

How to Win at Sim Racing



Proven Speed Secrets to Make You an Even Better Sim Racer

by Ross Bentley



Important Stuff

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Having said that, I love helping sim racers perform better – I enjoy sharing what I've been fortunate to learn through experience, study, and observation. With that in mind, please help me get this eBook in the hands of more drivers. Please recommend to other sim racers that they download their own copy (the same way you did). It's free! All anyone has to do is download it themselves (i.e., don't send them your copy). Thank you.

Have fun!

Ross Bentley

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WHAT MAKES THE BEST, THE BEST

Let me start by letting you in on a little secret. But, shhhhhh... don't tell everyone. Here it is: The very best sim racers – the “aliens” – were not born with some extra gene in their DNA that makes them brake for corners the right way, turn the steering at the right time, step on the gas pedal harder, position their car better to make a pass, or even focus more when racing wheel to wheel. In fact, there isn't a “faster sim racer” gene.

What makes the best sim racers the best sim racers is what they've done in their lives to develop whatever “talent” they were born with, what they've learned, and how they practice.

And that's that last part of our secret: *it's not just that they've practiced more, but it's what and how they've practiced.*

It's easy to develop a bad habit, but it is hard to unlearn one and replace it with a good one. Learning without expert training and coaching is likely to lead to a lot of bad habits, and the best sim racers use some form of “coaching.”

There's not a lot you can do today about what you've done – or not done – in the past that makes you the sim racer you currently are. But the one BIG thing you can do today is practice more effectively, more efficiently, and build better habits. Most racers – sim or real-world – will claim that all it takes is more seat time. In fact, many will tell you that the only thing separating them from Lewis Hamilton or Max Verstappen is more time in the cockpit. Which, of course, is some form of large animal waste! It's how the seat time is spent that matters most.

In an interview with Max Verstappen on the day after he'd captured the 2021 World Driving Championship, he (and his somewhat incredulous father, Jos) claimed that he spends forty hours preparing for a sim race. Not for a Formula One race, but a sim race. I'm not taking anything away from sim racing, but he gets paid millions of dollars to race his Red Bull Grand Prix car, not a digital one. The point I'm trying to stress is that practice makes the difference. But not just any old practice – it's very deliberate, strategic practice. I can promise you that the way Verstappen spends those forty hours is different from many sim racers.



One of the main objectives of this eBook is to help you develop a more effective practice strategy so that you can learn more in less time than the others you race against.

Your unfair advantage is your practice program, starting with a solid baseline of knowledge. It's this foundation of knowledge that also separates the best from the rest; the best understand the *why* behind what they do. Knowledge acquisition is a never-ending task, and the best have a passion for soaking up everything they can learn. That's another objective of this eBook: to help you start down the endless pathway of learning.

PRACTICE STRATEGY

PRACTICE PRINCIPLES

If you want to improve (and who doesn't!), then the following key principles could do more for you than just about anything else.

Learning is programming, and programming is learning: You do what you do because you're programmed to do so, and sometimes you don't do what you wanted because you didn't have the mental programming to do it, yet. That's what skill development is all about: building and fine-tuning your mental programming. Have you ever memorized something just enough to be able to spit it out on a test or some other situation, only to not recall it at all a few days later? That's because you didn't program it; you didn't get it to the subconscious level where it became a part of your mental programming. When you learn something, you've programmed it into your brain; when you program something into your brain, you've truly learned it. Therefore, what and how you practice is critical.

Break it down: If football teams practiced the way many sim racers practiced, they'd show up for a practice and play a scrimmage game. But they don't do that, do they? Instead, they break the game down into discreet skills and use drills or exercises to practice them. They do passing drills, running drills, kicking drills, blocking drills... and then every once in a while they put them together to play a game. Think about the amount of time they spend practicing the drills compared to the time spent in a game. It may be ten times as much time with the drills than with a game. To be a better sim racer, you need to use practice drills, instead of just competing in another race (don't worry, that'll happen!). Later in this eBook, I'll share a number of specific practice drills.



Quality beats quantity: As I said, how and what you practice is more important than the amount of time you spend practicing. I suspect you don't have the luxury of being able to spend every waking hour practicing sim racing, so you want to make the most of every minute you do spend practicing. I'll provide you with a few strategies to ensure you practice the right stuff, the right way.

Get and use feedback: There are two kinds of feedback: corrective and confirming. Corrective is meant to correct or change a behavior or action; confirming is meant to reward the behavior or action with the intent to encourage more of it. We typically look for feedback from others, but you can give it to yourself. Of course, you have to be aware of your behavior or action, and be honest with yourself. Then, if you ask yourself "What did I do well? What is the one thing I'd like to improve?" you'll be giving yourself feedback. And the sooner you do that after a practice or race, the more effective it will be. Of course, if you can get feedback from someone else, that will be helpful, too. That someone doesn't necessarily need to be a better sim racer than you are. In fact, often someone with little to no experience can ask you questions that'll lead to you being more aware of your behavior and actions – even more than an expert would.

Reflection multiplies practice: Research has shown that taking even five to ten minutes immediately after a practice session to close your eyes, relax, and reflect on the practice you just finished is a valuable approach to learning. During that time of reflection, don't be judgmental, or even spend a lot of thought on what just happened. Instead, just relax and let your mind wander. Why? Because during that time, your mind consolidates what you've just practiced, and it cements it into your mental programming much deeper than if you didn't give yourself that reflection time.

More is not always more: There comes a time where your mind fills up with learning, and you need a break. Twenty minutes is a good length of time for intense practice, then take a five to ten minute break before going back at it. Three twenty-minute sessions with short breaks in between is far more effective than a solid hour.

Mental practice can be as effective as physical practice: Your brain can't tell the difference between a real or imagined event or action, if you make it real enough – if you imagine something with all your senses, along with your state of mind. Between practice sessions and races, use mental imagery (what is most often referred to as visualization) to continue to learn and improve.

Be Deliberate: If you want to improve your braking, for example, focus on practicing your braking, and not trying to turn a faster lap by braking later. In other words, the more specific you get with practicing a certain part of braking, the more you'll improve in less time – and the more efficient the learning is.

Practice Deeper, Not More: Which do you think will help your sim racing more, practicing with five different cars on five different tracks, or one car on one track? The answer does depend a little on what you want to get better at, but at least ninety percent of the time, one car on one track will do more for you than many cars/tracks. If your goal is to get better at quickly adapting to new cars and tracks, sure, go ahead and use many. But for practically any other area of your driving, focus on quality over quantity.

Research by Dr. Anders K. Ericsson showed that what separates the very best from even the best is that the former spent more time practicing quality over quantity. In fact, the very best and best may have even practiced the same amount of time. But the very best spent more time on the tough, challenging, repetitive act of practicing the basics more. They spent more time going deeper with the basics, rather than surface-level learning of more things.

Practice Getting Distracted & Regaining Focus: I assume you're human, and that means that – at times – you will lose focus when on your sim, and that feels like a mistake. But it's not. Losing your focus while practicing is not a bad thing, because you get to practice regaining it.

The best drivers in the world lose their focus just as much as you do. One of the things that make them the best, though, is how quickly they regain it. In fact, they regain their focus so quickly that it almost seems as though they never lost it.

Practice this when practicing! The instant you begin to lose focus, say "Eyes up – look ahead," and immediately notice yourself focusing back on the act of driving. The more you do this, the better you'll get at regaining your focus. And that will make you better at it when you race, too.

RECAP

As you can see, how you approach practicing is just as important – and maybe more – than what you practice.

To recap with the highlights:

- Take breaks
- Be deliberate
- Practice deeper
- Practice regaining focus

So, keep practicing and having fun!

* * *

With those principles in mind, take a look at how much time you can afford to put into your sim racing, and divide that time up into the time you're going to race, and the time you're going to prepare for racing by practicing. I understand that sim racing is pretty much all about having fun, and competing in races is fun! But I'm sure that if you practice more, you'll improve more, and your racing will then be even more fun. So, figure out how much time you can and will spend on practice. Then commit to it.

Think of your practice time the same way you would with going to a gym and working out with a personal trainer. The trainer wouldn't just have you do cardio workouts for seven days straight, then tell you take a week off, come back to wander around the gym looking for some weights to lift, and continue with a random training plan. Instead, your plan would be regular and consistent, and focused on the areas that most need attention. Take the same approach with your sim racing practice.



DRIVING TECHNIQUE

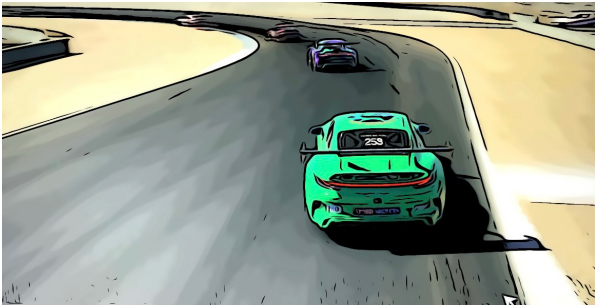
The topic of driving technique is huge. Entire books have been written about what techniques and skills are needed to be fast and win races. I've written ten of them! I've also created the *Sim Racer Academy* to make absorbing this information in a practical, applicable way relatively easy. So, I'm not about to repeat myself here.

What I will do here is provide you with a few guiding principles so you can go to other sources, learn, and apply and practice them. When you do that, you will be a consistently-faster sim racer.

CORNERING LINE

The larger the radius, that faster you can drive; the tighter the radius, the slower you have to drive. So, that means you want to drive a line through practically all corners on as large a radius as you can. And that means you want to use all the track, from the outside edge to the inside edge and back out to the outside edge. There are exceptions to this guideline, but they're rare.

Entering a corner with your car not on the very edge of the track, not using all of the track/curb on the inside, and then not using all of the track and curb exiting a corner means you're not driving as large a radius as possible. And that will result in not being as fast as you could be. Use all the track.



The classic advice of “in slow, out fast” is classic because it works – until it doesn’t. The message is that you want to enter corners slow enough so that you can begin to accelerate early and be fast coming out of corners.

To be fast, you have to know where to go slow (or relatively slow). If you enter a corner so fast that you can’t begin to accelerate until very late in the turn, or even when you get to

the beginning of the straightaway after the corner, you would most likely have been better off being slow entering the corner.

Sure, you can go too far with this “in slow, out fast” approach. You can begin accelerating early in a corner by entering it at one MPH! But that’s not going to serve you very well in sim racing! As a general guideline, enter corners as fast as will still allow you to begin accelerating out of it early – ideally, earlier than your competitors.

Most races are won on the straightaway, so you want to drive corners in such a way as to make you faster down the following straightaway.

TRACK REFERENCES

There are three main references that you hear discussed a lot among racers:

1. Turn-in
2. Apex
3. Exit, or sometimes called Track-out

These three points (and sometimes the “points” are long enough that they’re really “areas”) define the arc, or the “line” you drive through corners. If you consistently connect these three references in a smooth, flowing arc, then you’ll be relatively fast. Get used to identifying and using references, as they guide you along the track. Interestingly, not all references are the same for all drivers: what you see may be different from what another driver sees.

The more references you have, the more consistently fast you’ll be.

I now want to introduce two more references, and these may just be the most important – at least the second one is.

- Begin-of-Braking, otherwise known as BoB
- End-of-Braking, also known as EoB

BRAKING

One of the reasons the drivers I coach are faster than many others is the approach to preparing for corners that I’ve developed. Most drivers have a Begin-of-Braking point (BoB) – a point at which they initially apply the brakes to begin slowing down for a corner. That BoB is their focus. Unfortunately, their focus is far too much on the BoB, and not enough on the upcoming corner.

When driving on the road, does a driver approaching a traffic light look to the side for a reference for when to begin braking? Of course not! Instead, they look to where they need to stop (either crosswalk, intersection line, or the stopped traffic ahead), and judge when they need to initially apply the brakes, and how hard. They base their BoB off the EoB. That’s the way you should drive on a track, too.

As you approach a corner that requires slowing down (as most do), look into the corner for the approximate place where you’ll release your foot off the brake pedal. This EoB is the point where you no longer have any pressure whatsoever on the brake pedal; it’s the point where a driver following you would note that your brake lights went off.

Now, think about all the ways you can take your foot off the brake pedal: early and fast, early and slow, late and fast, late and slow, and everything in between. In other words, the timing and rate of release of the brakes is what you can use to your advantage. In fact, when I’m asked what is the single most important skill or technique that the best drivers use that separates them from all the rest, it’s this: the timing and rate of release of the brakes when entering a corner.



The timing is related to the corner Turn-in point, and that means you can begin releasing the brakes before the Turn-in, at the Turn-in, or after the Turn-in. And the rate of release is exactly that – how quickly you release pressure off the brake pedal. Again, it can be slow, medium, quick, or something in between.

Why does the timing and rate of release matter? In slow corners, typically, you need to change direction of the car a lot, as it’s usually a tight radius corner. In that case, by slowly releasing the brakes, you’ll keep the front tires loaded, giving them the grip they need to change

the car's direction. At the same time, you're unloading the rear tires, which means the car will "rotate" (think of looking down on your car from directly above, and seeing it as if on the face of a clock; when the car rotates, its direction changes further around the clockface). Yes, this relatively long, slow release of the brake pedal is called "trail braking," as it's when you ease your foot off the brakes while turning into the corner.

The reason for trail braking is twofold:

- As mentioned, to keep load on the front tires to help the car change direction
- To use all of the tires' traction; while easing off the brakes, some traction is then used for cornering, and this trade-off happens until the brakes are fully released and all of the traction is being used for cornering

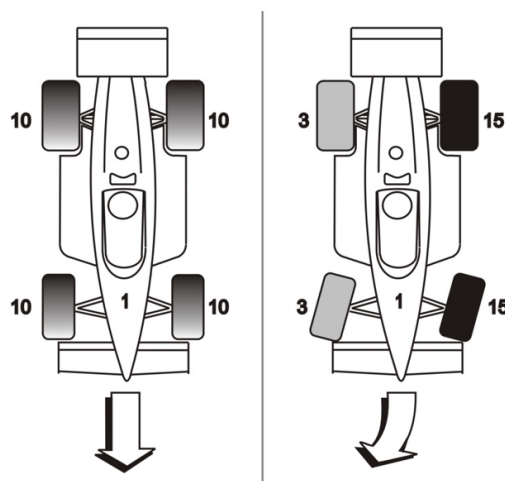
When would you want to release the brakes early and quickly? Typically, in long, fast corners where you don't need to change the car's direction as dramatically, and instead you want to keep your car's chassis as balanced as possible. When your car is balanced, with its weight equally distributed over all four tires, it has more overall traction compared to when it's unbalanced (as is the case when you're trail braking, loading the front tires and unloading the rear tires).

BALANCE LEADS TO TRACTION WHICH LEADS TO SPEED

This is such an important point to be clear on that I'm going to use my favorite way of explaining it, something I call the Traction Unit Number.

With your car moving at a constant speed in a straight line, weight is distributed equally over all four tires. If we took a "traction-o-meter" and measured how much traction each tire had, they would be equal. Let's say that each tire has ten units of traction. If you add them up, you have a total of forty units holding your car on the road or track surface.

When you go around a corner, weight transfers onto the outside tires, increasing their traction (yes, even though you may not feel the weight transfer in your sim, it's still there – the sim software physics model is "feeling" it). In our model, they will now have fifteen units of traction each. But, the tires on the inside are unloaded, and therefore lose traction. And because they lose more than the outside tires gain, they now have three units of traction each. When you add that up ($15+15+3+3$), you now have a total of thirty-six units of traction holding your car on the road or track.



Understand, this is a conceptual model, and there is no "traction-o-meter" available (I bet that comes as a big surprise to you!). What this model does is help you understand traction and weight transfer, so you can learn to manage it better.

WEIGHT TRANSFER

Of course, you can't drive a car without causing some weight transfer – even simulated cars. Every time you accelerate, brake, or go around a corner, weight transfer happens. This load or

weight transfer is often difficult to sense in a simulator because they usually lack motion, but never forget that it's happening. So, right when you need it most, like going around a corner, you actually have less traction. That may seem unfair, but that's the way physics and tires work!

What can you do about this? Cause as little weight transfer as possible. How? By driving smoothly.

An example: You come to a corner, and you're not looking very far in front of you. You abruptly jerk the steering wheel to head into the corner, then realize that you're not quite on the right path. You make an adjustment to the steering, then another to bring it back to the original path. And because you haven't planned ahead, you have to adjust your speed, too. Those steering and throttle adjustments cause some weight transfer, resulting in a reduction of traction.

Take that same scenario, but this time you're looking way ahead and you've planned out your path and speed through the corner. Your steering input is smooth and consistent, and your acceleration is progressive and smooth. Sure, weight transfer will occur, but not as much. And by causing less weight transfer, your car will have more overall traction to work with through the corner.

It's kind of ironic that when you need it most - when you've done something wrong and caused more weight transfer - you have less traction. When you do things right, you have more traction. I guess that's your payoff for doing things right!

SMOOTH IS FAST

This is why smooth is fast. The smoother you drive, the less weight transfer you're going to cause, and the more overall traction you have to work with. The more traction you have, the faster you can drive.

So, the less weight transfer you cause, the faster you'll be able to drive. Of course, one way to cause less weight transfer is to drive very slowly. But that defeats the purpose of what we're doing on a track. That's why this sport is tricky! The faster you drive, the more weight transfer you cause, and the less traction you have to work with.

But if you can combine smoothness with speed, you get the best of both worlds. And you can. But it takes deliberate practice to be able to drive fast and smooth. And again, it's a loop: smoothness leads to more speed, speed leads to more weight transfer, more weight transfer leads to less traction, less traction leads to less speed. But if you can break that pattern somewhat by managing the weight transfer, you can use that smoothness and changing traction abilities to your advantage.

WEIGHT MANAGER

Sim drivers are weight managers. You can add or take away weight from any one of your tires by how you use the brakes, steering wheel, and throttle. You can manage weight transfer to your advantage.

There are times when you want your front tires to have more traction than the rears, such as when you're initiating a turn into a corner. With your rear tires driving your car forward in a straight line, when you turn the steering wheel, you're asking the front tires to overwhelm the

rears and change the direction of the car. If the front and rear tires have the same amount of traction, that's a battle that you might win...or not. In other words, your front tires may not have enough traction to outdo the rears enough to get the car to change direction as much as you want.



But if you transfer weight onto the front tires, so they have more traction than the rears, you improve your chances of the car changing direction and going where you want it to go.

To transfer weight onto the front tires, you could either brake or simply lift off the gas pedal, right? Lifting off the throttle is a form of deceleration, and

deceleration transfers weight forward, onto the front tires and off the rear tires.

To demonstrate the good and bad of weight transfer, what would happen if you were accelerating as you turned into a corner? When you're accelerating, you're transferring weight onto the rear tires, and off the fronts, so it might be difficult to get the car to change direction.

Does this give you an idea of what you should be doing as you approach a corner, at least from a weight transfer management perspective? It is key that you see how important what you do with weight transfer is.

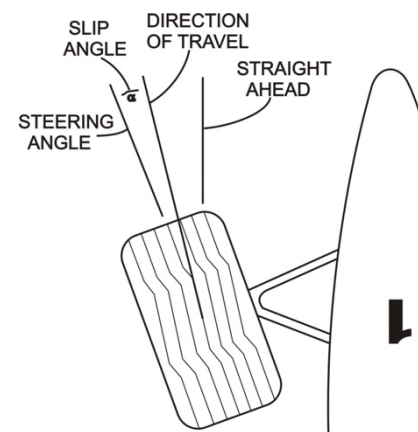
SLIP & SLIP ANGLE

If the concept of an unweighted tire losing more traction than a weighted one gains was a little challenging to your common sense, here's another one to keep you thinking for a while: a tire has the most traction when it's sliding or slipping a little bit. Due to the way the tire interacts with the track surface, it actually has more grip or traction when it's sliding. For most tires, it's when they're sliding about three to ten percent.

If you think about this percentage of slip like when you're braking, the tire would be turning about three to ten percent slower than the car is moving. Let's say your car is traveling 100 MPH, and with three to ten percent slip, the tires would be rotating at between ninety and ninety-seven MPH.

So, with the tires slipping this much, we call it the "threshold" when braking. The term threshold braking refers to when the tires are on the threshold or edge just before they would lock up and begin to skid if you added just tiny bit more brake pressure. Of course, if your car is equipped with ABS (Anti-lock Braking System), the computer is doing its best to keep the tires at this threshold.

When accelerating with the tires at their very limit, they're turning about three to ten percent faster than the car is moving. If you had one hundred percent slippage, it would be like sitting still with the tires spinning while stuck in snow.



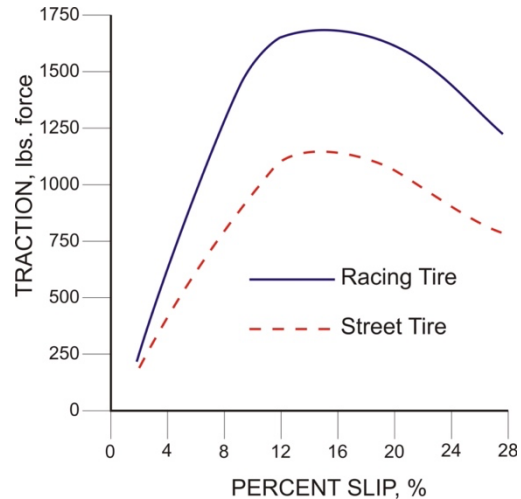
When you're turning, this slip is measured and thought about in a different way. In this case, we look at the tires' slip angle.

Imagine steering the front tires into a left turn. If you're at a speed that's near the tires' traction limit, the car will not go exactly where the front tires are pointed. In fact, there will be a certain amount of slip, and the difference between the direction the front tires are pointing, and the direction the car is moving, is the slip angle.

If you measure and graph a tire's slip angle versus traction, you'll see that the peak traction is when there is a certain amount of slip angle. How much slip is dependent on the tire.

The graph to the right tells you two important things:

1. If the tires are not slipping a certain amount, they're not at their peak traction.
2. Once a tire begins to slip a little bit, that doesn't mean you've lost control of the car. In fact, notice that the traction gradually tapers off with increasing slip.



Driving a car at the limit is driving with the tires at their peak slip angle. If a tire generates its maximum traction with five degrees of slip, and you're driving with them at three degrees of slip, you're not driving at the limit. If you're driving with the tires at seven degrees of slip, you're driving beyond the limit.

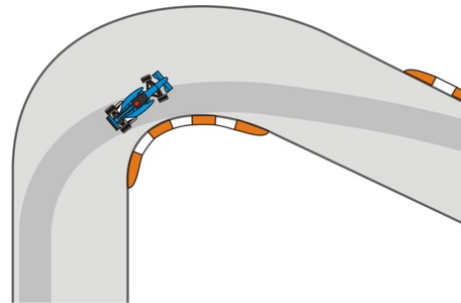
Notice that driving at seven degrees of slip does not necessarily mean you're going to slide off the road or track and crash! It may be possible to drive at that slip angle all day long without going too far and spinning out. But you won't be as fast as you're able to go with that much slip - you'll be overdriving the car.

UNDERSTEER & OVERSTEER

Understeer and oversteer are two terms used to describe the handling characteristics of a car as it travels through a corner. I suspect you've experienced both of them at some point when driving, and you may have even learned a little about controlling them through trial-and-error experience.

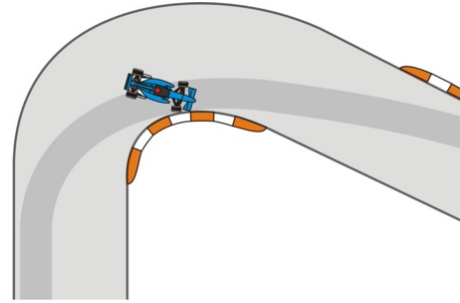
Understeer occurs when your front tires have less traction than the rear tires do, and the car tends to push or plow straight ahead (or at least not on as a tight a radius through the corner as you'd like). Think of it as the car not turning, or steering, as much as you'd like, so therefore, it is understeering.

Another way of looking at understeer is that the front tires have a larger slip angle than the rears do. For



example, they may have seven degrees of slip, whereas the rears have four degrees. The front tires are sliding or slipping more than the rears.

Oversteer is the opposite. It occurs when the rear tires have less traction than the fronts, and the car tends to follow an arc that is tighter a radius than you'd like. It's also called "loose, or "fishtailing." It's when the car is turning, or steering, more than you want, so therefore, it is oversteering. At its extreme, oversteer leads to the car spinning out.



Notice that with both of these handling characteristics, it's what the car is doing, not what you're doing. In other words, oversteering is not when you've steered the car too much, and understeer is not when you've steered too little.

What causes these handling characteristics? First, either can be caused by how the car is set up to handle, and/or what you do to the car.

Some cars are designed to understeer when they approach their limits. Most street cars are designed to do this for the simple reason that controlling understeer is a little easier; the first reaction that a driver has to an understeering car is more natural. And that's why most manufacturers build their cars to understeer - because it's easier for an untrained driver to survive.

Your car's natural tendency towards one handling characteristic – either understeer or oversteer - is a result of a number of design factors, such as:

- Engine position in the car (and therefore, the static weight balance of the car; a rear-engine car will typically have a larger percentage of the weight over the rear tires, whereas a front-engine/front-wheel-drive car will have more weight over the front tires)
- Which wheels are driven (Front-Wheel-Drive, Rear-Wheel-Drive, All-Wheel-Drive)
- Suspension design/geometry
- Center of gravity of the car
- Tires
- Differentials, torque vectoring, and corner braking systems
- Aerodynamics (both passive and active systems)

Some of these can be "tuned," such as suspension alignment, tire sizes, and even pressures, but for our purposes, I'm assuming you're driving what you have; I'm not going to get into how to adjust the handling of your car, here.

You, the driver, also influence how your car handles. In fact, you typically have a bigger impact on your car's handling than how it was designed.

The factors that you control are speed, weight transfer, and what you do with the controls (steering wheel, and brake and gas pedals). These influence the handling of your car more than anything.

The first thing to remind yourself is that speed plays a major role. If you drive slow enough, your car will exhibit neither understeer or oversteer - it will pretty much track in a neutral fashion through any corner. But who wants to drive that slow?!

If you're driving through a corner and your car begins to understeer, what do you do? Remember that the front tires have less traction than the rears with understeer, so your first goal is to give them more traction. How do you do that? You could brake to transfer weight to the front tires, right? But the fronts already don't have enough traction, so asking them to also brake will likely overload them and make the problem even worse.

Instead, if you lift your foot off the throttle, you also transfer weight forward, giving the front tires more traction. This is the number one priority when controlling understeer, and that's why automakers build their vehicles to understeer when approaching the limit. In that moment of "Oh my, the car is not turning as much as I want and if it doesn't start turning soon, I'm going to slide off the track and crash!", your natural reaction will be to lift your foot off the gas. It's instinct kicking in - an almost curl-up-in-the-fetal-position, pulling your foot up and off the throttle. And that's a good thing, because you'll transfer weight onto the front tires, as well as slow down. All good, so far.



However, as the car widens its radius and you plough or push more straight ahead than you want, your instinct will be to turn the steering wheel more. While it might be natural, this won't help. Your thinking will be, "Well, this much steering isn't getting me to go where I want, so I'll turn the steering wheel even more." The problem there is that tires are already at an angle to the track surface that they can't turn the car; turning them even more and putting them at an even more extreme angle will not help. In fact, it will make things worse, and the tires will slide even more.

Instead, when faced with understeer, straighten the steering wheel just a little bit, to an angle where the front tires can grip the track. This is just a slight adjustment in your steering, a slight reduction in steering angle. Doing this, as I said, goes against your instincts, so it takes practice. That's why I highly recommend you practice this over and over again, building the habit of doing this right.

To recap how to control understeer:

- Ease your foot off the throttle to transfer weight onto the front tires, giving them more traction.
- Slightly straighten the steering wheel, just enough so that the front tires regain grip on the track surface.

Let's now take a look at oversteer. Remember that with oversteer, your rear tires have less traction than the fronts have.

Imagine going around a corner, and the back end of your car slides out. You're oversteering. What do you do? Give those rear tires more traction. Now! The challenge is

there are two opposite ways of doing that, and the right one is dependent on what caused the oversteer.

Yes, there are actually two kinds of oversteer:

- Oversteer
- Power oversteer

The first kind of oversteer is simply when the rear tires have less traction than the fronts, and is most often caused by the weight balance of the car, or handling characteristics of the car. Power oversteer is driver-induced. It's caused by the driver applying too much throttle, and generating some wheelspin, which breaks the traction of the rear tires, and causes the car to slide — to oversteer. Power oversteer can only occur in a rear-wheel-drive car.

If it is power oversteer, ease off the throttle a little to give the rear tires back some grip. If it's regular oversteer, then squeeze on the throttle to cause some weight transfer to the rear, giving the rear tires more grip.

I wish it was simple, and there was only ever one thing to do, but it's not. You have to decide - in a fraction of a second - whether the oversteer is caused by too much or not enough throttle! That's why practice time is so valuable.

And remember when you're easing on more throttle to transfer weight to the rear: one factor that caused the oversteer is speed. You don't need more speed. So when I say ease on more throttle, I mean "ease," and not "stand on the throttle"! Be smooth and gentle.

There's one other thing that you must do with whatever type of oversteer you ever face: look and steer where you want to go.

I'm sure you've heard to always "steer into the skid." That's valuable advice, but it's confusing. Perhaps one of the most confusing things we're ever taught in our lives.



If you're going around a right-hand corner, and your car begins to oversteer - the rear slides out to the (left) side - which way should you turn the steering wheel? "Into the skid" sounds easy, but for many people it's not natural or simple to understand which direction that actually is. If you're oversteering in a right-hand corner, it seems you're skidding towards the inside of the corner - to the right. But the rear is sliding out to the left. So, do you turn the steering wheel to the right or left?

Your hands follow your eyes. If you look left, you'll steer to the left; look right and you'll steer right. If you're going around a right-hand corner and the car begins to oversteer, just look where you want to go. In this case, you'd be looking to the left of the direction the car is facing. And doing that, you'll steer to the left - or "into the skid."

No matter where your car is pointing, look where you want to go, and you'll naturally steer in that direction. And that will make you steer into the skid.

For some drivers, this is natural. For others, it's not. In fact, what's natural for some is to look at where they might crash. In our example of driving around a right-hand corner with an oversteering car, it's easy to look directly ahead or to the right - where you'll spin to if the oversteer continues. And that's exactly the wrong thing to do.

Remind yourself over and over again, until it becomes a habit: look and steer where you want to go.

To recap controlling oversteer:

- Look and steer where you want to go.
- If you have oversteer, ease on the throttle to transfer weight to the rear to give the rear tires more traction.
- If it's power oversteer, ease off the gas to give the rear tires more traction.

COMBINING FORCES

You can use your tires' traction for braking, for cornering, or for accelerating. You can even combine them - to some extent. But ask too much of your tires and you'll find yourself sliding, skidding or spinning.

Keep this in mind: if you ask too much from your tires, they will give up their grip and start to slide too much. If, for example, you try braking hard while cornering, you're asking too much from them. Or, if you stand on the throttle while still having the steering wheel turned a lot to corner, you're also asking too much of the tires. In either case, you've exceeded the limits of the tires, and they're going to slide excessively, possibly resulting in the car spinning and sliding straight off the edge of the track or roadway.



Your tires can only ever provide 100% of their traction capabilities. If you use 90% for braking, and 20% for cornering, they're going to give up and start to slide. This is why being smooth with the controls (brakes, steering, and throttle), and combining their forces leads to being really fast.

PRIORITIES

With this theory in mind, let me recap here with the key priorities for you to focus on while practicing to improve your driving technique:

- Looking into the EoB when approaching corners.
- A hard initial application of the brakes, and then a smooth and appropriate timing and rate of release.
- Use all the track to maximize the radius of the corners.
- Identify and file away in your mind as many references as you can, as that will make you

consistently faster and less error-prone.

- Look as far ahead as you can, but also mentally plan ahead. Then, look where you want to go, at all times.
- Develop a “feel” for the weight transfer in your car(s), and use it to your advantage.
- Approach going faster on your corner exit speed first, then corner entry speed, and finally mid-corner speed.

Obviously, there is much more to driving technique than I’ve covered, but if you focus on being the best you can with what I’ve recapped, here, you will be fast.

RACECRAFT

Once you've learned to drive fast, then comes the tricky bit: racecraft, the art and science of passing, being passed, race starts and restarts, as well as the overall race strategy.

There are fast drivers... then there are race winners. The difference? Race winners are racers – their racecraft make the difference. Take your racecraft to the next level. Let me share five decades of racecraft experience, as a driver & coach.

But first, let me say that racecraft is much easier if your speed is... well, up to speed. If you're many seconds slower than people you're racing, no amount of positioning and strategizing is going to make you win races. You have to first be fast enough, and then have great racecraft.

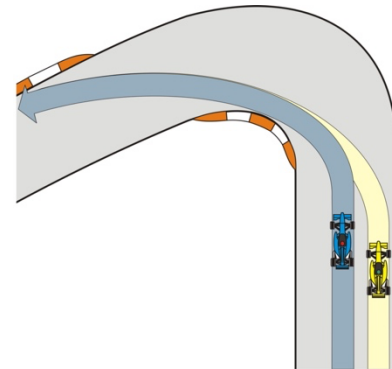
Driving fast on a sim track is fun. But racing wheel-to-wheel is fun-times-infinity! Passing and being passed is part of the game, as is race starts and re-starts. The goal is to do this fairly, gaining as much of an advantage as you can when passing, while minimizing the amount you lose when being passed. This part of race driving is called racecraft.

Let's look at this from the perspective of passing, and then being passed.

We all know what the overall objective is for passing: to get in front of other drivers. Being passed also has an important objective: to lose as little time as possible.

PASSING

Present yourself. The classic advice here is that when you arrive at a corner, be in position so that it's clear who has the advantage - who "owns" the corner. Technically, no one owns the corner, but the accepted rule or guideline (depending on who's running the event) is that if you're far enough up beside the other car, the corner is yours. How far up beside the other car? Some rulebooks say the front of your car must be at least even with the front wheel of the other car, others say even with the middle of the other car, and some don't define it. What I can tell you is that if the front of your car is behind the middle of the other car, you're definitely in the grey area, and you're asking for trouble. Don't go there; don't attempt the pass. Present yourself by putting your car in the position where there is no doubt who has control of the corner (this may require having to modulate the brakes enough to get alongside the other car), that the other driver knows you're there.



Position yourself. Many drivers make the mistake of positioning their car far to the inside of the track when out-braking another car. Human instinct is to go there because it feels safer since you're further away from the other car. But it's not. If you're close to the other car - let's say anywhere from a few inches to a car's width away from the side of the other car - the driver you're passing can see you. If you're further away, such as a couple of car widths or more from the other car, the other driver will have a hard time seeing you, and could turn in and hit you. Whether it's your fault or not, a collision doesn't help either of you. Also, the further you are to the inside of the track heading into the corner, the more you've tightened up

your line, which is going to hurt your speed through and exiting the corner. It's possible the other driver will pass you back on the following straightaway because of your poor exit speed.

Time your passes. Exiting a corner, set up the pass so that you get better acceleration out of the corner. That may mean judging how much room you should leave between you and the other car going into and through the corner; you might be better off hanging back just a little bit so that you can begin accelerating early and not run into the back of the other car. This takes experience, discipline, and good judgement.

Use your strengths. Look for the places on the track where you're faster and slower than the car you're trying to pass, and use those places to your advantage.

Be smart - think strategically. Know when to pass, and when not to. While it's usually best to take a pass when the first opportunity arises, that's not always the case, especially if drafting can be used to pass one another. Watch NASCAR races to see how they often set up the final pass of the race by sitting in second or third on the last lap.

If you're second in line, be prepared. If you and another car in front of you are attempting to pass a slower car, expect that the driver being passed only sees the first car. Be prepared to be unseen.



BEING PASSED

Be predictable. The driver of the car wanting to pass you expects one thing, and that's for you to do what's expected! That means being predictable, and the easiest thing for the following driver to predict is that you'll continue to drive your line, at relatively the same speed as you have just prior to them catching you. Continue doing that so the passing driver isn't unpleasantly surprised by where you are and the speed you're driving.

Check your "mirrors". If you saw a car a while ago, and now you don't, it hasn't disappeared. It's there. You may not be able to physically see it, but it's unlikely the driver pulled off to the side of the track, or hit reset! If you can't see a car that was there a few seconds ago, pretend it's there, and make room for it. It's just plain silly to turn into a corner and hit another car because you didn't see it. If it was there a second or two ago, it's still there – cars don't just disappear.

Expect more than one car. If you see another car behind you, and it begins to pass, expect that it's being followed closely by a second (or even third) car. Often, that second car can be next to impossible to see.

Minimize time loss. For both of you. Often, the best thing you can do is ease off the throttle early before a brake zone, let the faster car pass, then tuck in behind it. In doing so, you may lose a few tenths of a second, but that's better than arriving side-by-side with the other car and having your line (and the passing car's line) messed up so you (and the other car) both lose a second or more.

Be smart - think strategically. You may be able to turn faster lap times, and gain overall, by letting another car pass you and following it. It's easy to get caught up in the battle, only to lose the war. Think long term.

No more than one move to defend a pass. If the only way to avoid being passed is to block the other car, you don't deserve to be in front (yet). Blocking is typically defined as making more than one move in defense. In other words, you can move to one side of the track to "discourage" a following driver from attempting a pass, but if you make a second move back across to the other side to react to the other car, that's blocking. Don't do it.

Learn from being passed. Sometimes the best thing you can do is let a faster car pass you, and then learn by following that driver. The more you learn, the faster you'll drive, and the easiest way of not being passed is to drive faster. Focus on learning.

* * *

That is not all you'll ever need to know to be good at racecraft, but it's doubtful you'll go wrong by following these guidelines; you may develop more of your own through experience.



Finally, here's something you should never forget: Every single car on the track with you (even simulated ones!) is driven by a fellow human being. A real person. Someone with a name, and probably friends and family. It's easy to lose sight of that when you put your "sim helmet" on and get on track. You know the way some drivers act irrationally in traffic (road rage), and say and do things that they never would if they weren't inside the protective bubble of their vehicle? Often, that's because the driver

forgot that there was another person, just like them, in the other cars around them. Never forget you're racing with another human.

Also understand that humans make mistakes, and sometimes do things unintentionally. Give your fellow drivers the benefit of the doubt.

Personally, there's nothing better than being ahead of everyone else by thinking ahead, thinking strategically, positioning my car in the right place at the right time, and using my strengths and other drivers' weaknesses to my advantage. Sure, I'm competitive, but not to the point of winning at all costs. If I have to resort to "playing dirty" to win, I'd rather not win. It's not very satisfying. Some may not agree with that outlook, but the most satisfying thing to me is knowing that I won fairly. I use all of the above guidelines to help me do that.

MENTAL GAME

Having raced against and coached Indy 500 champions, NASCAR Cup race, and Le Mans winners, as well as thousands of amateur real-world and sim racers, I can tell you the one enormous difference between the consistent winners and everyone else is their mental game. So, let me share a few key insights and tips with you that will help your own mental game.

MENTAL PROGRAMMING

As mentioned earlier, you do what you do because of your mental programming, and sometimes you don't do what you want because you don't have the right programming yet, or you accessed the wrong piece of mental programming (you made a "mistake"). In other words, your mental programming is critical to your sim driving performance!

You can develop and fine-tune your mental programming either through physical or mental action. The advantage that mental programming – what is most often called visualization – is that it's free, and you can do it anywhere. You don't even need a sim rig to imagine what you want to do enough times, over and over again, until it becomes your "new" mental programming.

I strongly recommend you download and read the [Mental Imagery for Drivers](#) eBook by clicking [here](#) (NOTE: While I charge all of \$2.99 for it at this link, it's included for free in a *Sim Racer Academy* membership). Practically everything you need to know about the use of mental imagery to program new skills is included in this eBook.

WHY MENTAL IMAGERY

Some drivers ask why they should bother doing mental imagery when they can simply practice on their sim. Great question!

What's the difference between using a simulator to practice on, and doing visualization – mental imagery? Is one better than the other?

That's a bit like asking, "Which is better to use, the throttle or the brake pedal?" It depends.

Beyond the pure fun of using a simulator or visualizing – yes, closing your eyes and imagining things can be huge fun – why should you use either? To improve your driving. To practice. To build the mental programming that results in you being able to do things in the car mostly at a subconscious level. To build both physical and mental skills.



Practice is learning. Learning is mental programming. Mental programming is learning. Learning is practice. All of which leads to an improvement in driving performance.

With that in mind, let's look at the pros and cons of each.

Sim – Pros

- They can be inexpensive – or as expensive as you want. But then, you know that already!
- The digital images from iRacing, Assetto Corsa, Forza, or whatever software platform you choose is amazingly detailed and accurate. Most tracks are laser-scanned, so that every crack and bump is there to see, hear, and possibly feel – depending on your sim setup (and whether the laser scan was done before or after the updated/changed track surface. As a tool to learn the nuances of a track, it's tough to beat time spent on a simulator.
- Super valuable for building muscle memory for the techniques it takes to get around the track the way you want.
- You can try things, knowing that the worst that will happen is that you'll need to hit reset.
- You can practice different driving “modes,” such as consistency, pushing for the ultimate fast lap, saving the tires, being conservative, being aggressive, and so on.

Sim – Cons

- It's possible to build the wrong muscle memory or mental programming – you can build bad habits. For example, if you begin to spin or go off the track, and you give up trying to save the car and just let it hit the wall so you can quickly hit Reset and start again, guess what you've just become better at doing? So, how you practice in a sim is super-important. Remember, practice doesn't make perfect – only perfect practice makes perfect.
- There are limits to what you can do with a simulator. For example, I wanted a driver I was coaching to improve at being more adaptable to various problems that he could experience during a race – everything from changing weather/track conditions to a competitor (seemingly) deliberately forcing him off the track, and from handling issues to a change in race strategy. While it is possible to do some of this on a sim, it's difficult. Sims, and the software, are a prisoner to the depth in which they have been programmed.
- They're static in terms of the realism of the learning. They only go as far as the software has been programmed to go. For example, you can only mod a car as far as the software allows (unless you're a whiz at coding).
- You can only use a simulator where there is a simulator!

Visualization – Pros

- It's totally free.
- It's portable. You can visualize anywhere, anytime. You can even visualize in between sim sessions.
- There is no limit to what can be imagined, and therefore, practiced and learned before ever getting on your sim.

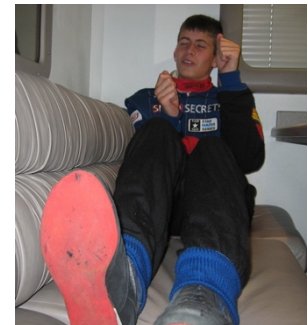
- The ability to imagine various problems and issues that a driver could experience is limitless, and therefore programming the ability to adapt to them is a huge advantage.
- You can imagine your confidence level, calmness, energy, etc. – in fact, any and all of the mental states. Simulators simulate the car and track, but not what's going on in your mind. Sure, you can feel some of the same mental states when on a simulator, but it's usually more of a reaction, rather than a deliberate practice mode.
- Just as with the sim, you can practice different driving “modes,” such as consistency, pushing for the ultimate fast lap, saving the tires, being conservative, being aggressive, and so on. I always recommend attaching a trigger word or phrase to these different modes. For example, “R1” is flat out, maximum race pace; “R2” is a race pace you can run fast but consistently without any errors; “R3” is a “save the car” race pace; “Q-mode” is that one on-the-limit, flat out lap for qualifying with maximum risk but maximum reward when you pull it off.

Visualization – Cons

- It's “hard” work! Well, it's difficult for some people to visualize a full lap of a track. Some drivers claim they can't visualize. To me, it's no different than thinking you can't do a specific driving technique, such as left-foot-braking, timing downshifts, or whatever – it's just a matter of developing the skill to visualize. If you've ever worried about something, then you have the ability to visualize! Actually, the fact that visualizing is hard work may not be a bad thing, as by working through it, what you imagine will become more deeply programmed. Okay, that's actually a pro.
- It's limited by your imagination. But is there a limit to one's imagination? And it's limited by your ability to recall the details of a track that you've driven. If you imagine something wrong, then you've gotten better at doing something wrong. And if you find yourself imagining making a mistake and crashing, that's not a good thing. Of course, you have control over your imagination....
- If you don't know what to imagine, it doesn't really work. For example, if you've never driven a lap of the Nürburgring, it's impossible to imagine driving it correctly in your mind. Of course, if you watch a number of laps of a video of driving it, or drive laps on your sim, and then rehearse that in your mind, that is very effective.

When you're using a simulator, your brain doesn't have to work hard to capture the image of the track – it's laid right out there for you. When you close your eyes and imagine driving a lap of the track, the extra effort it takes for your brain to do this results in the imagined track being programmed deeper in your mind. It's like the difference between High Definition (visualization) and Low Definition (simulator) images.

Of course, some drivers have a more difficult time being able to close their eyes and imagine driving a track. I know some drivers who claim they can't get past Turn 1 when visualizing, and yet they can drive lap after lap on a simulator. And that's the point: the extra effort required by your brain to imagine something, rather having a digital picture presented to you, means that your brain learns at a deeper level.



So, which is better for practicing, simulator or visualization? Both. When should you use a simulator, and when should you use visualization? It depends. Yes, they're both valuable tools. But there are times when one is better than the other. For the initial learning of a track, it's tough to beat a sim, since most tracks are laser scanned and very accurate. For programming/learning mental adaptability and managing your mindset, it's tough to beat visualization. In general, I'd go so far as to say that a simulator is the place to begin learning – track, technique – and then take that learning to the next level with your mind; then back to the sim again. You could even throw viewing video into this mix (and I'd put it first), to get a general feel for things, work on details with a sim, and then program adapting – and the mental state that goes with it – mentally.

I've deliberately used the term “visualize,” here, when I should be using “mental imagery” – as I usually do. There is a massive difference between the two: visualization means you're using one sense in your imagination – visual – whereas mental imagery uses your other senses, too. If, for example, you're someone who really learns well using your auditory sense, simply visualizing is wasting a big opportunity – you need to also imagine sounds. If you're the kind of person who truly learns only when you get your hands on something and experiences it, then imagining the feel is critical. And yes, that's one weakness of some simulators – they don't provide much feel. However, your mind is pretty good at filling in the gaps, and imagining the feel once you've spent time acclimating yourself to a simulator.

So, you know what is even better than using a simulator or mental imagery to improve your driving? Yup, using both – combining mental imagery with sim training. One is no better than the other, but combining both is definitely better than just using one. If you spend time on a simulator learning a track layout and the timing of the various techniques you use to drive it, and then layer in mental imagery on top of that – imagining your state of mind, how you maintain and regain focus, adapting to handling and track changes, the infinite number of racecraft situations you can find yourself in, etc. – you have the recipe for maximum learning.

Whether you're viewing videos, driving a simulator, using mental imagery, or some combination, the key to learning is actually doing it. If mental imagery is more effective than watching videos, but you never do it – and you love watching videos – then watch videos! As the saying goes, “Don't let perfect get in the way of great, or even great get in the way of good.” Doing something is better than doing nothing. But as another saying goes, “When you are not practicing, remember somewhere someone is practicing, and when you meet him, he will win.”

MENTAL TRIGGERS

Trigger your way to success.

Many sim racers think that they make more mistakes and lose their focus more than F1, Indy or NASCAR drivers. They're wrong. The best drivers make mistakes and lose focus like the rest of us. The difference is that they recover and regain more quickly than most drivers. They use “triggers” to do so (whether they actually realize it or not).

Imagine purchasing a new piece of software for your computer, installing it, and then going to open and run it, only to find that there is no icon to click on to launch it. Well, you are similar to a computer in that you have software in your brain, and you use “clicked icons” to

launch and run these programs. No, you don't actually click on an icon, but you do have something that triggers the launch of a mental program.

Think about when someone says something specific to you and how that can trigger a certain behavior from you, good or bad. For example, a family member tells you that they love you. How does that make you feel? Their action and words trigger a reaction from you, and it's pretty consistent, because it's launching a behavioral program.



Now, think about a time when you performed at your very best when sim racing. Do you want to perform that way more often? Trigger it.

Let me share three triggers that I use myself, to either perform at my best, or to help drivers I coach perform at their best.

We all know that we cannot control the results of an event or race. We can't control how fast we are in comparison to other drivers, and we can't control in what position we finish a race. Sure, we can influence the results, but we can't control them. Same with our competition – we can't control them. The only thing we can control is our own performance. Interestingly, when we do – when we control our own performance – we perform at our best more often, and therefore we've increased our chances of getting the result we want. But when we try to make the result happen, by trying hard to drive fast, or forcing a pass to get into the lead, we usually don't perform as well, and don't get the result we want.

For competitive people, this is not just a hard concept to wrap their heads around, but it's especially hard to do. When I learned to fully focus on my own performance, my results improved, but it wasn't easy to do that consistently. I needed to find a way to focus on the act of driving, in the moment, and the trigger I learned to use is simply the phrase, "Car dancing." To me, dancing with the car is all about being at one with the car, in the moment, not worrying about my lap time or where I'm going to finish a race; it's me and the car, at the limit. And when I say "Car dancing," it triggers a performance that increases the chances of me getting the result I want.

The more I use this trigger, the stronger the programming in my mind becomes, and the more valuable it is.

I've noticed that some drivers are very analytical, to the point of thinking too much, and not trusting themselves to just drive at a subconscious level. Or, they may be overly-focused on their car, to the point where they don't drive the way they can, and should. So, with a little time spent coaching and programming these drivers, I use the trigger phrase, "Drive stupid." That's a cue for the driver to shut off their conscious mind from thinking too much, from analyzing what they're doing, and to just do. And yes, it starts as a bit of a joke, but then becomes a strong mental trigger.



My final example requires a bit of insight into me and my behavioral traits. I don't like to draw attention to myself, or be a "show off." That's my natural mental programming. But there's one exception, one time when I have wanted people to notice me and what I was doing: when I was racing (having a helmet on makes it easier to "show off"). I unintentionally stumbled onto a trigger that helped me perform consistently better. I once was about to start a race from the eighth starting position, and just before the race I said to a friend, "Watch this!" I moved up to second place within a lap, and took the lead on the next lap. From that day on, prior to anything where I need to perform at my best – a race, speaking to a group of people, coaching, whatever – I say "Watch this!" to myself, and it triggers confidence, the appropriate level of effort, and a performance state of mind. And I perform better, more consistently.

These mental triggers are no different from a tennis player going through a specific routine before serving the ball, a golfer before a drive, a pitcher before throwing the ball. Triggers can be a physical routine, and/or a word or phrase.

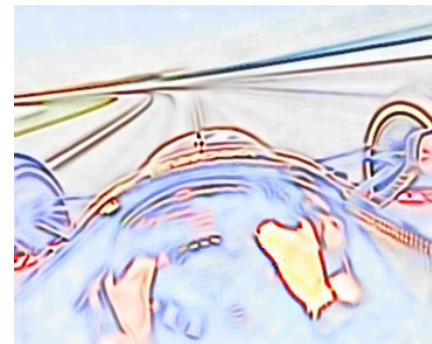
Think about when and how you can use triggers to launch and run the right mental programs to perform at your best more often.

FOCUS

As I said, the very best drivers – sim or real-life - lose their focus as much as you do, or anyone else does. One of the things that the best do, though, is regain their focus quickly. So quickly, in fact, that it seems as though they never lost it.

First, what is focus?

One way of looking at focus is that it's whatever your brain is processing at any moment in time. If you're thinking about the mistake you made in Turn 1 while driving through Turn 5, your focus is on the mistake in Turn 1. Your mind is processing the Turn 1 mistake. If your mind is processing the feeling of feedback through the steering wheel when turning into a corner, then that is what you're focused on. As you can see, what your attention is on can be a bad thing, or a good thing. Your focus can be on one single object in your visual field, multiple things entering your brain through your auditory sense, what you feel, or what you're thinking about.



The more you practice using a re-focus trigger, the better it works. First, identify a word or phrase ("Eyes up – look ahead," "Smooth hands," "Go, go," "Car dancing," or whatever has meaning to you), and then use it every time you begin to lose focus. Practice this not only when on your sim, but in every other part of your life. The more you use it, the more effective it'll be. And the more focused you'll be.

One of the biggest challenges of sim racing is maintaining and regaining focus. But now you have a strategy to help you improve. Trigger focus.

PRACTICE DRILLS

We've touched on driving technique, racecraft, and the mental game of sim racing. Now, let me share just a few of the many Practice Drills from *Sim Racer Academy*.

I've been asked by sim racers where these practice drills come from, and why I choose them. I've had at least three decades of trial and error using hundreds of drills for thousands of drivers of all types and levels. Some of the drills worked, some didn't, and some worked only sometimes. While the *Sim Racer Academy* has some of the "maybes" (ones that are likely to work for you, but won't for every racer), in this eBook, I'm sharing a few of my favorites, the ones that always help drivers improve. Of course, these drills will help some drivers more than others, and since I don't know you and your sim racing strengths and weaknesses personally, I'm sticking with the ones that work more often for most drivers.

But here's the thing: None of these practice drills work at all... if you don't use them! And by "use them," I mean making a commitment to really focus on practicing them in a very deliberate way, and not in just a casual way. Make them count, and they'll pay off for you.

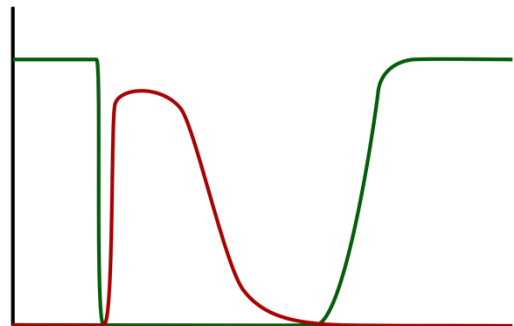
PRACTICE DRILL #1 - BRAKING

This drill will take about an hour in total to work through, and has three separate parts. Always take a break between each drill and allow what you learned to sink into your brain. Neuroscience research shows that if you take just five (5) minutes after practicing an activity to close your eyes and just relax, your mind will consolidate what you've just learned, meaning it becomes more deeply programmed in your mind.

During each of these drills, do not worry about your lap times. Sure, you need to drive quickly because you want the car to react as it would when you're driving at the limit, but if you're overly-focused on the lap time, you won't be performing the drill properly. Your lap times may actually be a little slower while doing the drills, because you will be doing things at a conscious level – things that you normally do at a subconscious level. But trust me, at worst, this is a case of one step back for two or three steps forward in the near future.

I recommend that you do these drills with a car and with a track that you're already familiar and comfortable with. You don't want to be learning the car and track while doing these drills.

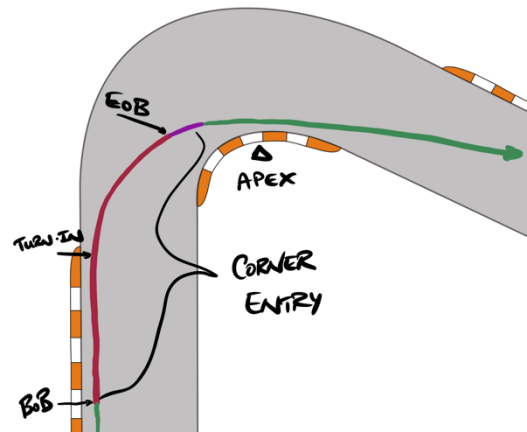
Transition & Application: Spend fifteen (15) minutes focused just on making sure your initial application of the pedal is hard enough. Be sure that the gap between releasing the throttle and applying the brake is almost non-existent. No, you don't want any overlap – that's super-important. So, be aware of that, but also that there is no coasting whatsoever between when you come off the throttle, and when you apply the brakes. If you're left-foot-braking (LFB), it's easier to make that transition immediate, but you could get some overlap if you're not careful. If you right-foot-brake (RFB), then it's possible that the gap between acceleration and braking



will be too long (as shown in the graph, the green line represents throttle, and red the brake pressure). That's a big part of what this drill is all about: making the transition from acceleration to deceleration as quickly as possible, and the ramp up to full brake pressure is immediate. While the graph shows too slow a transition from throttle to brake, the crispness of the release of the throttle is excellent, as is the quickness of ramping up to maximum brake pressure, and the smoother release.

Note that an immediate transition from brake to throttle is not necessarily the way to drive faster. There are some cars that reward you, allowing the car to rotate more – turn more – just after releasing the brakes. Still, this drill is valuable in helping you be ready to drive fast in a car that doesn't like to have that minute hesitation in the transition.

Using the EoB: Spend twenty (20) minutes focused on looking ahead for what I call the End-of-Braking (EoB) point – that point where your foot has finally come off the brake pedal – and try making it earlier or later in different corners. The main focus of this drill is simply to become more aware of your EoB, and practice looking deeper into corners when approaching them. Then, notice what happens if you change your EoB, making it earlier or later. Learn how your car reacts to these changes. There's no need to be judgmental while doing this drill, but just become more aware of using the EoB. You actually want to be inconsistent in your driving during this drill, as you experiment with different EoBs, and notice how that impacts the way the car reacts. You may also notice that this drill forces you to look further into corners, which is never a bad thing!



Timing & Rate of Release: Spend twenty (20) minutes focused on experimenting with the timing and rate of release of the brakes. This is where the “magic” of driving really is, so you want to really “play” with this. Spend about five (5) minutes doing each of the following in all the corners on the track.

- Begin releasing the brakes **early** but *slow*
- Begin releasing the brakes **early** but *fast*
- Begin releasing the brakes **late** but *slow*
- Begin releasing the brakes **late** but *fast*.

Each of these timings and rates of release of the pedal will make the car respond differently. If you consciously and deliberately experiment with this, you'll get better at adapting to what the car needs in different corners. Eventually, you'll get better at knowing to do “this” when you want the car to do “that,” and do “that” when you want the car to do “this.” Most drivers release the brakes pretty much the same way, whether the corner is slow and tight, or fast and sweeping; the timing and rate of release should be different for different corners (and cars). This drill will make you more consistently fast, since you'll be adapting to what the car needs for different corners.

PRACTICE DRILL #2 – SENSORY INPUT SESSIONS

This is the most valuable and successful coaching tool that I've used with drivers of all levels and types throughout the past couple of decades. Why? Because it addresses the "Quality in – quality out" principle I mentioned earlier.

Overall, plan on spending about forty-five (45) minutes going through this whole 3-part drill. It's okay to split it up, doing one of the three parts at a time.

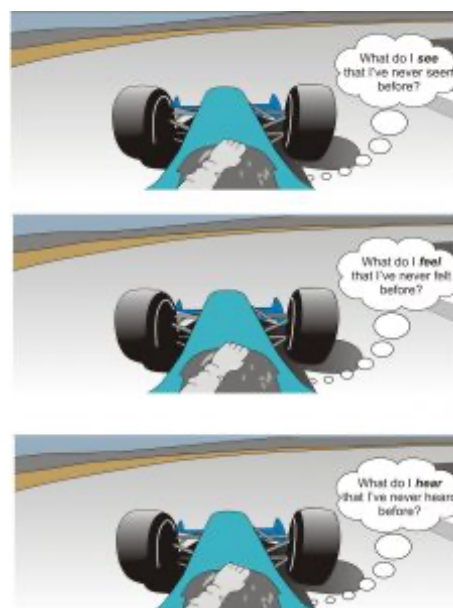
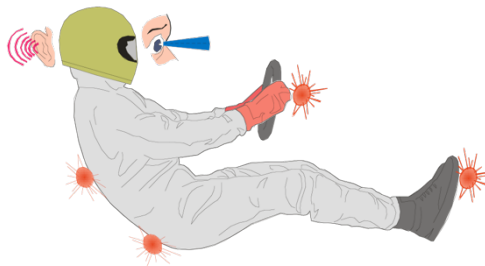
Here's what I want you to do:

Auditory session: Spend fifteen (15) minutes with all your attention on soaking up more auditory information. That is, go out on a track you know reasonably well, in a car you know, and focus 100% on just taking in more sensory information through your ears. Listen to the sound of tires, the engine, the brakes, the gearbox, and the air rushing past you (at least, how it's simulated to pass you). There are subtle, and not so subtle cues that the software is giving you about whether you're driving at or near the limit. Are you paying attention, are you listening? Spend this entire session solely focused on just listening, and your goal is to notice at least five things that you'd never noticed before with your hearing.

Visual session: Next, spend fifteen (15) minutes soaking up more visual information. In this case, what can you see that you'd never really noticed before? Are there cracks or seams in the track surface; do you notice the car nose-diving when braking, rolling when cornering, squatting down at the rear when accelerating – can you visually sense that? Are there references off in the distance that you can use to help you drive the line more consistently? Do you notice your hand and steering wheel movement? How far ahead are you looking? Take in as much visual information as you can.

Kinesthetic session: Finally, spend fifteen (15) minutes soaking up more kinesthetic information. You may or may not have any motion or vibration in your chassis, and you may or may not have much feedback from the steering wheel and pedals. But I bet you have more than you may even be aware of if you focus one hundred percent on just soaking up more feel. With most sims, you're not getting much kinesthetic feedback, but usually there is some amount of feedback through speakers and the steering wheel. The more you focus just on these senses, one at a time, the more sensitive you'll be to the limits of your car.

After spending forty-five (45) minutes solely focused on soaking up more sensory information at a conscious and deliberate level, guess what will happen the next few times you drive? Right, you'll continue to take in more sensory information, but you'll be doing



it more and more at the subconscious level, and that'll make you a more consistently-fast driver.

When you look further ahead, whether driving a sim or in the real world, what you're doing is giving your brain more quality visual information to work with, and that results in you driving better. These Sensory Input Sessions are a deliberate way of giving your brain a tune-up – to help it get even better at soaking up sensory information. If you've heard the term, GIGO, you know it's used in the computer communities, and it stands for "Garbage In, Garbage Out." The opposite of that is Quality In, Quality Out, and doing this drill on a regular basis will help your mind continue to improve at taking in more information so it can deliver a better output.

PRACTICE DRILL #3 – CAR POSITIONING

This drill requires the help of a fellow sim racer, and it's going to benefit both of you. So, team up with a friend, and schedule a practice session where both of you are on the track together. I recommend that you use a track that you're both familiar with.

Drive five (5) laps side-by-side: Start with you on the left side, and your friend on the right, and simply drive side-by-side all the way around the track. The objective is to get more comfortable being close to another car, and build awareness of when you can see each other (and when you can't). You'll also learn how much speed you can carry when driving off the ideal line. You can start at what feels like a medium speed, and then gradually increase it until you're driving quickly. You don't have to drive as fast as possible, but it is important to drive close enough to the limit that you get a feel for what it's like at that speed when next to another car.

Drive five (5) more laps side-by-side: Now, switch sides, with you on the right, and your friend on the left. Do the same thing, gradually increasing your speed.

Drive five (5) laps nose-to-tail: Do the same type of drill, but this time, running as close as you possibly can (even touching) in a nose-to-tail formation. Begin with your friend leading, and you following. Again, your main goal is to become aware of what you can and cannot see, but in this drill, you'll also learn how to anticipate when to brake - staying as close as possible, but without pushing your friend off the track.

Drive five (5) more laps nose-to-tail: Switch positions, and do the drill again. Be as predictable as you can so that it's a good learning experience for your friend.

In most cases, it's best to go back through these drills a second time (and maybe even a third), until you feel very comfortable with being close to other cars. In fact, this is one of those drills that you cannot do too much, or too often.

PRACTICE DRILL #4 – FAST-FAST

Many drivers take way too long to get up to speed. They go on track, take three laps to warm up their tires, another two or three to get their mind engaged, and then they begin to push harder. So, it's about six laps into the session before they really begin to learn, and then it takes another three or four to get the maximum out of the tires and really learn what the track conditions are like. It's usually around then that the checkered flag comes out.

The best drivers have a pre-drive routine to ensure that their minds are ready the second they leave pit lane, they take about two laps at most to get the tires at optimum grip levels, and then they spend eight to ten laps driving fast and learning. So, learning how to get “fast, fast” is critical.

You need to practice this the way you’re going to race, so that means that if you use tire blankets, then do that; if you don’t use tire blankets, then start with the tires fully cold.

Say to yourself, “Fast-fast,” and immediately go on track and drive five laps, with laps three to five at maximum speed. Really push on these laps, knowing that the more you push and work the tires, the more grip they gain; if you are too gradual in getting them up to temperature, they’ll take far too long. The harder you push, the faster you’ll be fast.

Now, stop after these five laps. Stand up, walk around, do something else, and then get back on the sim and do the same thing. Then again. And again. The goal is to be able to sit in the sim and be at maximum pace by your third lap (at the most), every time.

This is mostly about your mindset and mental prep - and practicing it over and over again. You could spend thirty to sixty minutes just doing this. But you have to actually stand up and walk around in between, then re-trigger the “Fast-fast” mindset each time.

* * *

Okay, that should give you a good start. From here, you could write up a practice program, such as Monday you do this and that; then Tuesday, you do these two drills; and so on. The fact that you’re thinking about a practice strategy/plan will put you miles ahead of most who simply practice by racing, right?

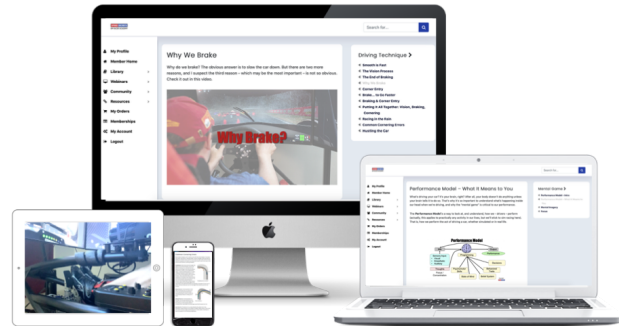
BE AN EVEN BETTER SIM RACER

In this eBook, you may have noticed a different approach to learning to be a better sim racer than with other resources. Why? Because of what I've learned from coaching tens of thousands of racers over the past forty-plus years. There are resources available on the internet that provide instruction through the use of a "do what I do, and you'll be faster" approach. In other words, a bit of a copycat method. I'm sure you've had an experience in your life where someone told you what to do, or gave you an answer to a question, but days or weeks later, you couldn't recall that information. In that case, you hadn't really learned how to do something — you had simply copied what someone else was doing.

You've probably also experienced when you were challenged to figure out an answer or how to do something — hopefully with guidance and support — and that lesson has stuck with you ever since. To me, it's the difference between learning from the outside-in (someone telling you what to do) versus the inside-out (with coaching, you figure out what you need to know).

A guiding principle behind the *Sim Racer Academy* and this eBook is this approach to helping you learn to be an even better sim racer. It's this approach that has led to me helping drivers win the Indy 500, Le Mans, IMSA races and championships, NASCAR races, motorcycle races, rallies, and practically every type of amateur racing. I've also helped sim racers win races and championships.

If you truly want to be an even better sim racer - and win more often - then I invite you to join me in the *Sim Racer Academy*. Between the large-and-always-expanding Library of content (driving technique, car setup, racecraft, mental game, track knowledge and practice program), recorded and live webinars and chalktalks (online), access to one-on-one coaching, an active and encouraging member community, scheduled practice and race sessions, and access to asking questions of me and my team of coaches and experts, there really isn't anything else like being a member of the **[Speed Secrets Sim Racer Academy Team](#)**.



Finally, what makes sim racing so much fun is that there's a never-ending path of learning. What I've introduced to you in this eBook (and it's only scratching the surface of what I'd like to share with you) will make you a faster and better sim racer... if you put the effort into using this information. And if you continue to practice in a deliberate, strategic way, you'll continue to improve. Unlike some other sports, sim racing has no boundaries in terms of physical size, or mental capacity. You can always learn and improve. In fact, there's nothing stopping you from becoming the very best sim racer in the world. Just imagine that....

Good luck, keep learning, and have fun!