

ARCHITECTING SPEED

Making Data Useful

Kevin Richardson, Ph.D.
Director of User Experience



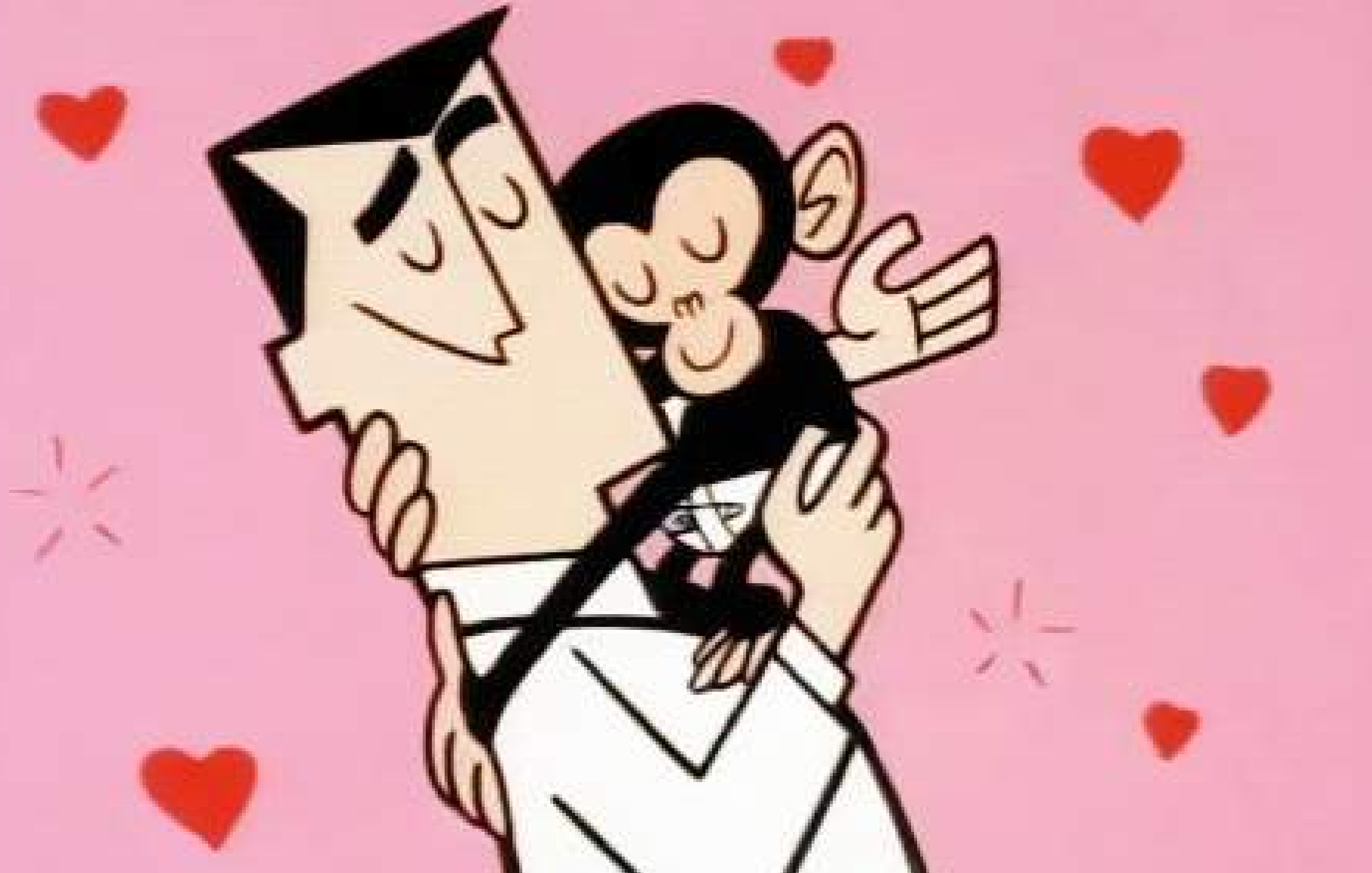
About Me

Twenty-Seven Year UX Pro
Research, Design & Mgmt
Director of User Experience

krichardson@infragistics.com

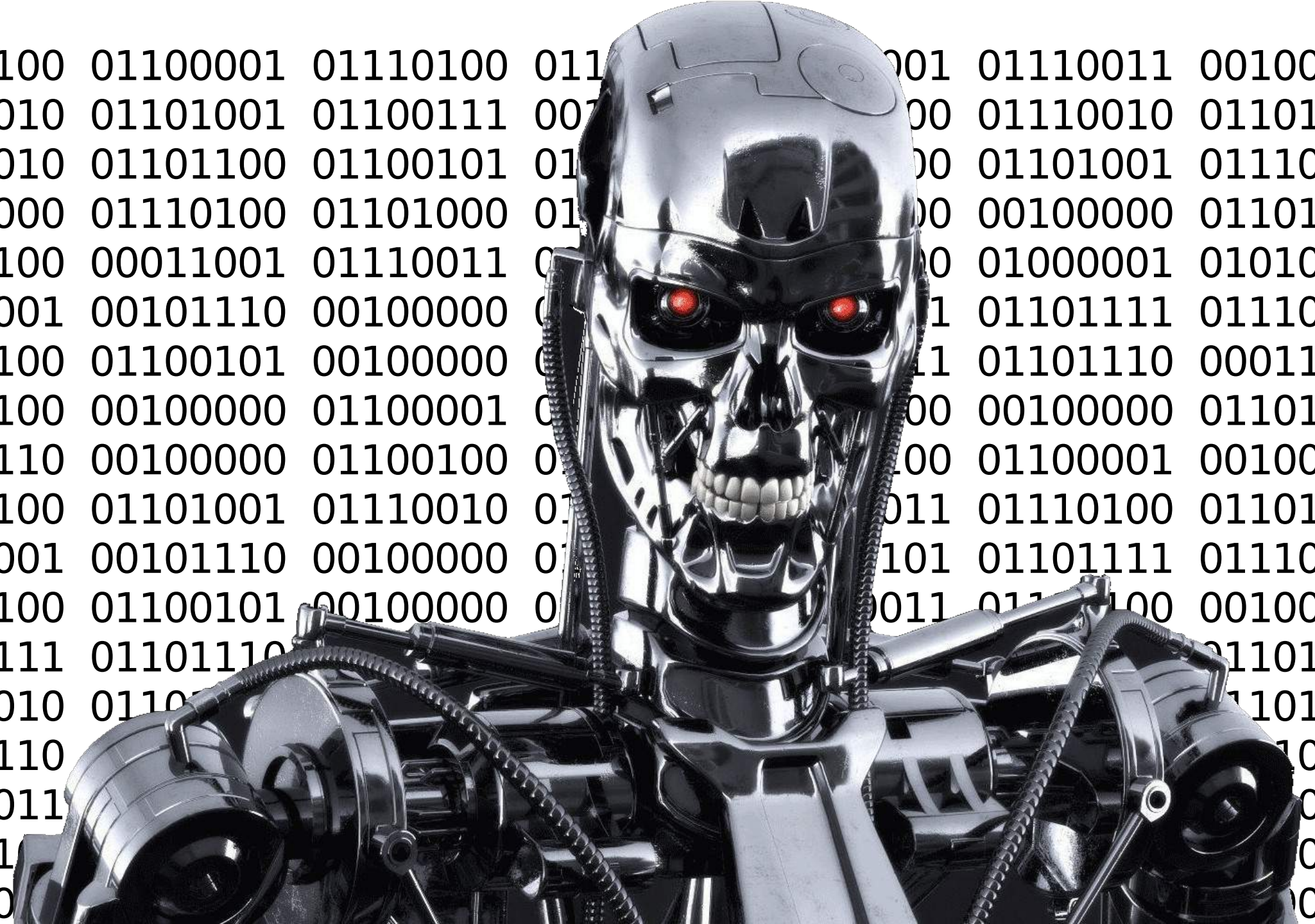
 [@khr_ux](https://twitter.com/khr_ux)





**Data Isn't
Information**

01000100 01100001 01110100 01110001 01110011 00100000
01100010 01101001 01100111 00100000 01110010 01101111
01100010 01101100 01100101 01100000 01101001 01110011
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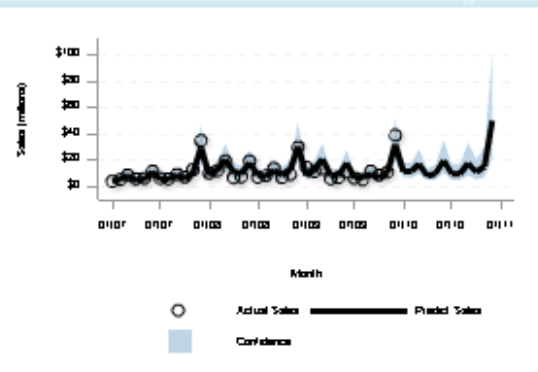


Businesses Don't Recognize Problem 1

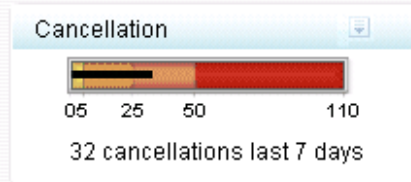
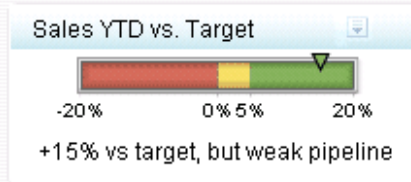
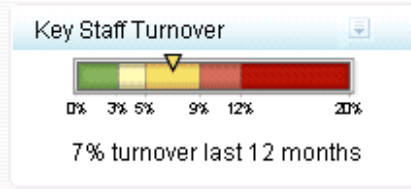
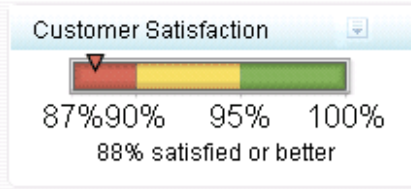
Executive Dashboard



Sales Forecast



Key Metrics

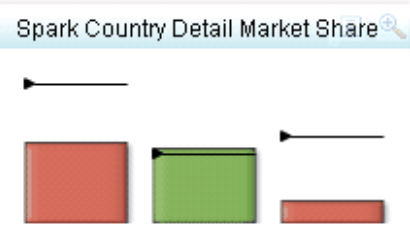
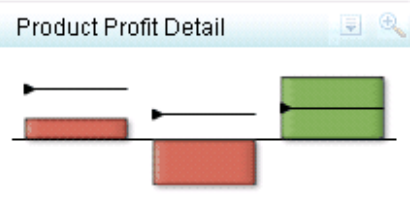


Costs By Country

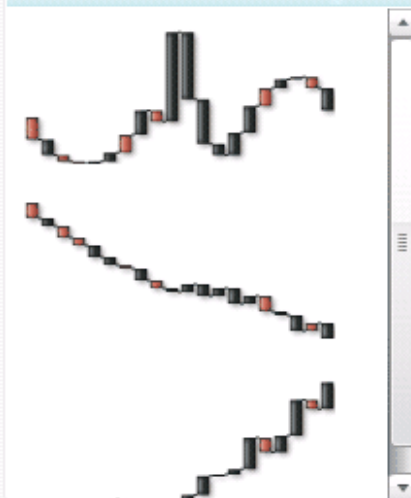


Revenue By Top Country Info

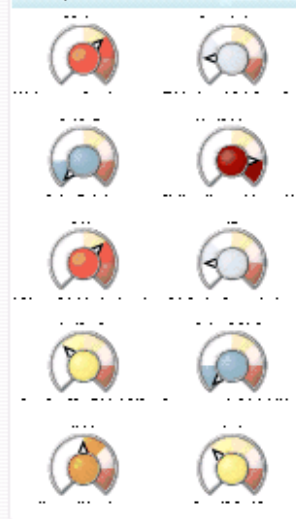
Country	Sales by Month	Average Cost of Sale
AU		\$3,599
ES		\$8,673
FR		\$9,167
IT		\$9,483
NL		\$5,227
US		\$13,943



Cash Flow



Key Risks



THE BUSINESS OF RACING



100-200

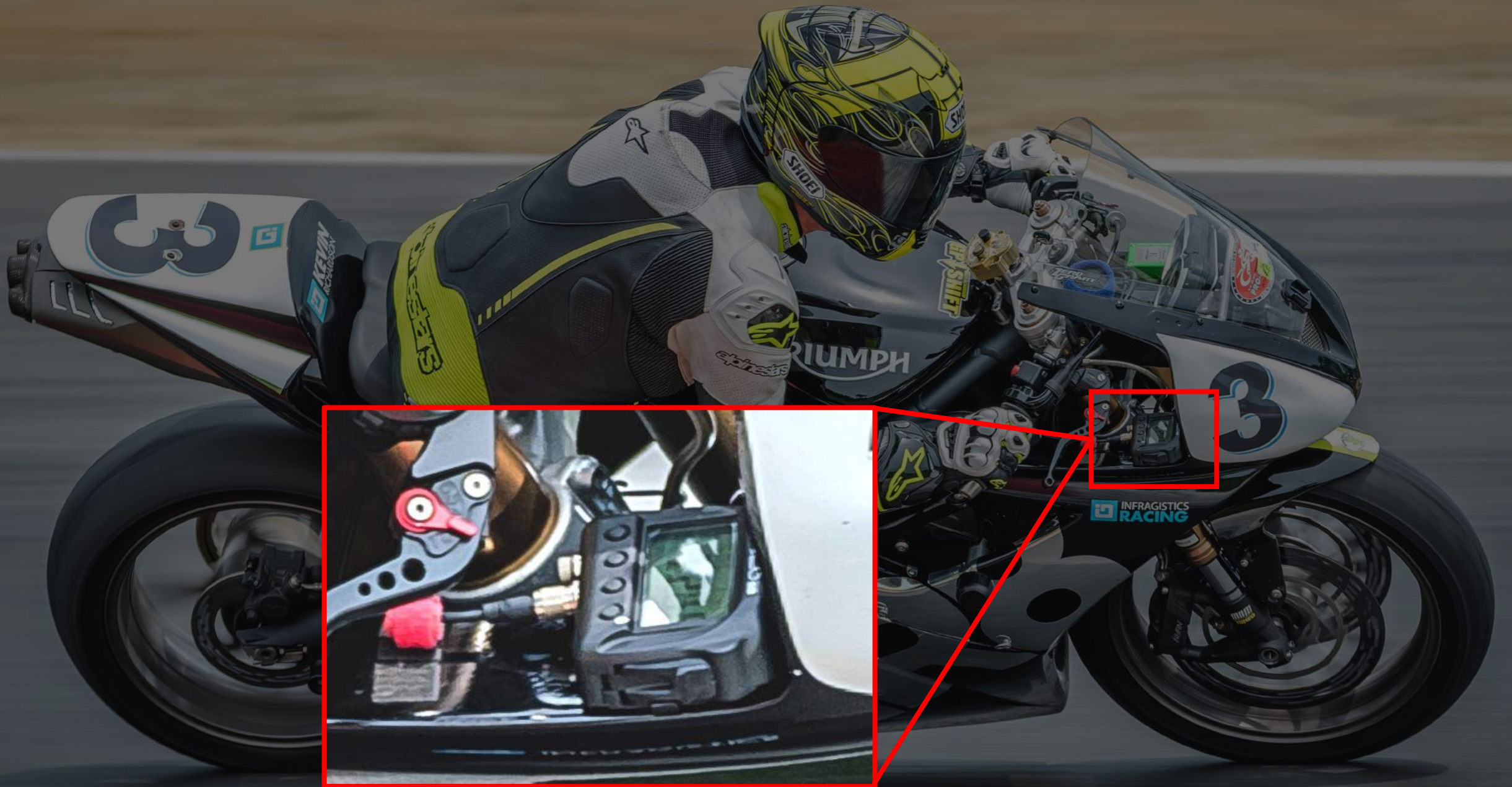
On-Vehicle Sensors



20 Terabytes
Yearly Team Data

€1,000,000+

Estimated cost of saving 1/10 sec per lap



**time distance vertical acceleration
longitudinal acceleration
lateral acceleration heading**



**gear position
battery voltage
rpm engine temp
throttle position air temp
speed slope gyro altitude**

time distance vertical acceleration
longitudinal acceleration
lateral acceleration heading



gear position
battery voltage
rpm engine temp
throttle position air temp
speed slope gyro altitude

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
10	Duration	5842.985																							
11	Segment	Session																							
12	Beacon M	220.065, 330.241, 442.756, 553.913, 671.374, 821.429, 1103.057, 1216.495, 1324.669, 1436.019, 1544.526, 1656.104, 1777.360, 1926.579, 2837.189, 3038.034, 3147.744, 3309.020, 3613.908, 3724.108, 3888.999, 4173.079, 4285.763, 4394.847, 4503.962, 4613																							
13																									
14	Time	Distance	Internal B	Vertical_a	Longitudir	Lateral_ac	Calculated	External B	ECU_RPM	ECU_ENG	ECU_THRC	ECU_IN_A	ECU_MANG	GPS_Spee	GPS_Nsat	GPS_LatAc	GPS_LonA	GPS_Slope	GPS_Head	GPS_Gyro	GPS_Altitu	GPS_PosA	GPS_Latitu	GPS_Longi	GPS_Eleva
15	Time	Distance	Internal B	Vertical_a	Longitudir	Lateral_ac	Calculated	External B	ECU_RPM	ECU_ENG	ECU_THRC	ECU_IN_A	ECU_MANG	GPS_Spee	GPS_Nsat	GPS_LatAc	GPS_LonA	GPS_Slope	GPS_Head	GPS_Gyro	GPS_Altitu	GPS_PosA	GPS_Latitu	GPS_Longi	GPS_Eleva
16	sec	km	V	g	g	g	#	V	rpm	°F	%	°F	mbar	mph	#	g	g	deg	deg	deg/s	m	m	°	°	cm
17			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
19	0	0	4.209	0.924485	-0.02746	0.210526	0	12.206	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
20	0.1	0	4.209	0.91762	-0.02746	0.201373	0	12.1969	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
21	0.2	0	4.209	0.924485	-0.03204	0.20595	0	12.1878	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
22	0.3	0	4.209	0.91762	-0.03661	0.201373	0	12.1787	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
23	0.4	0	4.209	0.922197	-0.03204	0.201373	0	12.1696	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
24	0.5	0	4.209	0.91762	-0.03661	0.210526	0	12.1605	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
25	0.6	0	4.209	0.91762	-0.02746	0.20595	0	12.1514	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.48	39.36108	-75.0723	26.13
26	0.7	0	4.209	0.921021	-0.02745	0.20631	0	12.1423	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.47	39.36108	-75.0723	26.13
27	0.8	0	4.209	0.920596	-0.03121	0.202395	0	12.1332	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
28	0.9	0	4.209	0.920583	-0.0349	0.201211	0	12.1241	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
29	1	0	4.209	0.919961	-0.03544	0.20396	0	12.115	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
30	1.1	0	4.209	0.919018	-0.03346	0.207609	0	12.0903	0	0	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
31	1.2	0	4.209	0.917882	-0.0294	0.206879	0	12.0656	0	69.8	0	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
32	1.3	0	4.209	0.916215	-0.02487	0.202167	0	12.0409	0	69.8	1	0	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
33	1.4	0	4.209	0.91503	-0.02373	0.199011	0	12.0162	0	69.8	1	64.4	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
34	1.5	0	4.209	0.916251	-0.0285	0.200154	0	11.9915	0	69.8	1	64.4	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
35	1.6	0	4.209	0.919144	-0.03481	0.204197	0	11.9668	0	69.8	1	64.4	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
36	1.7	0	4.209	0.920451	-0.03493	0.207544	0	11.9421	0	69.8	1	64.4	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.46	39.36108	-75.0723	26.13
37	1.8	0	4.209	0.919099	-0.02983	0.207489	0	11.9174	0	69.8	1	64.4	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
38	1.9	0	4.209	0.917193	-0.02768	0.205609	0	11.8927	0	69.8	1	64.4	0	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
39	2	0	4.209	0.916576	-0.0296	0.204905	0	11.868	372	69.8	1	64.4	790	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
40	2.1	0	4.209	0.918136	-0.03015	0.206228	0	11.8744	452	69.8	1	64.4	790	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
41	2.2	0	4.209	0.921833	-0.02875	0.207561	0	11.8808	452	69.8	1	64.4	790	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
42	2.3	0	4.209	0.923597	-0.02978	0.204236	0	11.8872	452	69.8	1	64.4	790	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
43	2.4	0	4.209	0.918309	-0.03315	0.197356	0	11.8936	452	69.8	1	66.2	790	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
44	2.5	0	4.209	0.909816	-0.03351	0.19698	0	11.9	1734	69.8	1	66.2	740	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
45	2.6	0	4.209	0.908035	-0.03015	0.204833	0	11.9064	1588	69.8	1	66.2	740	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
46	2.7	0	4.209	0.913394	-0.02893	0.210092	0	11.9128	1588	69.8	1	66.2	740	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
47	2.8	0	4.209	0.916618	-0.0321	0.209507	0	11.9192	1588	69.8	1	66.2	740	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
48	2.9	0	4.209	0.914441	-0.03544	0.208638	0	11.9256	1567	69.8	1	66.2	740	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13
49	3	0	4.209	0.91337	-0.03487	0.207719	0	11.932	1567	69.8	1	66.2	760	0	10	0	0	-0.00552	-0.01105	-0.0221	26	1.45	39.36108	-75.0723	26.13

Measures and laps

Measures Laps User Profiles

'Per Lap' Color Sort Channels

Tests Loaded:

X KevinTRI67515052017_007

301.55.351

Measures:

- Internal Batte [V]
- Vertical_acc [g]
- Longitudinal_a [g]
- Lateral_acc [g]
- Calculated_Gea [#]
- External Batte [V]
- ECU_RPM [rpm]
- ECU_ENG_TMP [°F]
- ECU_THROTTLE [%]
- ECU_IN_AIR_T [°F]
- ECU_MAN_PRES [mbar]
- GPS_Speed [mph]
- GPS_Nsat [#]
- GPS_LatAcc [g]
- GPS_LonAcc [g]
- GPS_Slope [deg]
- GPS_Heading [deg]
- GPS_Gyro [deg/s]
- GPS_Altitude [m]
- GPS_PosAccuracy [m]

Test database | 1 - KevinTRI67515052017_007

Use selection criteria

Select track: Show all

Select vehicle: TRI675

Select driver: Show all

Select championship: Show all

Select test type: Show all

Test name	Test date	Best lap...	Driver	Test type	Vehicle	Ch...	Track	Comment	File path	File name	
KevinTRI67515052017_008	Mon, May 15, 2017 15:39:45	5	2	1	01.59.491	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_008.drk	154
KevinTRI67515052017_007	Mon, May 15, 2017 14:06:49	9	3	1	01.55.351	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_007.drk	153
KevinTRI67515052017_006	Mon, May 15, 2017 14:03:35	1	1	1	01.25.429	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_006.drk	152
KevinTRI67515052017_004	Mon, May 15, 2017 13:16:27	1	1	1	01.48.109	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_004.drk	150
KevinTRI67515052017_005	Mon, May 15, 2017 13:19:16	7	6	1	01.56.508	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_005.drk	151
KevinTRI67515052017_002	Mon, May 15, 2017 10:23:20	8	6	1	01.55.510	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_002.drk	148
KevinTRI67515052017_001	Mon, May 15, 2017 09:22:08	3	2	1	02.10.485	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515052017_001.drk	147
KevinTRI67508052017_001	Mon, May 08, 2017 16:45:25	1	1	1	09.03.612	Kevin	Generic testing	TRI675	None	Summit Point Main		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67508052017_001.drk	134
KevinTRI67508052017_002	Mon, May 08, 2017 15:41:23	9	6	1	01.34.525	Kevin	Generic testing	TRI675	None	Summit Point Main		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67508052017_002.drk	133
KevinTRI67508052017_003	Mon, May 08, 2017 14:16:13	9	4	1	01.34.681	Kevin	Generic testing	TRI675	None	Summit Point Main		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67508052017_003.drk	132
KevinTRI67508052017_004	Mon, May 08, 2017 12:56:03	9	7	1	01.34.633	Kevin	Generic testing	TRI675	None	Summit Point Main		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67508052017_004.drk	131
KevinTRI67508052017_005	Mon, May 08, 2017 10:29:01	8	7	1	01.33.646	Kevin	Generic testing	TRI675	None	Summit Point Main		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67508052017_005.drk	130
KevinTRI67508052017	Mon, May 08, 2017 09:20:20	7	6	1	01.37.935	Kevin	Generic testing	TRI675	None	Summit Point Main		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67508052017.drk	129
KevinTRI67515042017_012	Sat, Apr 15, 2017 16:29:39	9	4	1	01.34.219	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_012.drk	146
KevinTRI67515042017_011	Sat, Apr 15, 2017 14:55:45	9	1	1	00.22.850	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_011.drk	145
KevinTRI67515042017_010	Sat, Apr 15, 2017 14:52:27	1	1	1	02.27.530	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_010.drk	144
KevinTRI67515042017_009	Sat, Apr 15, 2017 14:22:35	7	6	1	01.35.037	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_009.drk	143
KevinTRI67515042017_008	Sat, Apr 15, 2017 12:37:00	6	1	1	00.36.681	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_008.drk	142
KevinTRI67515042017_007	Sat, Apr 15, 2017 12:32:37	1	1	1	01.19.653	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_007.drk	141
KevinTRI67515042017_006	Sat, Apr 15, 2017 11:40:25	8	6	1	01.34.305	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_006.drk	140
KevinTRI67515042017_005	Sat, Apr 15, 2017 10:40:11	8	6	1	01.38.968	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_005.drk	139
KevinTRI67515042017_004	Sat, Apr 15, 2017 09:37:15	9	8	1	01.36.090	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_004.drk	138
KevinTRI67515042017_003	Sat, Apr 15, 2017 09:34:36	1	1	1	01.23.110	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_003.drk	137
KevinTRI67515042017_002	Sat, Apr 15, 2017 07:25:50	1	1	1	00.43.658	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017_002.drk	136
KevinTRI67515042017	Sat, Apr 15, 2017 07:21:08	1	1	1	01.50.919	Kevin	Generic testing	TRI675	None	VIR		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67515042017.drk	135
KevinTRI67526032017_005	Sun, Mar 26, 2017 14:01:02	14	6	1	01.27.025	Kevin	Generic testing	TRI675	None	NJMP Lightning		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67526032017_005.drk	128
KevinTRI67526032017_004	Sun, Mar 26, 2017 12:00:04	14	9	1	01.27.199	Kevin	Generic testing	TRI675	None	NJMP Lightning		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67526032017_004.drk	127
KevinTRI67526032017_003	Sun, Mar 26, 2017 10:40:19	7	4	1	01.27.478	Kevin	Generic testing	TRI675	None	NJMP Lightning		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67526032017_003.drk	126
KevinTRI67526032017_002	Sun, Mar 26, 2017 09:40:52	12	6	1	01.29.977	Kevin	Generic testing	TRI675	None	NJMP Lightning		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67526032017_002.drk	125
KevinTRI67526032017	Sun, Mar 26, 2017 09:38:43	1	1	1	02.06.901	Kevin	Generic testing	TRI675	None	NJMP Lightning		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67526032017.drk	124
KevinTRI67505112016_017	Sat, Nov 05, 2016 16:18:44	2	2	1	00.32.509	Kevin	Generic testing	TRI675	None	NC Bike		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67505112016_017.drk	123
KevinTRI67505112016_016	Sat, Nov 05, 2016 16:16:29	1	1	1	00.18.110	Kevin	Generic testing	TRI675	None	NC Bike		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67505112016_016.drk	122
KevinTRI67505112016_015	Sat, Nov 05, 2016 15:22:58	2	2	1	00.33.523	Kevin	Generic testing	TRI675	None	NC Bike		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67505112016_015.drk	121
KevinTRI67505112016_014	Sat, Nov 05, 2016 15:20:21	1	1	1	00.13.310	Kevin	Generic testing	TRI675	None	NC Bike		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67505112016_014.drk	120
KevinTRI67505112016_013	Sat, Nov 05, 2016 14:30:55	2	2	1	00.32.975	Kevin	Generic testing	TRI675	None	NC Bike		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67505112016_013.drk	119
KevinTRI67505112016_012	Sat, Nov 05, 2016 14:20:38	1	1	1	05.13.059	Kevin	Generic testing	TRI675	None	NC Bike		C:\Users\krichardson\Documents\RI\Aim Solo DL data Triumph Daytona 675R\	KevinTRI67505112016_012.drk	118

Measures and laps

Measures Laps User Profiles

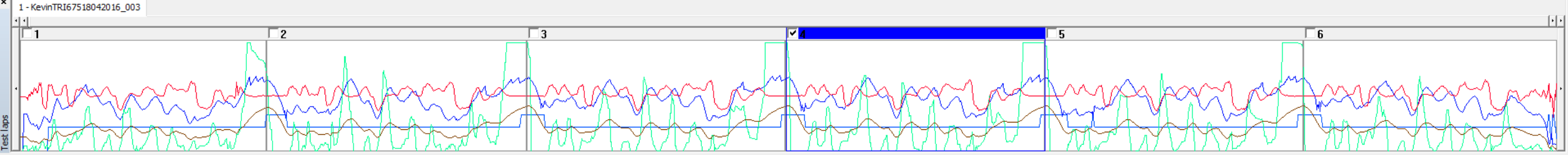
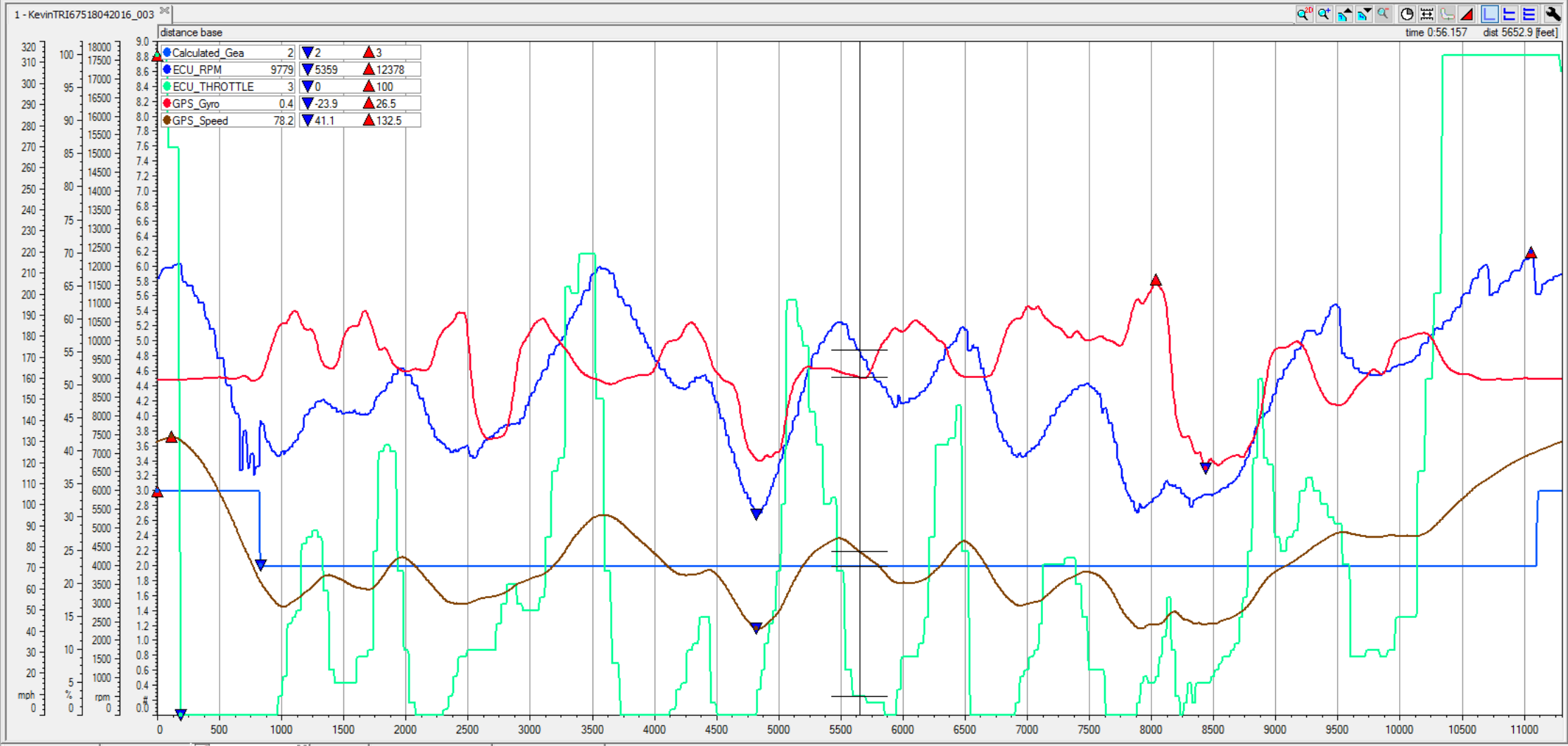
Per Lap' Color Sort Channels

Tests Loaded:

X	KevinTRI67518042016_003
	4 01:52.796

Measures:

<input type="checkbox"/>	Internal Batte [V]	4.21
<input type="checkbox"/>	Vertical_acc [g]	0.74
<input type="checkbox"/>	Longitudinal_a [g]	-0.07
<input type="checkbox"/>	Lateral_acc [g]	0.05
<input checked="" type="checkbox"/>	Calculated_Gea [#]	2
<input type="checkbox"/>	External Batte [V]	14.3
<input checked="" type="checkbox"/>	ECU_RPM [rpm]	9779
<input type="checkbox"/>	ECU_ENG_TMP [°F]	174
<input checked="" type="checkbox"/>	ECU_THROTTLE [%]	3
<input type="checkbox"/>	ECU_IN_AIR_T [°F]	82
<input type="checkbox"/>	ECU_MAN_PRES [mbar]	450
<input checked="" type="checkbox"/>	GPS_Speed [mph]	78.2
<input type="checkbox"/>	GPS_Nsat [#]	9
<input type="checkbox"/>	GPS_LatAcc [g]	0.03
<input type="checkbox"/>	GPS_LonAcc [g]	-0.24
<input type="checkbox"/>	GPS_Slope [deg]	-0.61
<input type="checkbox"/>	GPS_Heading [deg]	83.3
<input type="checkbox"/>	GPS_Gyro [deg/s]	0.4
<input type="checkbox"/>	GPS_Altitude [m]	21
<input type="checkbox"/>	GPS_PosAccuracy [m]	2.04





APPROACHES TO USER EXPERIENCE

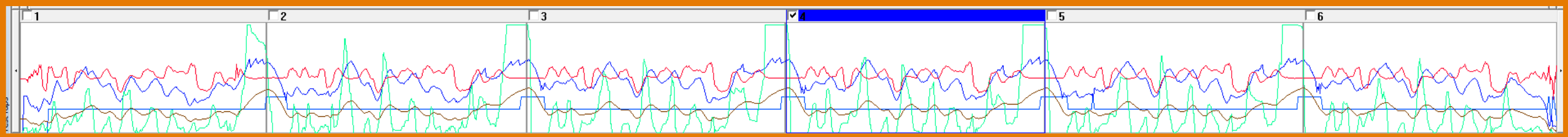
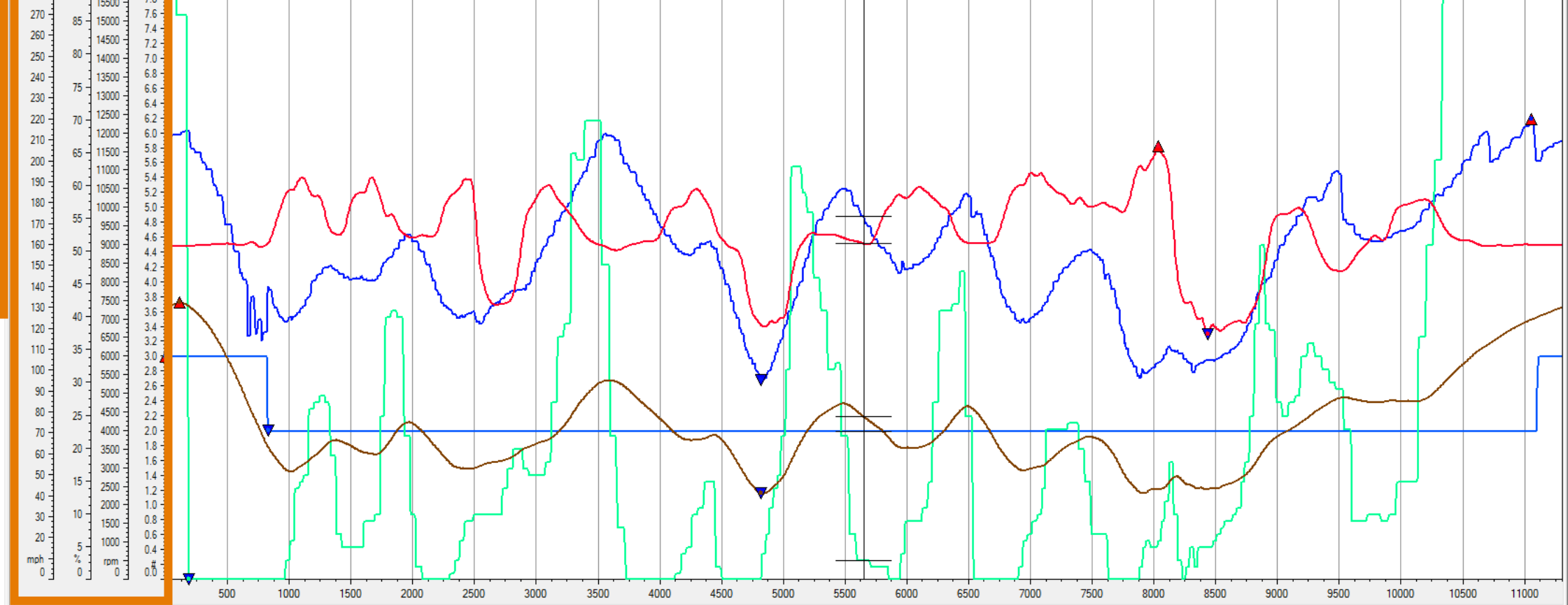


USABILITY

Tests Loaded:

KevinTRI67518042016_003		
4 01:52.796		
Measures:		
Internal Batte [V]	4.21	
Vertical_acc [g]	0.74	
Longitudinal_a [g]	-0.07	
Lateral_acc [g]	0.05	
Calculated_Gea [#]	2	
External Batte [V]	14.3	
ECU_RPM [rpm]	9779	
ECU_ENG_TMP [°F]	174	
ECU_THROTTLE [%]	3	
ECU_IN_AIR_T [°F]	82	
ECU_MAN_PRES [mbar]	450	
GPS_Speed [mph]	78.2	
GPS_Nsat [#]	9	
GPS_LatAcc [g]	0.03	
GPS_LonAcc [g]	-0.24	
GPS_Slope [deg]	-0.61	
GPS_Heading [deg]	83.3	
GPS_Gyro [deg/s]	0.4	
GPS_Altitude [m]	21	
GPS_PosAccuracy [m]	2.04	

Calculated_Gea	2	2	3
ECU_RPM	9779	5359	12378
ECU_THROTTLE	3	0	100
GPS_Gyro	0.4	-23.9	26.5
GPS_Speed	78.2	41.1	132.5





VARIABLE GROUP 1

Variable 1

Variable 2

Variable 3

Variable 4

Variable 5

Variable 6

Variable 7

VARIABLE GROUP 2

Variable 1

Variable 2

Variable 3

VARIABLE GROUP 3

Variable 1

Variable 2

Variable 3

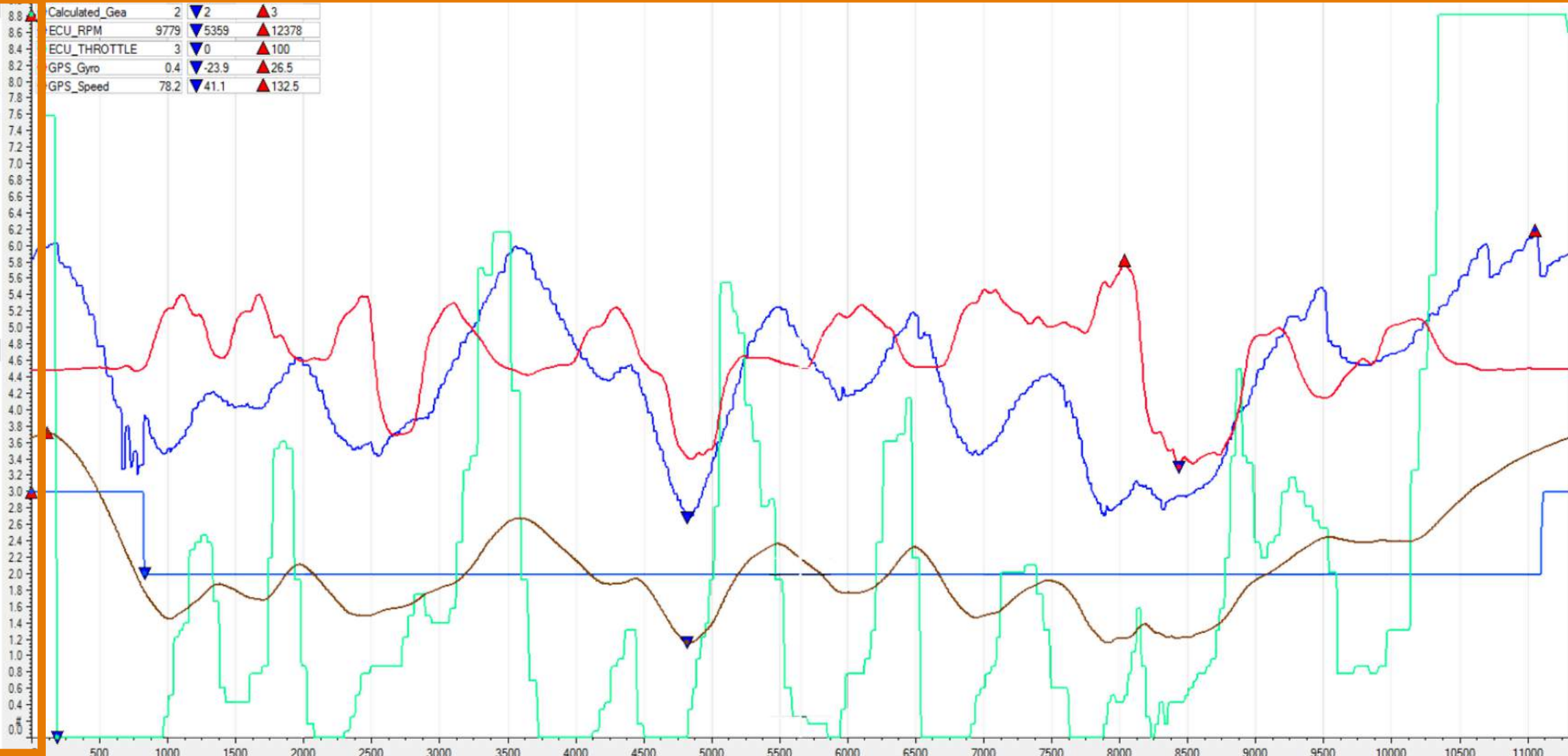
Variable 4

Variable 5

Variable 6

FUNCTIONALITY GROUP 1
 FUNCTIONALITY GROUP 2
 FUNCTIONALITY GROUP 3
 FUNCTIONALITY GROUP 4

Calculated_Gea	2	▼2	▲3
ECU_RPM	9779	▼5359	▲12378
ECU_THROTTLE	3	▼0	▲100
GPS_Gyro	0.4	▼-23.9	▲26.5
GPS_Speed	78.2	▼41.1	▲132.5



LAP 1
1:31.02

LAP 2
1:31.55

LAP 3
1:30.82

LAP 4
1:31.67

LAP 5
1:33.33

LAP 6
1:31.09

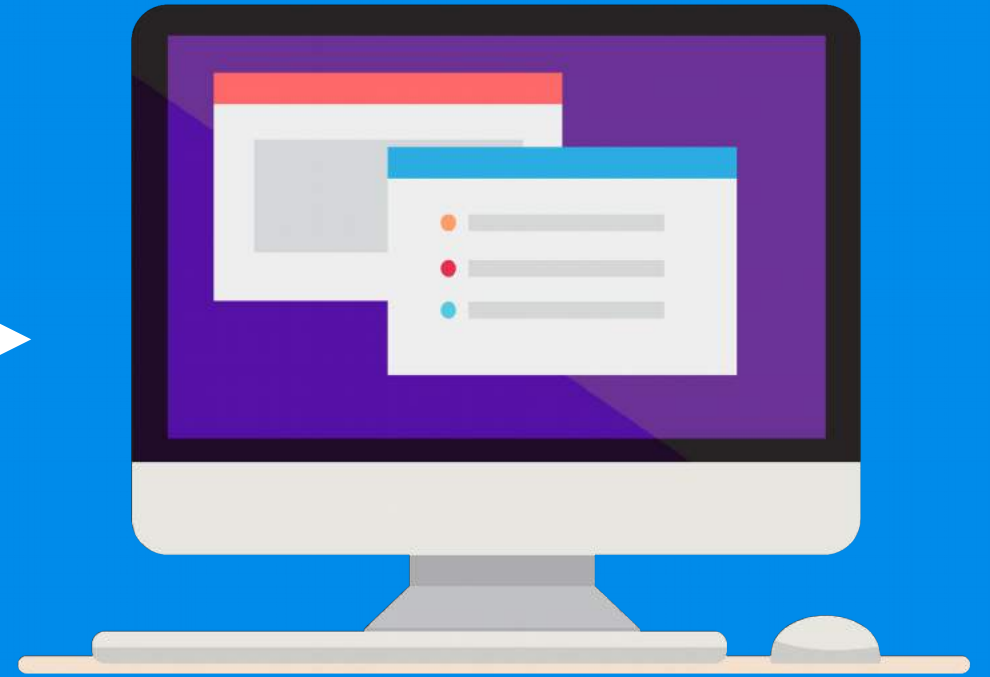
LAP 7
1:35.22

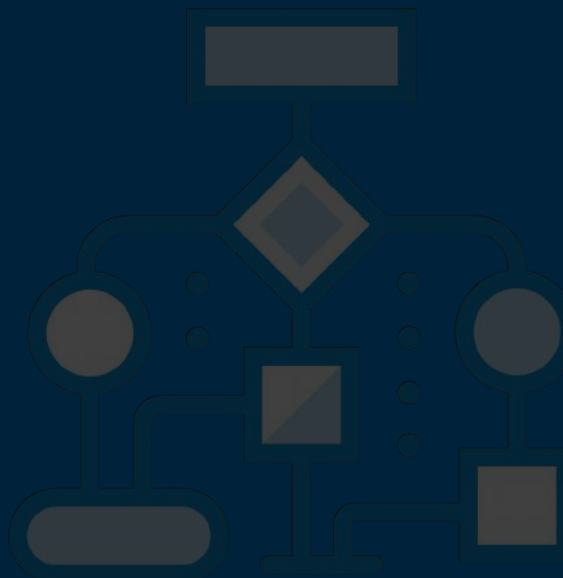
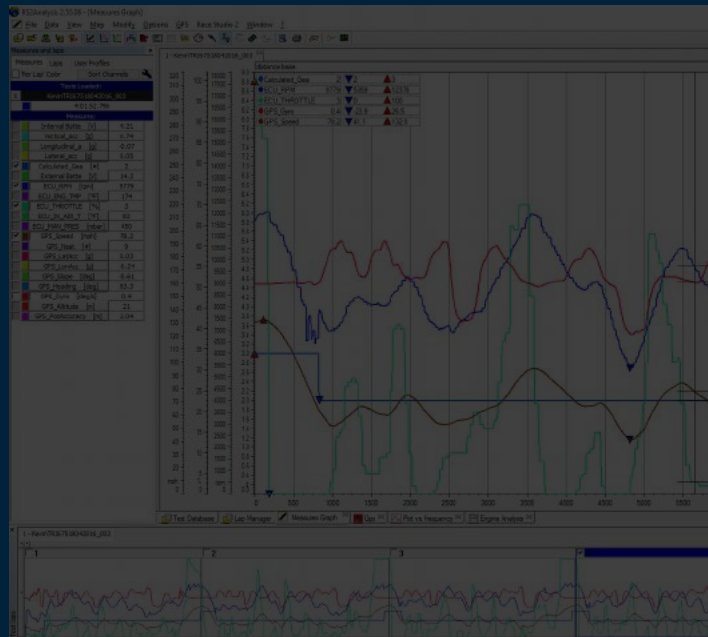
LAP 8
1:31.62





USABILITY
USEFULNESS





“
How fast did I go?
How far did I lean?
Did I improve?
”

VARIABLE GROUP 1

Variable 1

Variable 2

Variable 3

Variable 4

Variable 5

Variable 6

Variable 7

VARIABLE GROUP 2

Variable 1

Variable 2

Variable 3

VARIABLE GROUP 3

Variable 1

Variable 2

Variable 3

Variable 4

Variable 5

Variable 6

TASK 1

TASK 2

TASK 3

TASK 4



LAP STATISTICS

Saturday 13 October

Donington Park, Lap 3 of 7

14:30

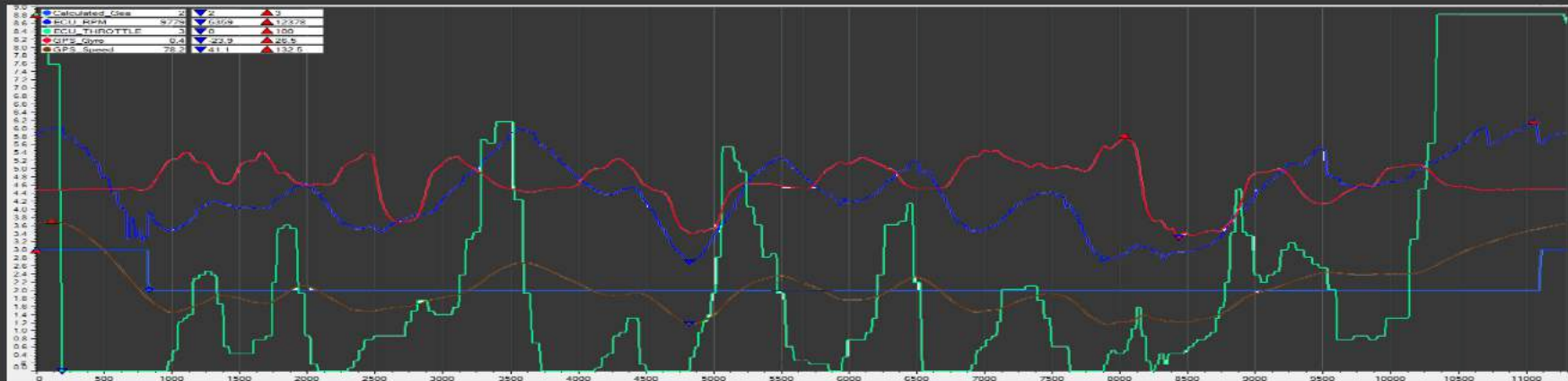
Fastest Lap **1:24.07**

Fastest Theoretical Lap **1:24.04**

Maximum Speed **240 km/h**

Maximum Lean **57°**

27 e



LAP 1
1:31.02

LAP 2
1:31.55

LAP 3
1:30.82

LAP 4
1:31.67

LAP 5
1:33.33

LAP 6
1:31.09

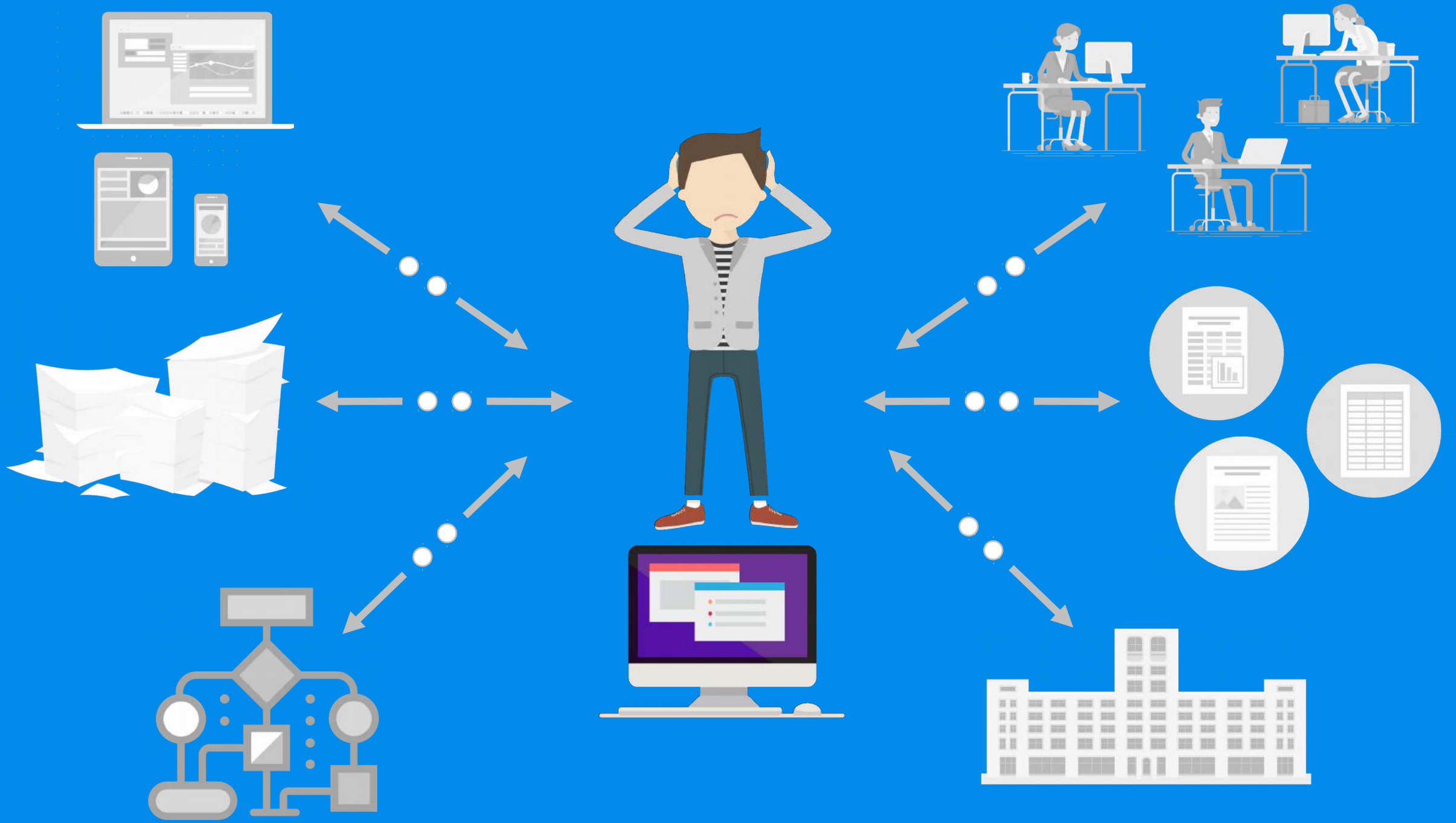
LAP 7
1:35.22

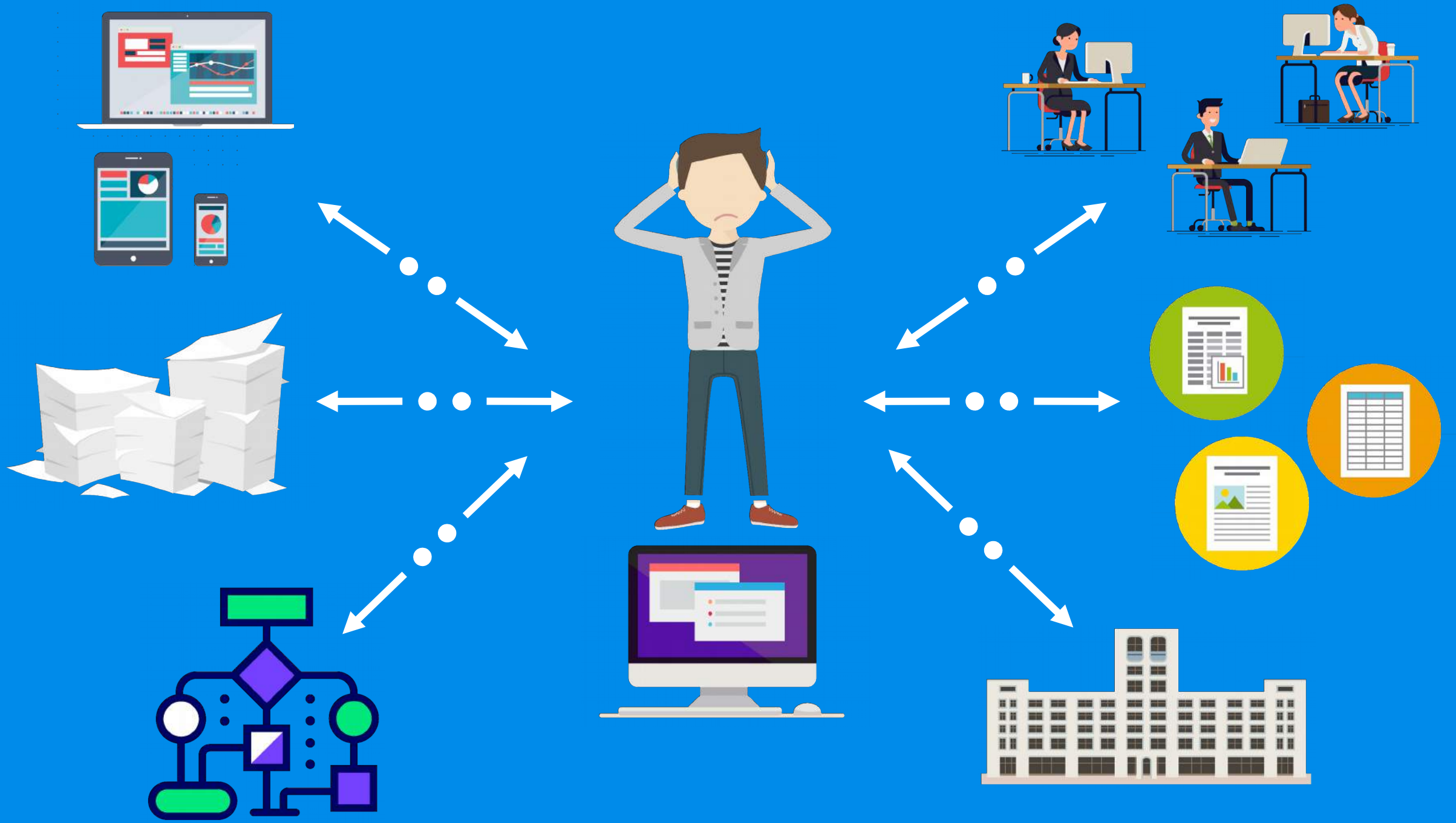
LAP 8
1:31.62





**USABILITY
USEFULNESS
INNOVATION**





What Racers Need



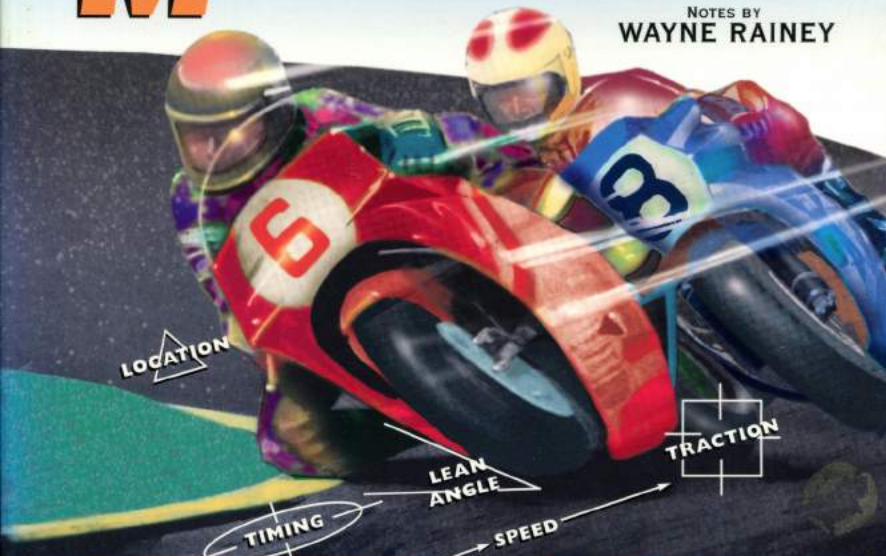
Donington Park GP



TECHNICAL PROCEDURES & WORKBOOK FOR CORNERING

THE *Soft* SCIENCE of ROAD RACING MOTORCYCLES

NOTES BY
WAYNE RAINEY



KEITH CODE

Copyrighted Material

Sport Riding Techniques

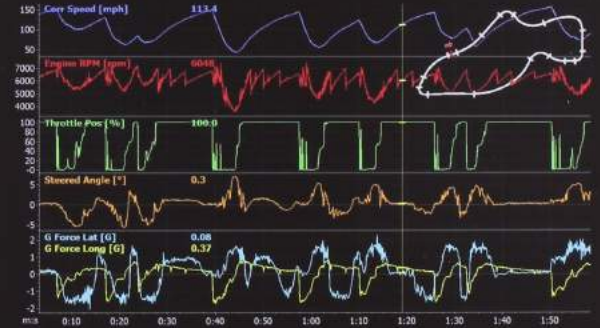
HOW TO DEVELOP REAL WORLD SKILLS FOR SPEED,
SAFETY AND CONFIDENCE ON THE STREET AND TRACK

NICK IENATSCH
FOREWORD BY KENNY ROBERTS

Copyrighted Material

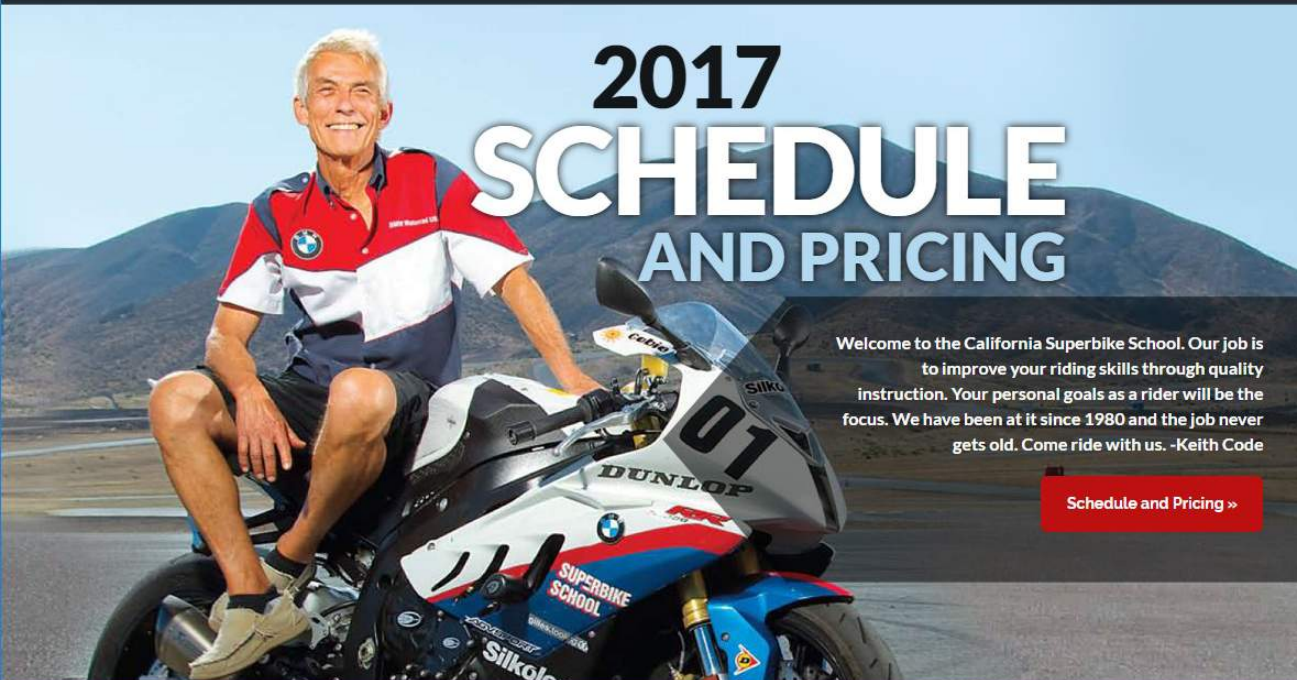
Making Sense of Squiggly Lines

the
Basic Analysis
of
Race Car Data Acquisition



written by:
Christopher Brown





2017 SCHEDULE AND PRICING

Welcome to the California Superbike School. Our job is to improve your riding skills through quality instruction. Your personal goals as a rider will be the focus. We have been at it since 1980 and the job never gets old. Come ride with us. -Keith Code

[Schedule and Pricing >>](#)

School Programs

What is "ART"?

"ART" - Advanced Rider Training

Join the club, register for a day, and ride like you've never ridden before.

Experience the Track, Experience Team Pro-Motion.

ART performance riding schools have for more than 15 years trained street riders to serious racers, giving them skills that provided more confidence, control, safety and FUN!



We have the program that's right for YOU

- ART level 1 School
- ART level 2
- ART-Race**
- ART PT

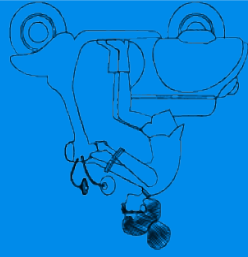
ART Race

125.00 (in addition to track fees)

Certification School will provide a student who follows the general guidelines and shows proper acknowledgement of the material being presented with certification to purchase a CCS license upon completing and passing the course. Rider and machine requirements and compliance will be necessary. CCS rules and regulations along with procedures, flags, safety along with riding and racing strategy will be covered. Motorcycle preparation, basic suspension and geometry theory and overall racing mentality, will complete this course.

RIDER REQUIREMENTS Motorcycles must be free from fluid leaks and in good operational condition. Throttle action must be free and snap back to the closed position. An operational kill switch is required. No lights, turn signals, mirrors and any street racks must be removed. Center and side stands must be removed. Rear fenders or seat sections must extend to meet the rear axle. No aluminum or carbon rotors will be accepted. All oil, coolant or fuel carrying lines must be safety wired, clipped, clamped or other approved methods. Crank case venting must be routed to a catch can of no less than 350 cc capacity or in the air box. Battery and radiator overflow lines may be routed to a separate container. Oil drain, fill and spin on filters must be safety wired and secure.





INTERACTION DESIGN

Adjust your speed to go around the corner faster.

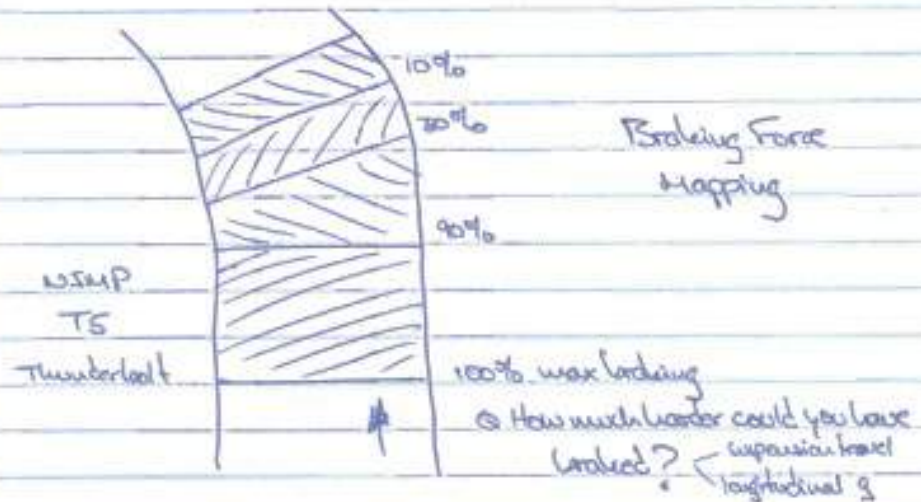
Corner

② Entry (Speed)

TOTW 1 P65

Where + how you let off the brakes, than when you pull them on.

- * Q Where did you get on the brakes? Position on track.
- Q How Fast were you going when you started braking?
- * Q Where did you let off the brakes? (total braking distance)
- Q How Fast were you going when you stopped braking?
- Q How Fast were you going when you started accelerating?
- Q How much time lapsed between off-brake and on-throttle?



2a) Shifting

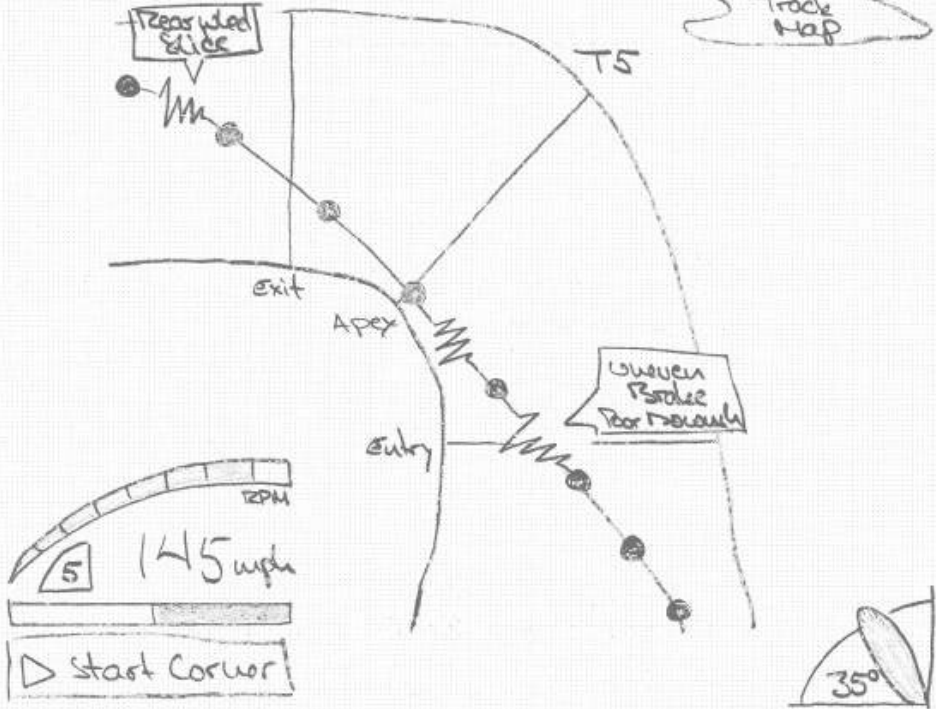
- Q What was your speed + gear + RPM when you downshifted?
- Q Where were you when you downshifted?
- Q What was your lean angle when downshifting? upshifting?
- Q How long did it take to shift (time? distance?)

2b) Slip - How much of an effect does downshifting have on the bike?

- Q How much does brake pressure change during downshift?
- Q Does RPM make road speed during downshift?

Lap 2 Best 0:55.7 (10:02.00)
KR 0:57.7

Today's Laps



Old Laps + Friends

April 27, 2013

Lap 2
1:39.07

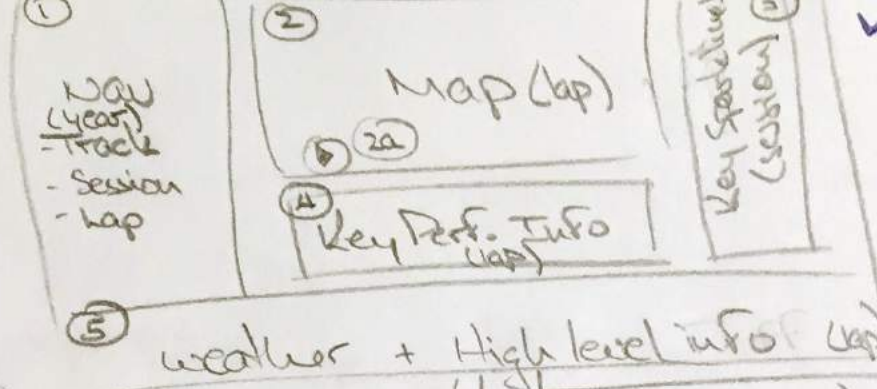
Top Speed
149 mph

Max Lean
49°

Temp
75°

Humid
65%

~	~	~	~	~	~	~
~	~	~	~	~	~	~
~	~	~	~	~	~	~



100% interactivity with 5

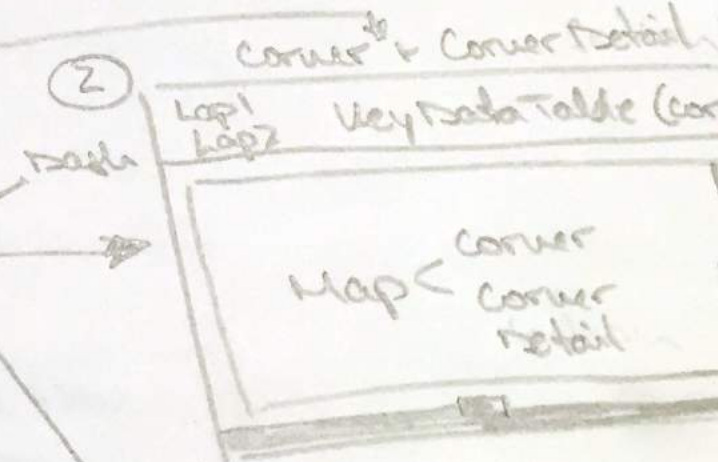
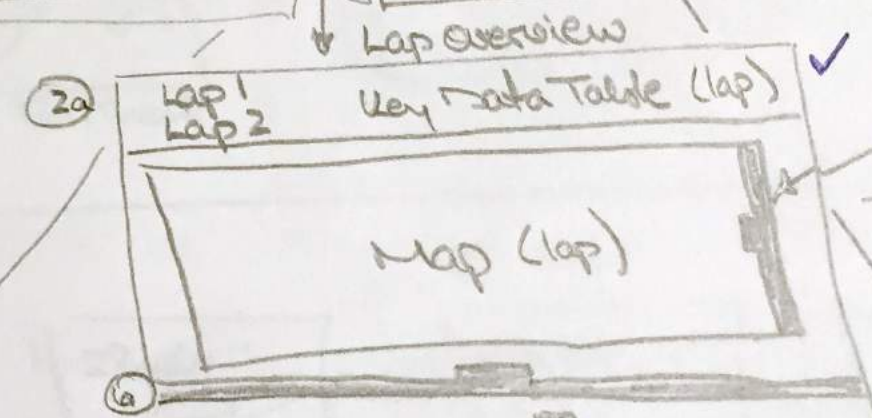
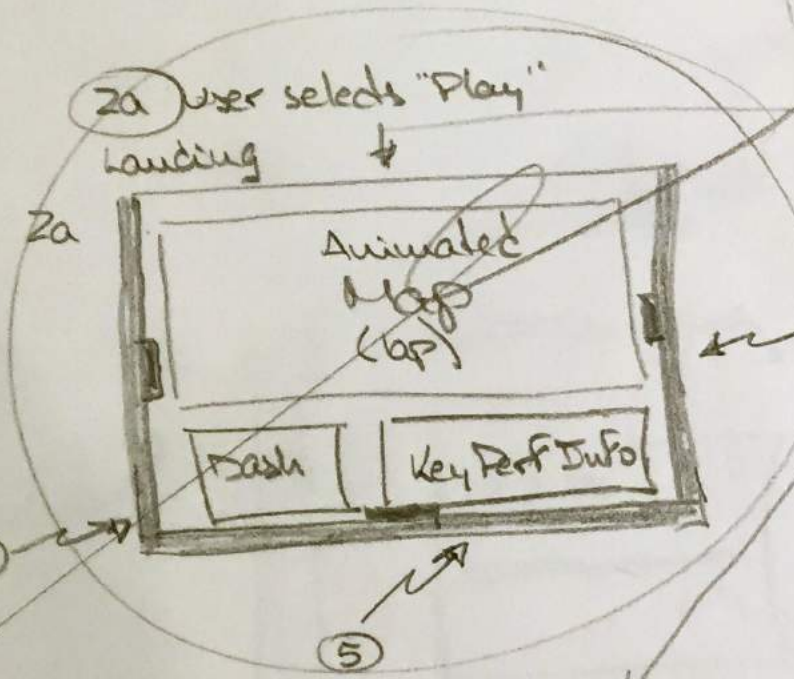
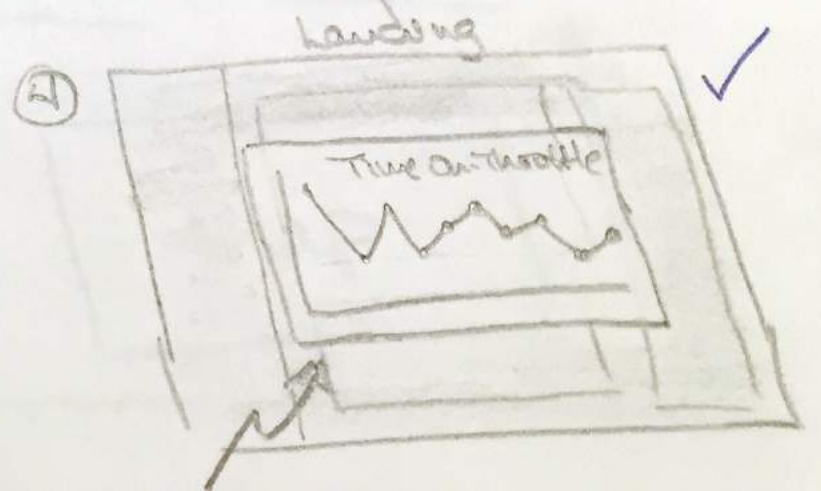
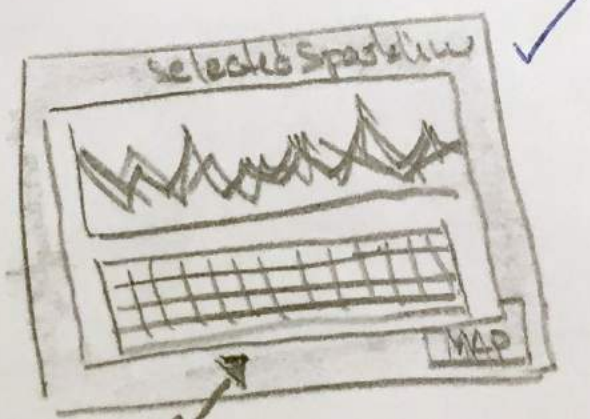


Chart + Table





Tracks All Sessions

Road Atlanta 1:29.25
Best Lap

Practice 1 1:31.07
Friday, 13 Sept 2013

Qualifying 1 1:30.54
Friday, 13 Sept 2013

Qualifying 2 1:28.57
Saturday, 14 Sept 2013

Race 1 (23 laps) 1:29.77
Saturday, 14 Sept 2013

Warm-Up 1 1:29.45
Sunday, 15 Sept 2013

Race 2 (23 laps) 1:29.25
Sunday, 15 Sept 2013

01:29.25

Lap 6

01:29.05

Fastest Theoretical

134.64mph

Fastest Speed

27.53°

Max Lean

86° F

Avg Temp



Throttle

59.3_{sec}

On-Throttle

29.5_{sec}

Full Throttle

Brakes

39.3_{sec}

On-Brakes

39.3_{sec}

Full Brakes

523.7_{ft}

Avg. Braking Distance

Cornering (avg)

12.2_{sec}

In-Corner

57_{mph}

Corner Speed

4.3_{sec}

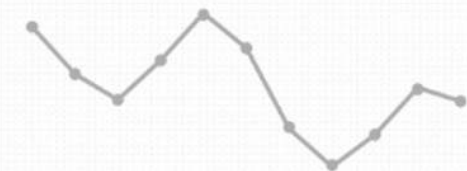
At Full Lean

2.3_{sec}

To Full Lean

Session Summary

Time on Throttle



Time on Brakes



Time in Corner



▼ Lap Detail ▼

Tracks	All Sessions
Road Atlanta Best Lap	1:29.25
Practice 1 Friday, 13 Sept 2013	1:31.07
Qualifying 1 Friday, 13 Sept 2013	1:30.54
Qualifying 2 Saturday, 14 Sept 2013	1:28.57
Race 1 (23 laps) Saturday	1:29.77
Warm-Up 1 Sunday	1:29.45
Race 2 (23 laps) Sunday, 15 Sept 2013	1:29.25

01:29.25 01:29.05 134.64 mph 27.53° 86° F

Lap 6 Fastest Theoretical Fastest Speed Max Lean Avg Temp



Session Summary

Time on Throttle

Time on Brakes

Time in Corner

▼ Lap Detail

Key Performance Indicators

Throttled	59.3 _{sec}	29.5 _{sec}	39.3 _{sec}	39.3 _{sec}	523.7 _{ft}
On-Throttle		Full Throttle	On-Brakes	Full Brakes	Avg. Braking Distance
Cornering (avg)	12.2 _{sec}	57 _{mph}	4.3 _{sec}	2.3 _{sec}	
In-Corner		Corner Speed	At Full Lean	To Full Lean	

Session Overview

Lap Overview

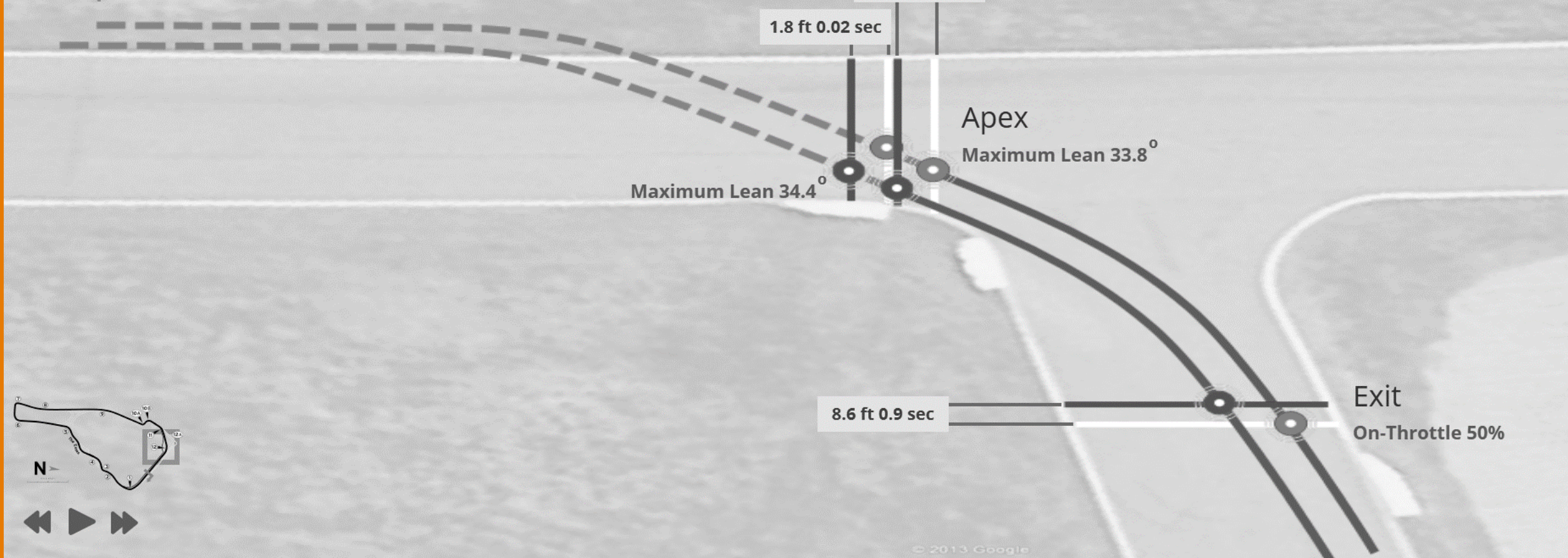
Lap Summary

KPIs

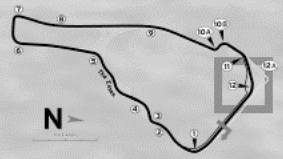


	Corner		Entry			Exit			Lean		
	Avg Speed	Time	Speed	Gear	RPM	Speed	Gear	RPM	Max	Time to Max	
Race 2 Lap 6	77.85 mph	0:05.12 sec	77.85 mph	4	15,052	58.50 mph	2	10,494	33.8°	2.30 sec	⊗
QP1 Lap 17	76.54 mph	0:05.43 sec	78.40 mph	4	15,348	56.69 mph	2	10,062	34.4°	2.42 sec	⊗

Turn 12 Apex



Lap Overview





Task-Based User Testing

Racers (4)

Amateur Team Principals (2)

Professional Team Owners (1)

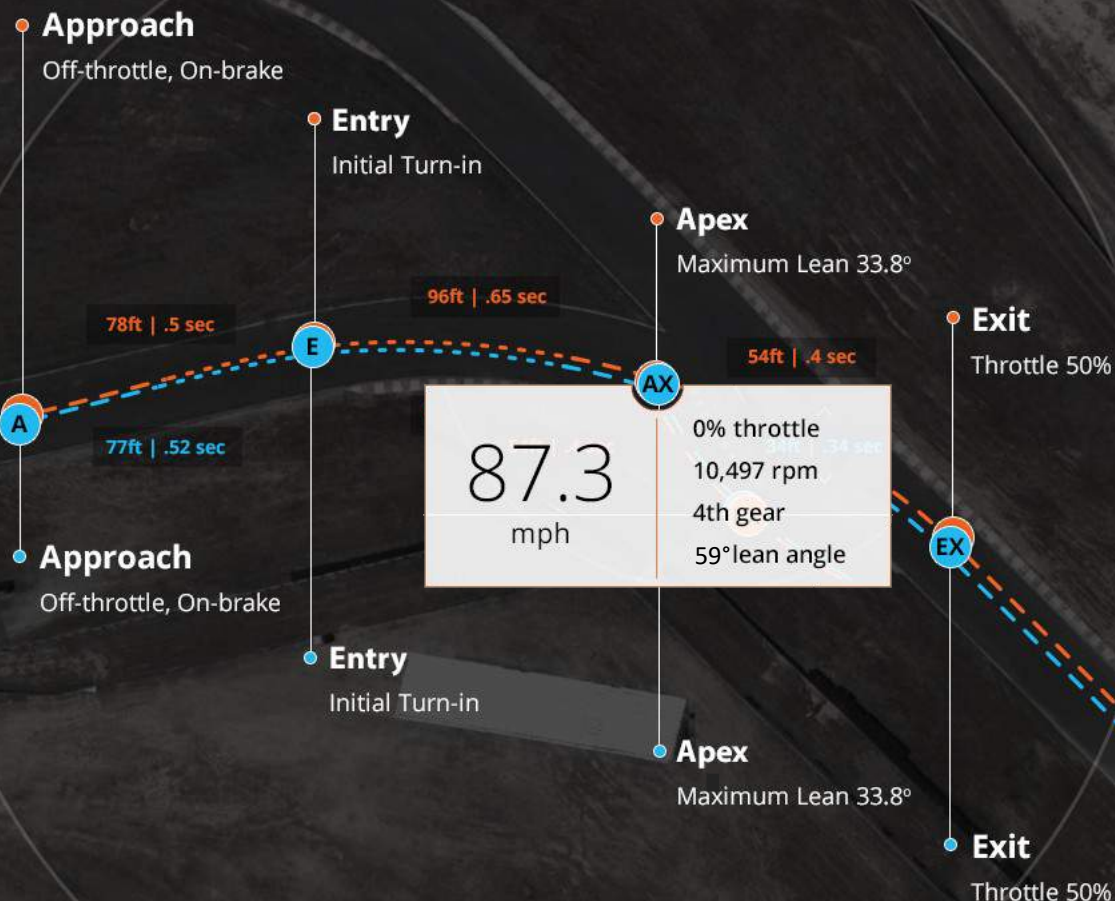
Crew Chiefs (2)



VISUAL DESIGN

Road Atlanta	Corner		Entry			Exit			Lean		
Lap	Avg Speed	Time	Speed	Gear	RPM	Speed	Gear	RPM	Max	Time to Max	
• Race 2, Lap 6	77.85 mph	0:05.12 sec	77.85 mph	4	15,052	58.50 mph	2	10,494	33.8°	2.30 sec	✕
• Race 2, Lap 7	77.25 mph	0:05.23 sec	77.65 mph	4	15,050	58.25 mph	2	10,498	33.8°	2.27 sec	✕

Turn 12



87.3

mph

0% throttle
10,497 rpm
4th gear
59° lean angle



Dashboard

Road Atlanta

Corner

Entry

Exit

Lean

Lap

Avg Speed

Time

Speed

Gear

RPM

Speed

Gear

RPM

Max

Time to Max

• Race 2, Lap 6

77.85 mph 0:05.12 sec

• Race 2, Lap 7

77.25 mph 0:05.23 sec

Race 2, Lap 7

A

Approach

Off-throttle, On-brake

E

Entry

Initial Turn-in

77ft | .52 sec | +.01 sec

4th

Turn 12

Approach

Off-throttle, On-brake

Race 2, Lap 6

78ft | .52 sec

A

77ft | .52 sec

Race 2, Lap 7

Approach

Off-throttle, On-brake

Entry

Initial Turn-in

50ft | .34 sec

EX

Can I decrease braking distance?



Throttle 50%

Dashboard

Road Atlanta

Corner

Entry

Exit

Lean

Lap

Avg Speed

Time

Speed

Gear

RPM

Speed

Gear

RPM

Max

Time to Max

• Race 2, Lap 6

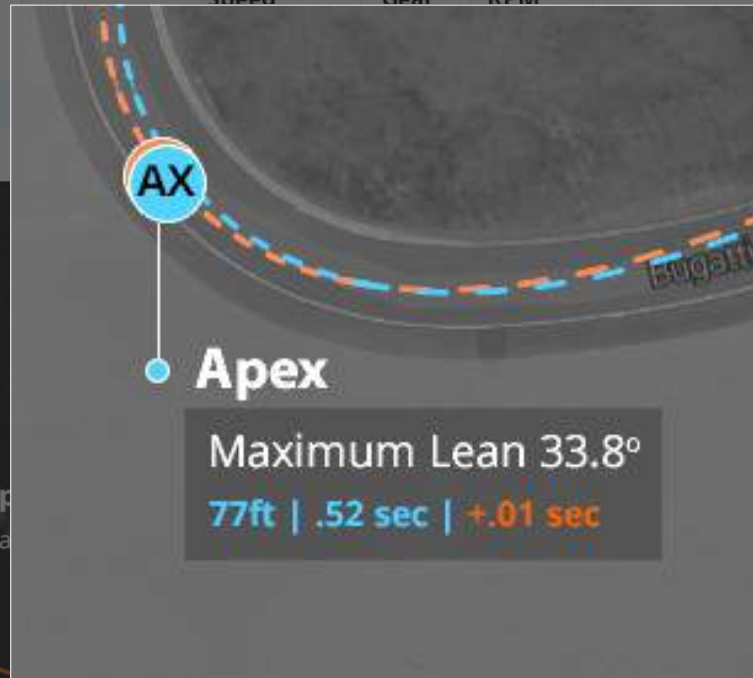
• Race 2, Lap 7

Lean

Max	Time to Max
-----	-------------

33.8°	2.30 sec
-------	----------

33.8°	2.27 sec
-------	----------



Turn 12

Dashboard

Can I decrease time to maximum lean?



Road Atlanta

Corner

Entry

Exit

Lean

Lap

Avg Speed

Time

Speed

Gear

RPM

Speed

Gear

RPM

Max

Time to Max

• Race 2, Lap 6

77.85 mph 0:05.12 sec

• Race 2, Lap 7

77.25 mph 0:05.23 sec

2 10,494

33.8° 2.30 sec

2 10,498

33.8° 2.27 sec

Turn 12

Approach

Off-throttle, On-brake

Race 2, Lap 6

78ft | .5 sec

Race 2, Lap 7

77ft | .52 sec

Approach

Off-throttle, On-brake

Entry

Initial Turn-in

Apex

Maximum lean

Exit

Throttle 50%



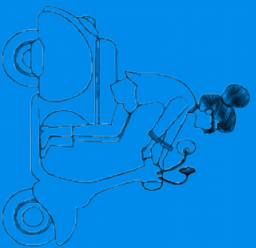
Can I decrease time to corner exit?







**AM I GIVING USERS
WHAT THEY NEED?**



**Я ДАЮ
ПОЛЬЗОВАТЕЛЯМ,
ЧТО ИМ НУЖНО?**





СПАСИБО!
ПрофсоUX 18