

Digital  
Sketching &  
Rendering

CARDESIGN.ACADEMY



**This intermediate level course will introduce you to the digital tools and techniques used by professional automotive designers to achieve stunning sketches and renderings.**

We'll start by learning the basics of light and shadow, then we delve into basic reflectivity, and how reflective objects are essentially a mirror of the world around them. Finally, we'll introduce color, and discuss how digital rendering techniques can be used to communicate Brand DNA and automotive design language.

**Copyright 2023  
CARDESIGN.ACADEMY. All Rights Reserved.**



**Eric Stoddard**  
CARDESIGN.ACADEMY Founder & Principal Instructor

# Live, Personal Mentorship is the Foundation.

All of our courses are built on the coaching business model. While the video tutorials communicate the core concepts, it is hard work guided by personal mentoring that will bring results. There are checkpoints throughout the course where you can schedule up to 60 minutes of live, personal mentoring to review your work and receive valuable feedback.

# How it works:

---

**01 Watch the tutorial videos.**

---

**02 Complete the assignments.**

---

**03 When you reach the next checkpoint, schedule your live, one-on-one review with our instructors.**

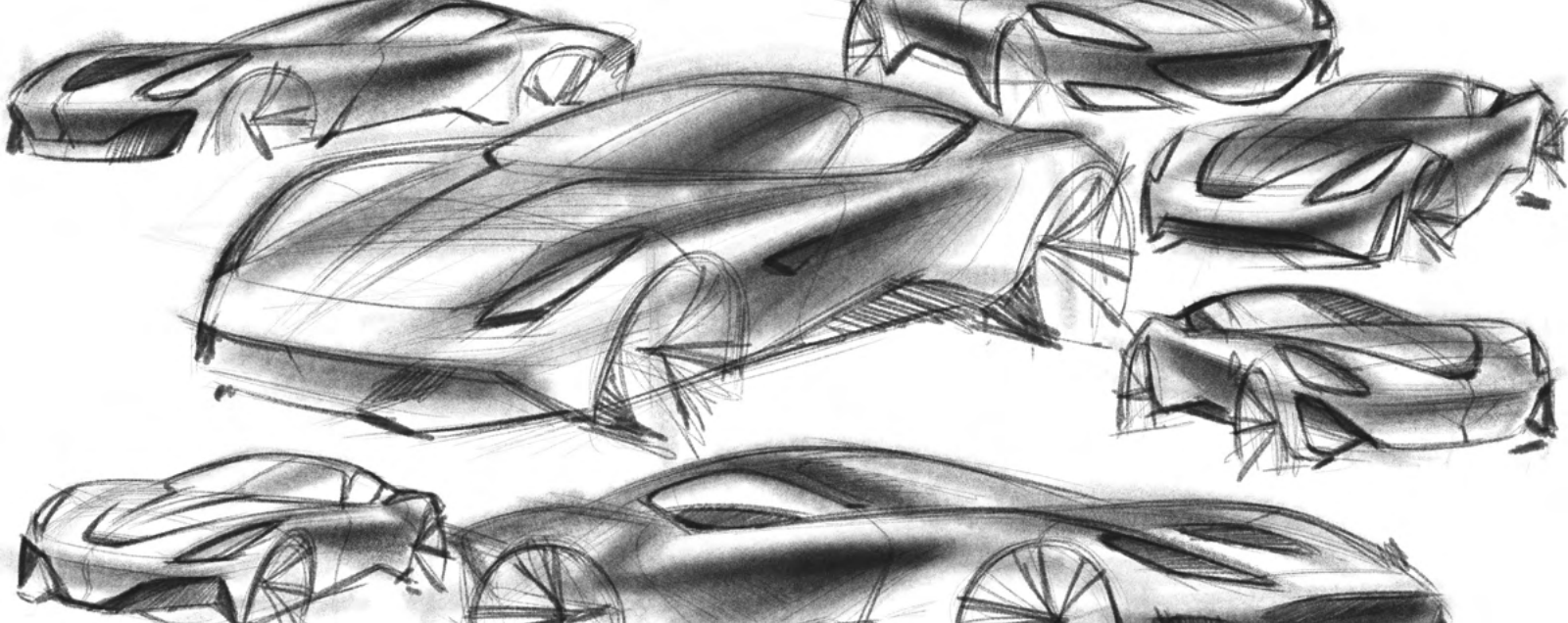
---

## **Recommended Software:**

- Adobe Photoshop
- Sketchbook Pro
- Procreate for iPad

## **Recommended Hardware:**

- Windows or Mac OS computer
- Wacom Intuos or Cintiq drawing tablet
- An iPad with Apple Pencil is also an affordable and convenient solution.



## Part 1: Conceptual Digital Sketching

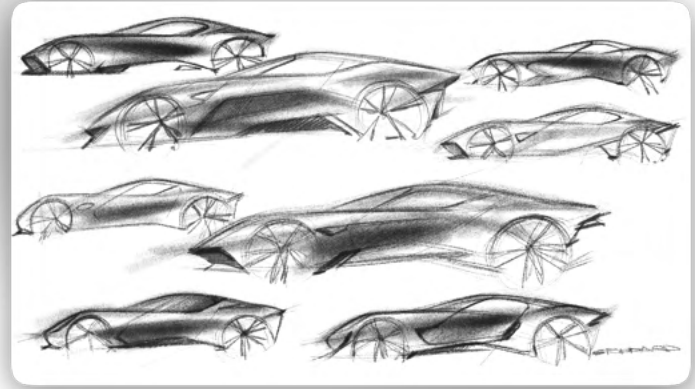
In this course you'll explore the sculptural, sensual forms of sexy Italian sports cars and rugged SUVs. These sketches will form the basis for your digital sketches and renderings. Sketching on a tablet or digital media can take some practice, so we'll warm up with some quick thumbnail sketches.

# Warmup: Sketching Sports Cars in Side View

In this warmup exercise, you'll explore the sculptural, sensual forms of a sexy Italian sports car in side view. These thumbnail sketches will form the basis for your digital sketches and renderings. In this video tutorial, I used Procreate, on an iPad Pro using Apple Pencil.

**Assignment: 5-10 pages of sports cars in side view. Try to come up with a variety of original, unique and futuristic design concepts.**

[Click here to watch the video](#)

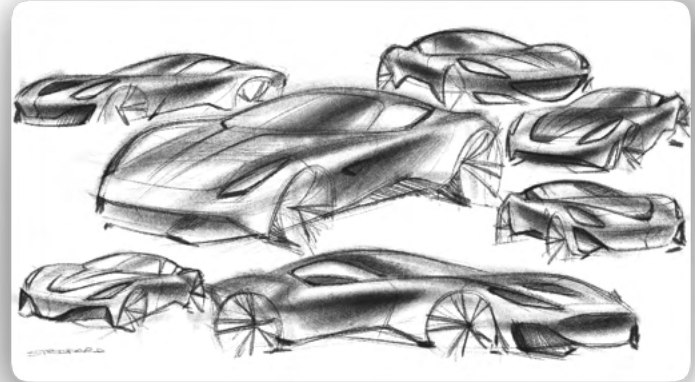


# Warmup: Sketching Sports Cars in Perspective

In this warmup exercise, you'll continue to explore the sculptural, sensual forms of a sexy Italian sports car in a variety of perspective views. These thumbnail sketches will form the basis for your digital sketches and renderings. In this video tutorial, I used Procreate, on an iPad Pro using Apple Pencil.

**Assignment: 5-10 pages of sports cars in multiple perspective views. Try to come up with a variety of original, unique and futuristic design concepts.**

[Click here to watch the video](#)

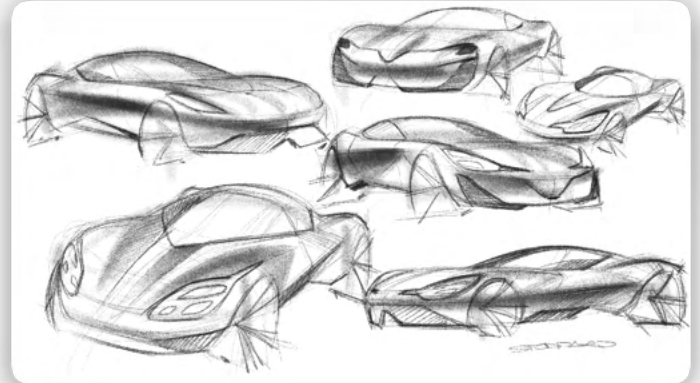




# Continued: Sketching Sports Cars in Perspective

**Assignment:** 5-10 additional pages of sports cars in multiple perspective views. Try to come up with a variety of original, unique and futuristic design concepts.

[Click here to watch the video](#)

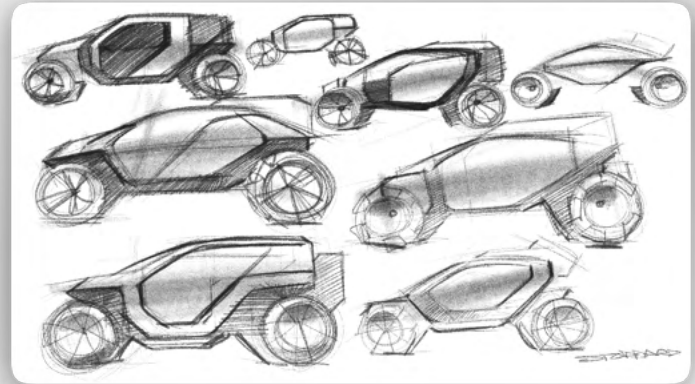


# Warmup: Sketching Off- Road Vehicles in Side View

Now we'll make the switch to developing concepts for a rugged, electric off-road vehicle concept, after sketching a series of sculptural Italian sports cars. Understanding different visual languages and being able to adapt is an essential design skill.

**Assignment: 5-10 pages of off-road vehicles in side view. Try to come up with a variety of original, unique and futuristic design concepts.**

[Click here to watch the video](#)

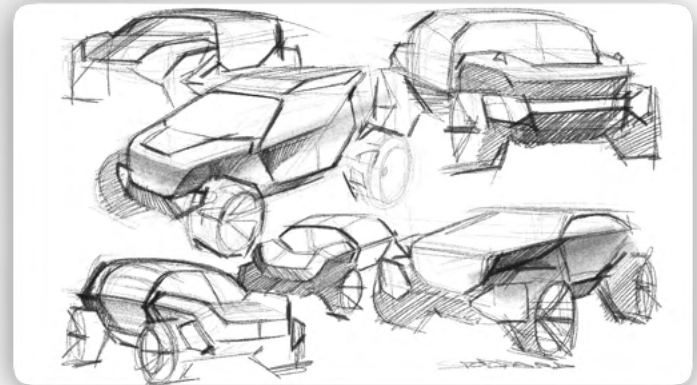


# Warmup: Sketching Off- Road Vehicles in Perspective

In this warmup exercise, you'll continue to explore rugged forms driven by functionality in a futuristic, off road vehicle. You'll continue to explore new silhouettes and a form language that is more futuristic, enabled by an electric drivetrain. These sketches will form the basis for your digital sketches and renderings.

**Assignment: 5-10 pages of off-road vehicles in multiple perspective views. Try to come up with a variety of original, unique and futuristic design concepts.**

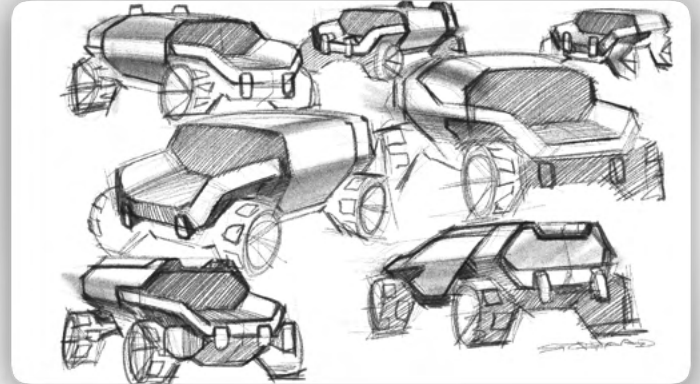
[Click here to watch the video](#)



# Continued: Sketching Off- Road Vehicles in Perspective

**Assignment:** 5-10 pages of off-road vehicles in multiple perspective views. Try to come up with a variety of original, unique and futuristic design concepts.

[Click here to watch the video](#)

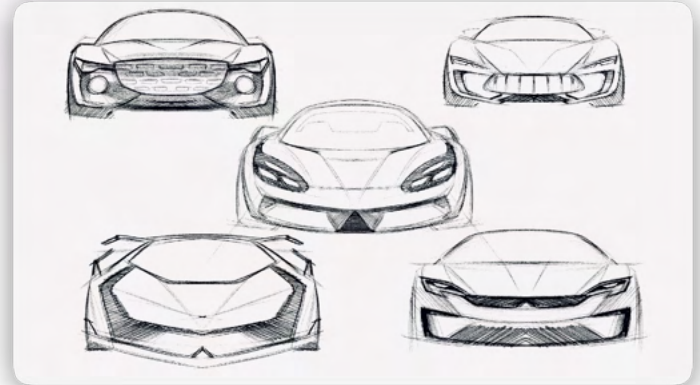


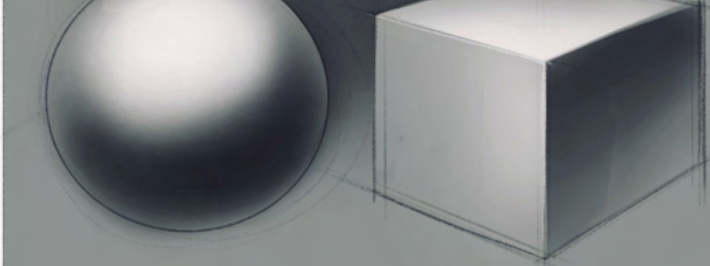
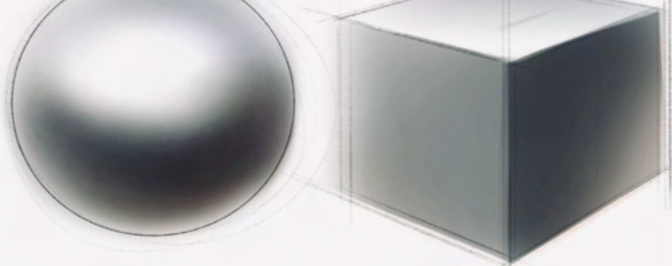
# Front View Sketching: Down- Road Graphic

The face of any vehicle, often referred to as the down-road graphic, communicates a great deal about the owner's personal image and emotional state, as well as the DNA of the brand. Without getting into any specific brand, I demonstrate through sketches how a variety of emotional states can be projected by the vehicle face. Vehicles can project an image of confidence, optimism, pride, assertiveness, or even anger. Using Sketchbook Pro's symmetry tools, this tutorial shows how a variety of vehicle front ends can be rapidly developed.

**Assignment: 5-10 pages of front views for sports cars and SUVs**

[Click here to watch the video](#)





## Part 2: Overview of Core Rendering Concepts

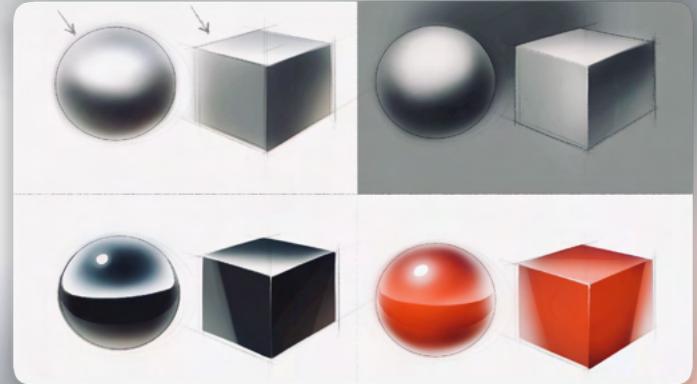
Learn the core rendering concepts of light, shadow, reflectivity and color to define forms and bring your concepts to life.

# Overview of Core Rendering Concepts

This tutorial demonstrates the core concepts of light, shadow, reflectivity and color.

**Assignment: Draw and render assorted cubes and spheres, and render them using basic light, shadow, reflectivity and color.**

[Click here to watch the video](#)



# Sports Car: Greyscale Rendering on White Background

This exercise introduces the basics of digital automotive rendering. In this exercise you'll learn how to render a sexy, Italian sports coupe in greyscale on a white background, with an emphasis on sculpted, voluptuous shapes. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 sports cars in perspective, rendered in greyscale on a white background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)



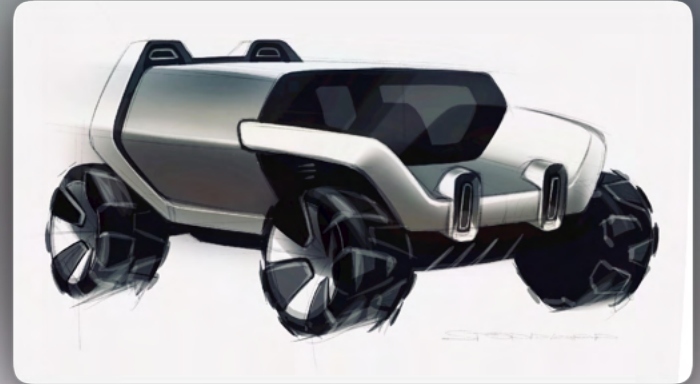


# SUV: Greyscale Rendering on White Background

This time you'll render a futuristic, off-road electric SUV in greyscale on a white background, with an emphasis on chiseled, geometric shapes. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Off Road Vehicles in perspective, rendered in greyscale on a white background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)



# Sports Car: Greyscale Rendering on Dark Background

In this lesson you'll render a sexy, Italian sports coupe in greyscale on a DARK background, with an emphasis on voluptuous, sculptural shapes. Using a dark background enables you to add light, as well as subtract shadow. Using a strong, directional light source is a great way to visually communicate shape and form. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 sports cars in perspective, rendered in greyscale on a dark background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)



# SUV: Greyscale Rendering on Dark Background

In this lesson you'll render a futuristic, off-road SUV in greyscale on a DARK background, with an emphasis on chiseled, geometric and functional forms. Using a dark background enables you to add light, as well as subtract shadow. Using a strong, directional light source is a great way to visually communicate shape and form. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 off road SUVs in perspective, rendered in greyscale on a dark background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)

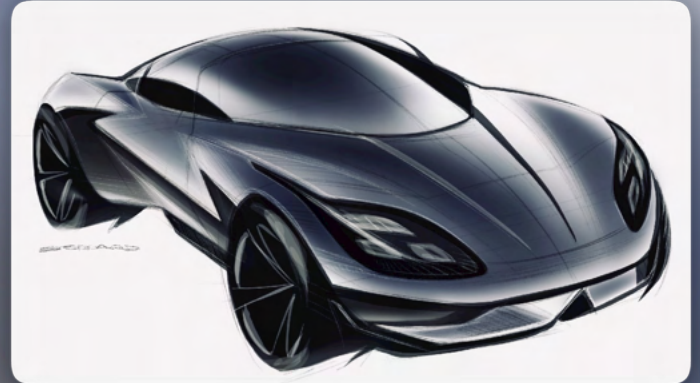


# Understanding Reflectivity: Sports Cars

This tutorial introduces the concept of reflectivity, and how reflective objects like cars are essentially a mirror image of the world around us. How those reflections undulate across the surface of the vehicle tells us what the surfaces are doing. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Sports Cars in perspective, rendered in gloss black on a white background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)

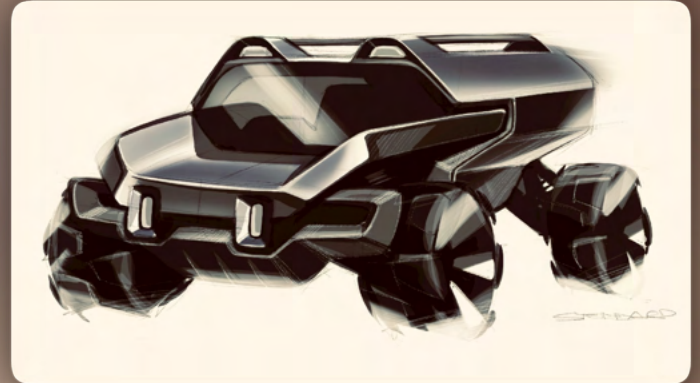


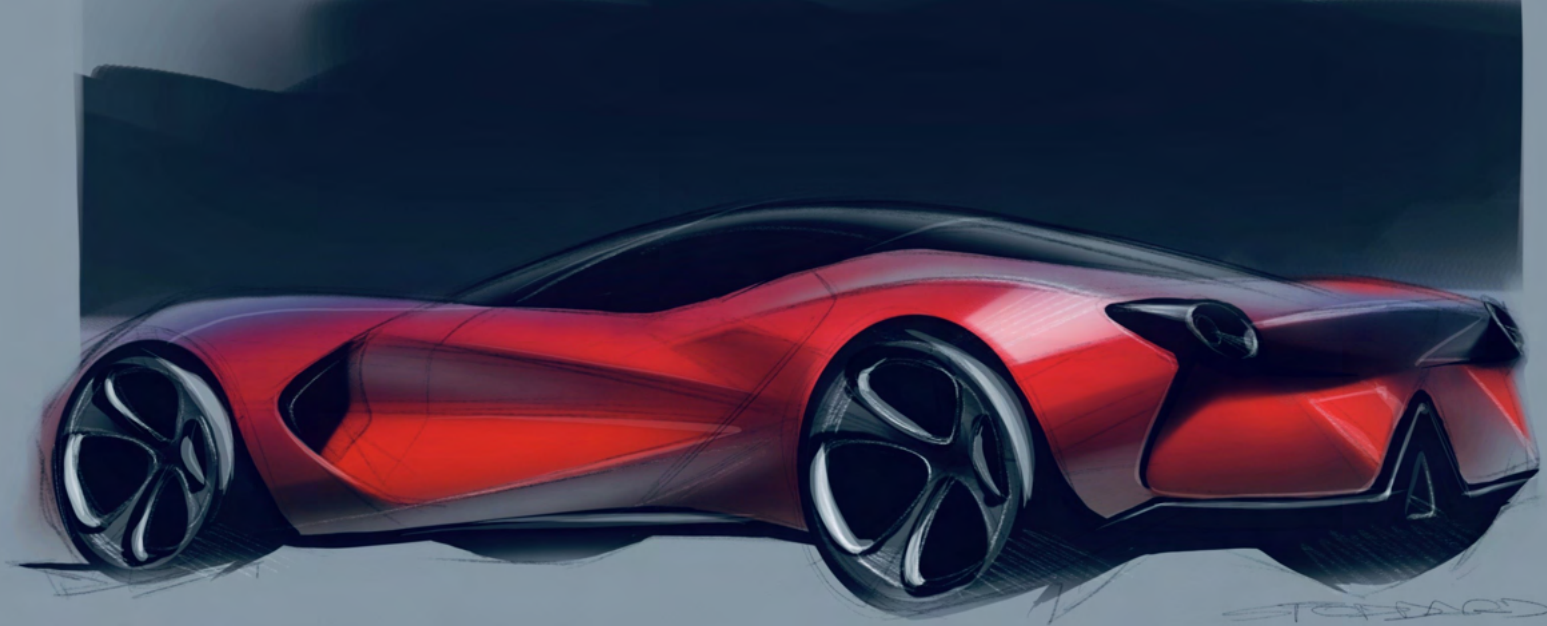
# Understanding Reflectivity: Off-Road SUV

This tutorial introduces the concept of reflectivity, and how reflective objects like cars are essentially a mirror image of the world around us. How those reflections undulate across the surface of the vehicle tells us what the surfaces are doing. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Off Road SUVs in perspective, rendered in gloss black on a white background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)





## Part 3: Digital Rendering in Color

Learn the science of color, overlaying the concepts of light source and reflectivity to add realism and brilliance. Learn the science of metallic paints, and how they reflect and disperse light.

# Introduction to Color: Sports Car

In this video we'll introduce color in the form of pearlescent red, sexy Italian sports coupe. Here we'll overlay the concepts of light source and reflectivity from earlier tutorials, to add realism and brilliance. You'll also learn the science of automotive metallic paints, and how they disperse light to give that brilliant, pearlescent glow. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 sports cars in perspective, rendered in color on a white background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)

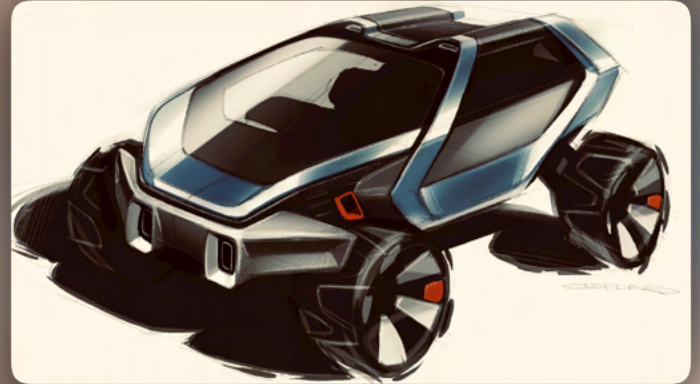


# Introduction to Color: Off-Road SUV

Here I continue my introduction to digital automotive rendering using color, in the form of a futuristic, electric off-road vehicle. Unlike my previous demo of a brilliant red sports car, I wanted to communicate a more muted, subtle use of color in the form of a medium blue-grey. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Off-Road SUVs in perspective, rendered in color on a white background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)





# Red Sports Car Front View Rendering

In this tutorial, I demonstrate in real time how to quickly render a sexy, red Italian sports car in front view, using Sketchbook Pro's symmetry tools. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Sports Cars and 5 SUVs in front view, rendered in color. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)

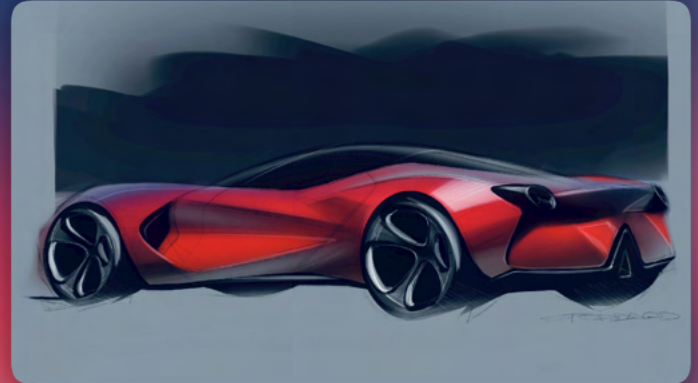


# Red Sports Car on a Dark Background

In this tutorial I introduce the use of color on a dark background, in this case a blazing red Italian Sports Coupe. Just as we learned in greyscale, dark backgrounds allow you to add light and subtract shadow, making the car really stand out from the page. Colors appear bold and brilliant against dark, neutral tones. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Sports Cars in perspective, rendered in color on a dark background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)



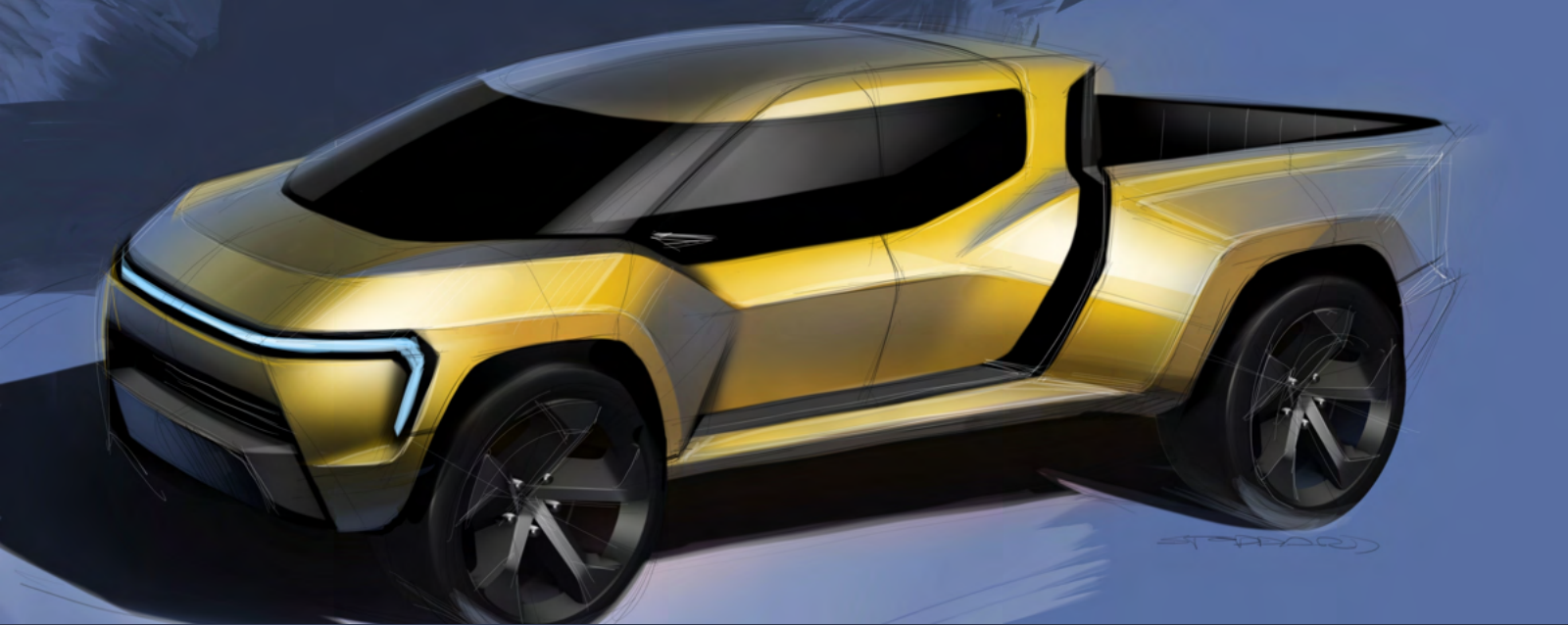
# Blue Off-Road SUV on a Dark Background

In this tutorial I introduce the use of color on a dark background, in this case a brilliant blue, off-road electric SUV. Just as we learned in greyscale, dark backgrounds allow you to add light and subtract shadow, making the car really stand out from the page. Colors appear bold and brilliant against dark, neutral tones. This tutorial was done using Autodesk Sketchbook Pro, available on PC/Mac or iPad.

**Assignment: 5 Off-Road SUVs in perspective, rendered in color on a dark background. Try to develop a variety of unique and futuristic design concepts.**

[Click here to watch the video](#)





## Part 4: Advanced Digital Rendering Skills

This tutorial series introduces more advanced digital rendering techniques. Manipulation of light, shadow, reflectivity and color are taken into new territory to deliver maximum impact. We also introduce 3D digital assets like wheels to add more realism and detail.

# Rendering Wheels

Wheels are an important component of the automotive DNA, and communicate a great deal about the unique character and capability of a vehicle. Using Sketchbook Pro's multi-axis symmetry tools, we'll quickly render a lightweight, high performance wheel for a sports car and a rugged SUV.

**Assignment: Take 1 or more of your best wheel designs and render it!**

**Sports Car Wheel: [Click here to watch the video](#)**

**SUV Wheel: [Click here to watch the video](#)**



# Applying Wheel Designs to Side View Renderings

Adding detailed wheels to a rendering brings a far greater level of realism and precision, without a lot of extra effort. Whether they're photos of wheels you found on the web, rendered yourself or built in CAD, having a library of wheels at hand makes the job quick and easy. In this video, I'll render a futuristic Porsche 911 concept using a set of wheels I built and rendered in 3D CAD.

**Assignment: 3-5 side view renderings of your best Sports Cars, and 3-5 side view renderings of your best SUVs. Apply detailed set of wheels to both.**

[Click here to watch the video](#)



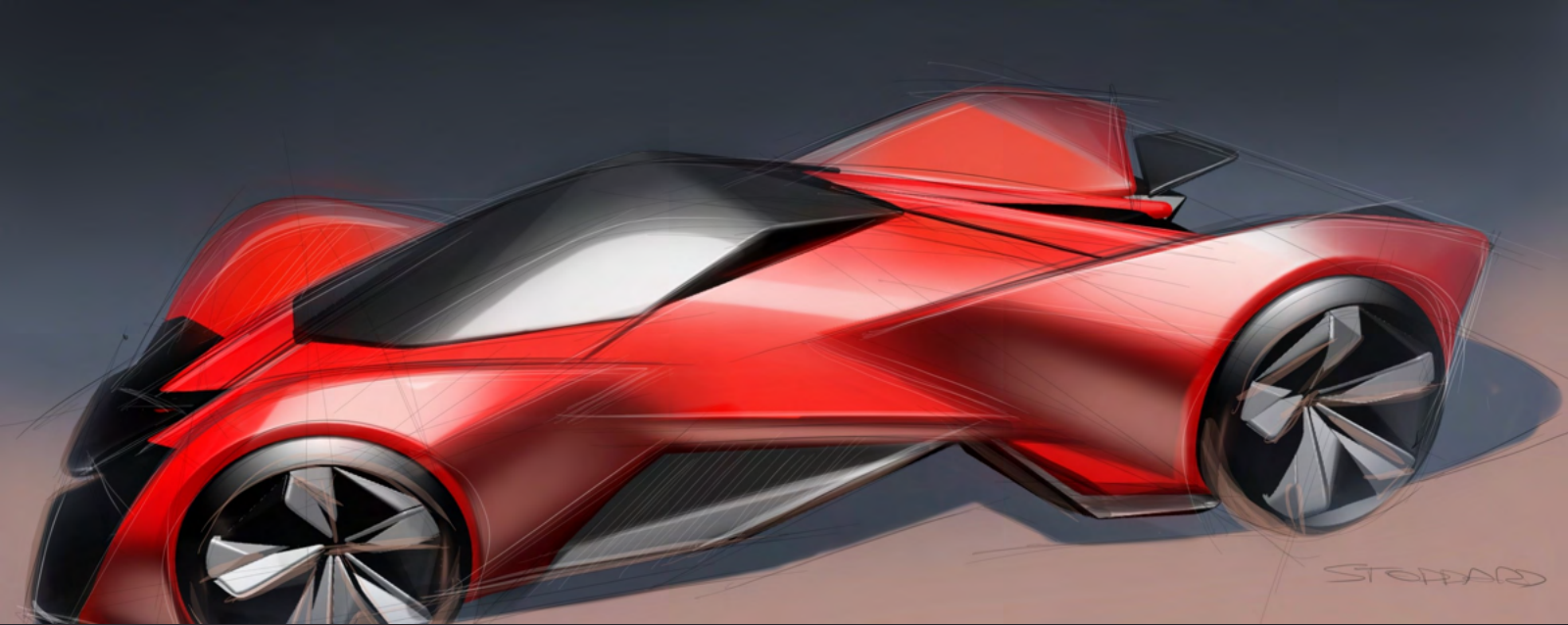
# Applying Wheel Designs to Perspective Views

You can also add detailed wheels to perspective views. Using Transform and Warp tools, a wheel image can be quickly adapted to match the perspective of the vehicle. I recommend using a wheel image that's already rendered in a similar perspective, to give a sense of dimension and depth. A powerful, futuristic electric pickup truck from a hypothetical startup, this tutorial explores advanced rendering techniques in Sketchbook Pro.

**Assignment: 3-5 perspective view rendering of your best Sports Car, and 3-5 perspective view renderings of your best SUVs. Apply detailed set of wheels to both.**

[Click here to watch the video.](#)





## Part 5: Additional Demo Content

The next series of tutorials are for you to learn and observe additional advanced rendering techniques. Continue to practice with additional sketches and renderings!



# Bonus Demo: Porsche 911 Concept

The latest in the Porsche 911 demo series focuses on the front 3/4 view, imagining the future 911 as an exotic, mid-engined hybrid. The cabin is low and centered between strong wheel haunches, with an aircraft canopy quality to the wraparound windscreen. The front end places full emphasis on large, deeply scalloped headlamps with high-tech LED lighting elements. It's rendered in a brighter shade of silver, in a strong sunset environment which provides a dramatic warm-cool color contrast to the bodywork.

[Click here to watch the video](#)



# Bonus Demo: Porsche 911 Concept

Here I introduce a brightly colored background on a silver vehicle. Notice how the background tones are reflected in the far-facing surfaces to give a sense of depth and dimension. This demonstration focuses on a bird's eye, rear 3/4 view of a future Porsche 911. From this perspective you can clearly see the shift to a mid-engined proportion, along with the strong plan shape in the rear haunches. A subtle nod to the classic Targa is shown in the metallic band wrapping across the roof at the B pillar. Developed in Sketchbook Pro on a MS Surface Pro tablet.

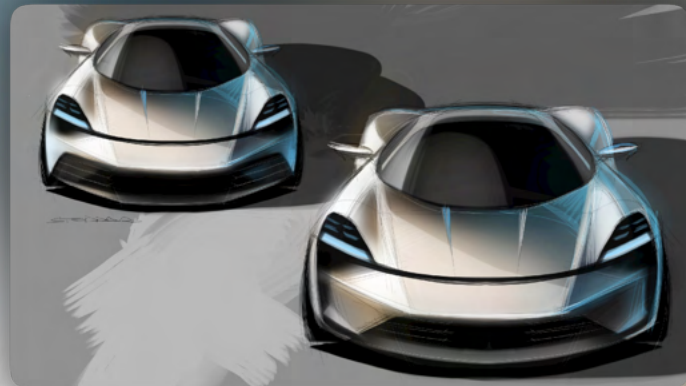
[Click here to watch the video.](#)



# Bonus Demo: Porsche 911 Concept

Demonstration of how to develop quick front end variations, using Sketchbook Pro's symmetry tools. This tutorial also demonstrates the power of warm and cool lighting effects to add dramatic effect to a white or silver vehicle.

[Click here to  
watch the video](#)



# Bonus Demo: Electric 4 Door Coupe

This tutorial showcases advanced digital rendering techniques in Sketchbook Pro, for a sexy, futuristic 4 door electric coupe. Rendered in a bold metallic red, this car features a high-tech lighting signature and the absence of a traditional grille. This car combines supercar proportions with 4 passenger accommodation.

[Click here to  
watch the video](#)



# Bonus Demo: Italian Hot-Hatch EV in a Red Environment

Sketching over a rough 3D model or photo can be a great way to quickly capture the right perspective and proportions. Here's a quick rendering demonstration on sketching a sexy, Italian performance EV hatchback over a rough 3-D model, then articulating form through the use of a strong light source in a red environment. The outer extremities of the car recede into the red environment, while surfaces facing towards the light source take on a brilliant silver tone.

[Click here to watch the video](#)



# Bonus Demo: Italian Hot-Hatch EV in a Red Environment

Sketching over a rough 3D model or photo can be a great way to quickly capture the right perspective and proportions. Here's a quick rendering demonstration on sketching a sexy, Italian performance EV hatchback over a rough 3-D model, then articulating form through the use of a strong light source in a red environment. The outer extremities of the car recede into the red environment, while surfaces facing towards the light source take on a brilliant silver tone.

[Click here to watch the video](#)



# Bonus Demo: Off Road EV in a Green Environment

Sketching over a rough 3D model or photo can be a great way to quickly capture the right perspective and proportions. Quick rendering demonstration on sketching a rugged, off-road EV over a rough 3-D model, then articulating form through the use of a strong light source in a green environment.

[Click here to watch the video.](#)



# Bonus Demo: Off Road EV in a Green Environment

Sketching over a rough 3D model or photo can be a great way to quickly capture the right perspective and proportions. Quick rendering demonstration on sketching a rugged, off-road EV over a rough 3-D model, then articulating form through the use of a strong light source in a green environment.

[Click here to watch the video.](#)





# Congratulations!

You have completed our Digital Sketching & Rendering Course, and you have a strong foundation on which to develop your advanced 2D and 3D skills. Check out our courses in 3D modeling, visualization and AI workflows to turbocharge your design process. We hope to see you again soon!

[Check out our live online courses](#)