise and NVIDIA RTX™ A6000, the team saves 2-3 hours creating models, and expects to cut down days in production time.

> The team can store all the 3D data in Omniverse Nucleus, and then use Omniverse RTX Renderer to visualize models in real time.

> Designers can easily piece together rendered components from Omniverse Enterprise and create bike components that quickly go off to 3D printing for prototyping.

INTRODUCTION

Predator Cycling develops high-end custom-built bicycles that champion cyclists around the world have ridden. Over the last 15 years, the Predator team has designed every part and component of their bikes and conducted intensive engineering simulation, rendering, and manufacturing processes themselves to achieve the most responsive bicycle in the world.

CHALLENGE

Companies must constantly adapt and explore leading edge technologies to stand out in a new era of advanced materials and supply chain uncertainty. Predator Cycling always uses the latest cutting-edge technologies, and the team wanted a solution that could keep up with their intense design and simulation workflows.

Using NVIDIA Omniverse Enterprise to aggregate full-fidelity 3D datasets from various design tools, visualize and simulate their new RF20 carbon fiber bike in real-time, Predator Cycling is redefining the entire creative process for engineers, designers, marketing, and customer experience web platforms.

"By putting in the hard work now and developing this 3D ecosystem with Omniverse Enterprise—while we're in the trenches of re-defining our company—we're setting ourselves up for a future that enhances the cycling industry, thrusting it into a technological universe of imagination," said Courtney Bresler, managing member of Media and Marketing at Predator Cycling.

CUSTOMER PROFILE

Organization:	Industry:	Founded:	Location:	Website:
Predator Cycling	Manufacturing	2005	Mount Juliet, TN	predatorcycling.com

Image courtesy of Predator Cycling

SOFTWARE

NVIDIA DLSS

Autodesk Fusion 360

McNeel Rhino

Luxion KeyShot

Adobe Photoshop

Adobe Substance 3D Painter

HARDWARE

NVIDIA RTX A6000

Lenovo ThinkStation P620

REASONS FOR NVIDIA

> With NVIDIA RTX A6000, Predator Cycling achieved real-time ray tracing and rendering, which resulted in faster designs and more cost savings for their clients.

> NVIDIA's DLSS algorithm helped Predator Cycling increase the image quality of their visualizations, enabling clients to view details in high-fidelity.

SOLUTION

Enhancing Experiences for Designers and Customers

Predator Cycling has focused on broadening the user experience of its products. In their current design workflows, the team uses applications such as Autodesk Fusion 360, McNeel Rhino, Ansys Discovery, Ansys Fluent, Luxion KeyShot, Adobe Photoshop, and Adobe Substance 3D Painter. But comparing different sets of data from separate applications was time consuming, and not being able to collect everything to see a holistic view of the entire product and production data.

Predator wanted to improve its workflow and make it easier for designers and engineers to combine datasets in one place without risk of model decimation or data loss. With NVIDIA Omniverse Enterprise, NVIDIA RTX A6000, and Lenovo ThinkStation P620, Predator can now build detailed visual marketing promotions and focus on customizable, high-end, and measurable calculations that reflect clients' requests.

Predator Cycling currently uses Omniverse Enterprise for three key categories:

1. Internally for team collaboration and development of rendered digital files for component design and assembly

2. Online product marketing and rendering

3. And externally as a visual communication tool, with the potential of integrated AR with vendors, partners, and clients

Predator stores all the 3D assets and data in Omniverse Nucleus, which enables the team to easily access the models from one shared space. Omniverse Nucleus synchronizes all the data from the different design applications and converts the files to Universal Scene Description (USD).

Image courtesy of Predator Cycling

> "By putting in the hard work now and developing this 3D ecosystem with Omniverse Enterprise... we're setting ourselves up for a future that enhances the cycling industry."
>
> Courtney Bresler,
> Managing Member at
> Predator Cycling

Predator visualizes the RF20 in real-time with Omniverse RTX Renderer, allowing the designers to interactively iterate on and modify the 3D models as they work. Using the Lenovo ThinkStation P620 and NVIDIA A6000, Predator can simply render out high-quality images directly with the Omniverse RTX Renderer.

RESULTS

"Right off the bat, we used Omniverse for rendering," said Aram Goganian, managing member, lead designer and engineer at Predator Cycling. "Omniverse Enterprise has more potential with physic solvers, connectors, and its forthcoming ability for a product configurator."

With Omniverse, the team has removed the guessing game in which initial designs and concepts can be tested, shared, and manufactured. Now, the team can create augmented, conceptualized products that serve as a starting point for initial sales. In addition, Predator has simplified 3D workflows across the board, and the team is developing new manufacturing processes thanks to the ease of composition within the design of the simulation process.

Shifting Gears to Maintain the Competitive Edge

For the team at Predator Cycling, there is no other solution like Omniverse Enterprise that can provide the ability to integrate and blend multi-functional programs and software, and provide the ability to easily develop future 3D tools to extend their workflows. Using current workflows with Omniverse, the team saves 2-3 hours creating models, and hopes to eventually cut down production time by days.

Previously, launching a product from concept to completion could take months, or even years. But since integrating Omniverse, combined with powerful design and simulation services, Predator Cycling has virtually designed bicycle handlebars for elite cyclists, manufactured prototypes, and had them ready in real-world bike races within four week's time.

Image courtesy of Predator Cycling

"The results of Omniverse Enterprise renderings and collaborative design and review capabilities allow us to be more competitive by enabling us to produce photoreal 3D models at full CAD fidelity."

Aram Goganian,
Managing Member,
Lead Designer, and Engineer
at Predator Cycling

These accelerated processes allow the Predator Cycling team to focus their energy on making the best products and customer experiences. As a result, clients can see immediate changes, which leads to better communication, feedback, and decision-making. Predator Cycling also expects increased productivity, as the efficiency of manufacturing processes benefits from a direct relationship to the design workflows.

"The results of Omniverse Enterprise renderings and collaborative design and review capabilities allow us to be more competitive by enabling us to produce photoreal 3D models at full CAD fidelity" said Goganian. "We can easily keep up with the bigger companies, the ones that have people power and global brand awareness. Predator is small but mighty, appealing but techy, and definitely forward-thinking in conceptualization."

Predator Cycling plans to add augmented reality to their design process soon so that clients can virtually touch and feel a bicycle or component in real time, and the designers can make changes and render updates simultaneously.

To learn more about NVIDIA Omniverse Enterprise, visit:
www.nvidia.com/en-us/omniverse/enterprise

www.nvidia.com