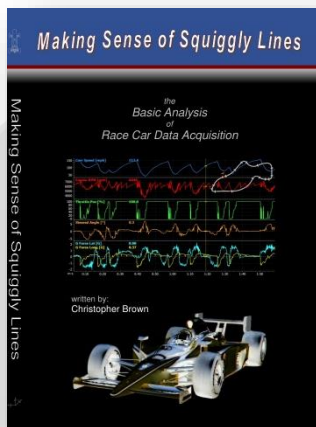


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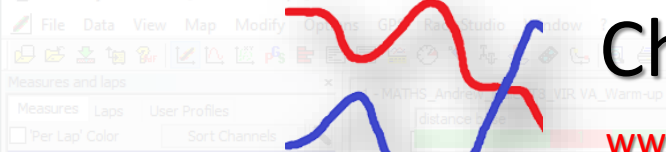
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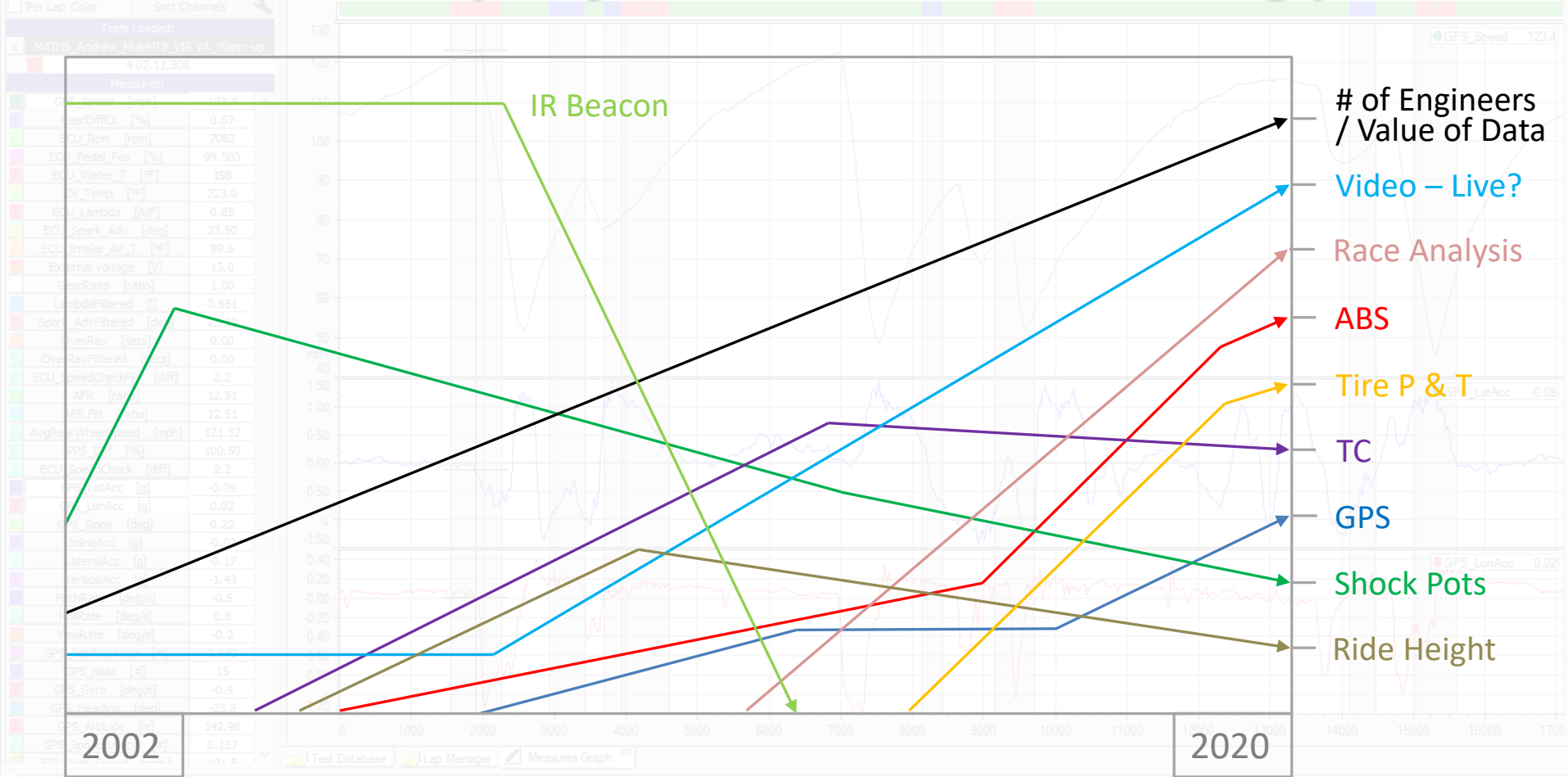
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info@cb-racing.com

- 19 years in Professional Motorsports
- 1996 FSAE at Oregon State, 1997 Formula Vauxhal Jr DAG
- 1998-2001 drove in Spec Racer Ford & Formula Mazda
- 2002-2008 IMSA, Grand-Am, Formula Mazda, Formula Ford, World Challenge
- 2008-2010 IndyCar Data Engineer
- Author of 'Making Sense of Squiggly Lines'
- 2011-2016 IMSA, World Challenge
- 2017-2020 SRO World Challenge, Porsche Cup Engineer

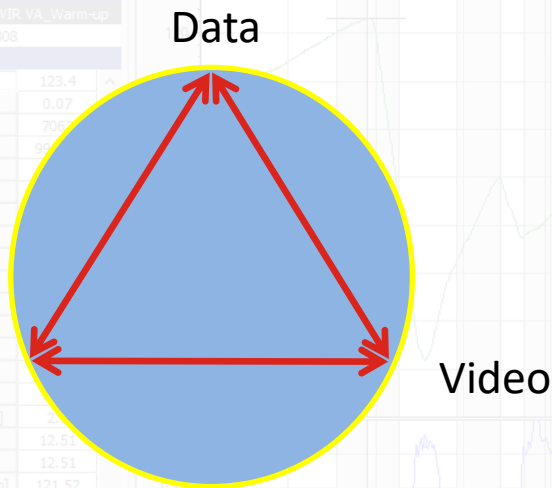


History of Data Technology



What Don't You See Above...?

Three Stories to Every Session



Where do you want to spend your time & money ?

← 90% is driver skill.

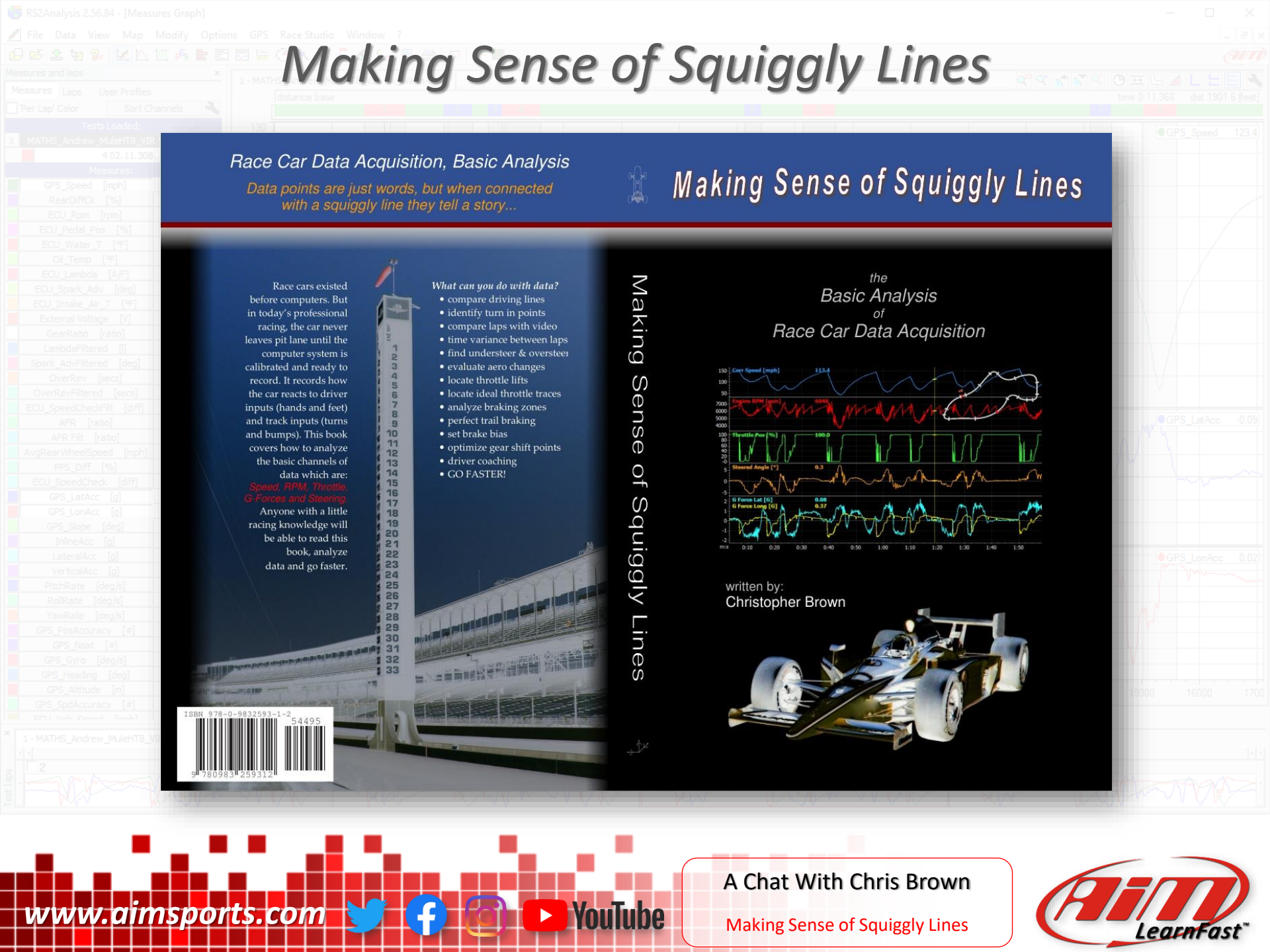
← 7% is car setup to make the car easier to drive.

← 3% is to make the car even faster & therefore more difficult to drive.

*What
makes the
Fastest
Lap Time?*

What do you Get?	Levels of Data	Time Requirement for Each Session	Personnel Requirement
Driver Improvement (90% of lap time)	Beginner Speed, G-Force, Steering, Throttle, RPM, Brake pressure	30-60 minutes	Driver
Setup Improvement (8% of lap time)	Intermediate Shock movement & velocities, Yaw rate, Lambda	2 hours	Engineer
Chassis improvement (2% of lap time)	Advanced Tire temps & pressure Strain gauges for downforce Ride height laser or ultrasonic	4 hours	DAG (Data Acquisition Guru) & Engineer

Type of Video	Levels of Video Analysis	Time Requirement for Each Session
Video only	Driver coaches will analyze your location on the track. Are you using the full track? Are you driving the line you should be?	20 minutes
Data on video	Allows you to see what your speed is on straights and through corners. Look at minimum corner speed and exit speed. Can show what gear you are in and what lap you're on.	40 minutes
Video in data	Gives you full access to all of the logged channels. Easy to compare two drivers side-by-side and easy to replay a single lap!	1 hour



Making Sense of Squiggly Lines

Race Car Data Acquisition, Basic Analysis

Data points are just words, but when connected with a squiggly line they tell a story...

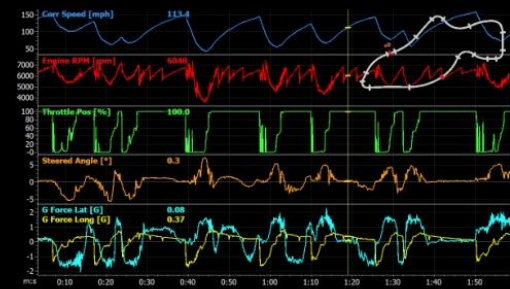
Race cars existed before computers. But in today's professional racing, the car never leaves pit lane until the computer system is calibrated and ready to record. It records how the car reacts to driver inputs (hands and feet) and track inputs (turns and bumps). This book covers how to analyze the basic channels of data which are: **Speed, RPM, Throttle, G-Forces and Steering**. Anyone with a little racing knowledge will be able to read this book, analyze data and go faster.

- What can you do with data?
- compare driving lines
 - identify turn in points
 - compare laps with video
 - time variance between laps
 - find understeer & oversteer
 - evaluate aero changes
 - locate throttle lifts
 - locate ideal throttle traces
 - analyze braking zones
 - perfect trail braking
 - set brake bias
 - optimize gear shift points
 - driver coaching
 - GO FASTER!

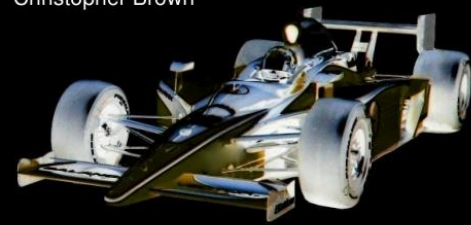
Making Sense of Squiggly Lines

Making Sense of Squiggly Lines

the
Basic Analysis
of
Race Car Data Acquisition



written by:
Christopher Brown



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Making Sense of Squiggly Lines



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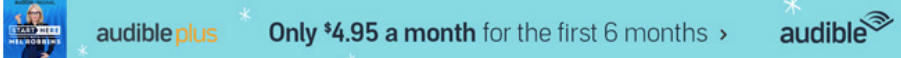
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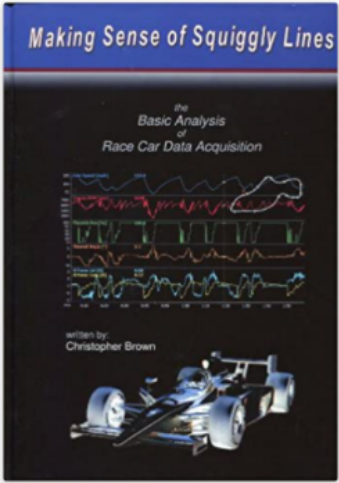
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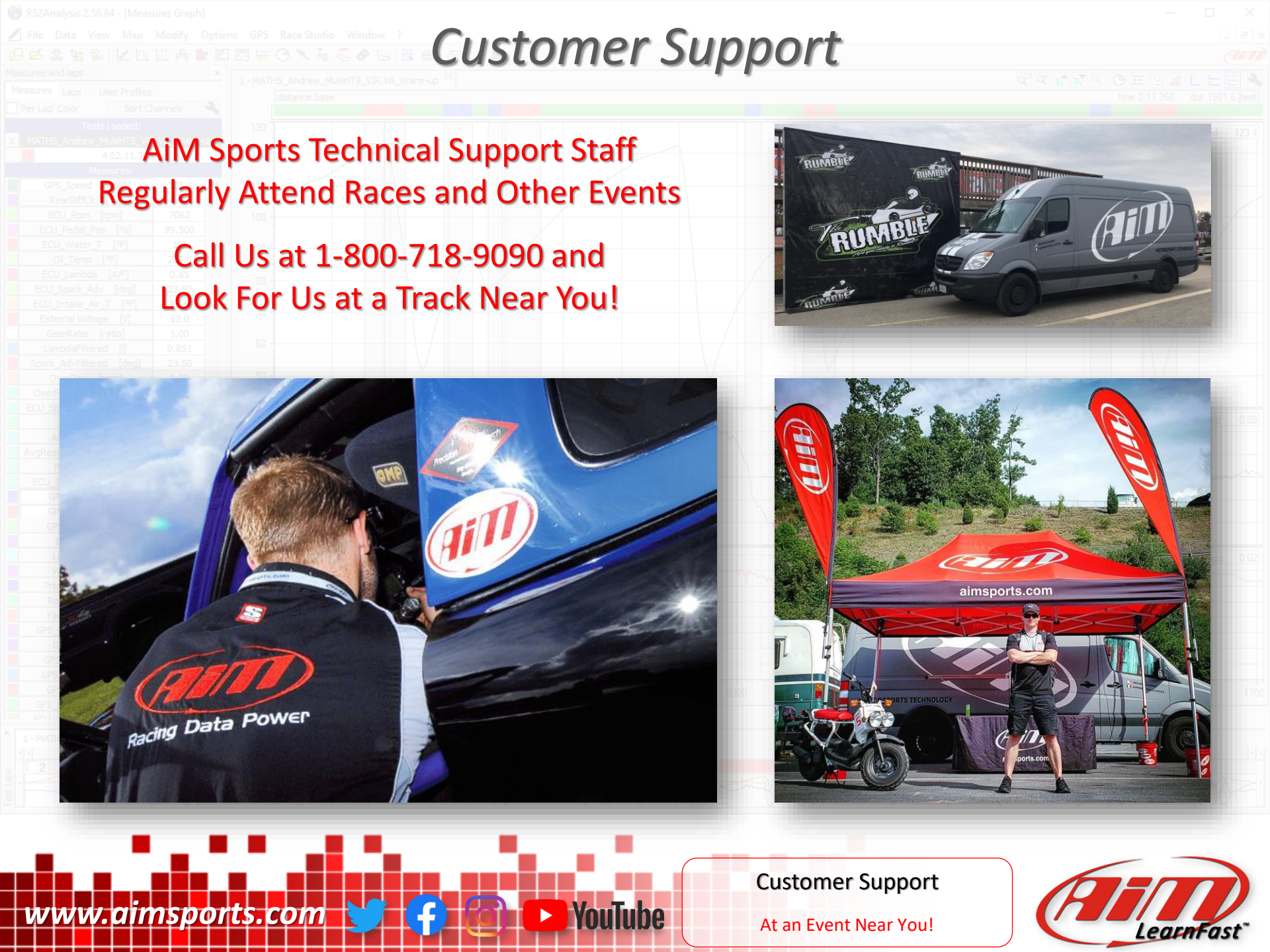
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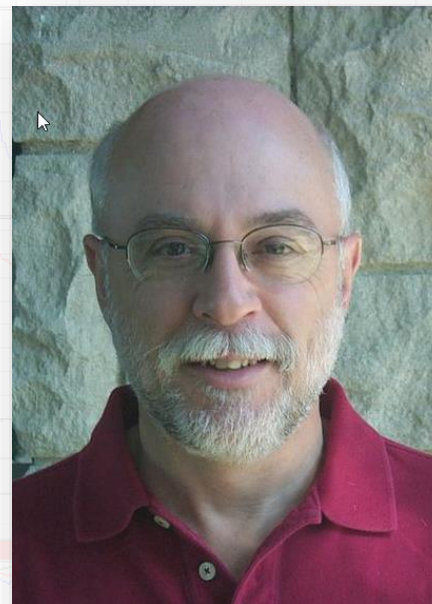
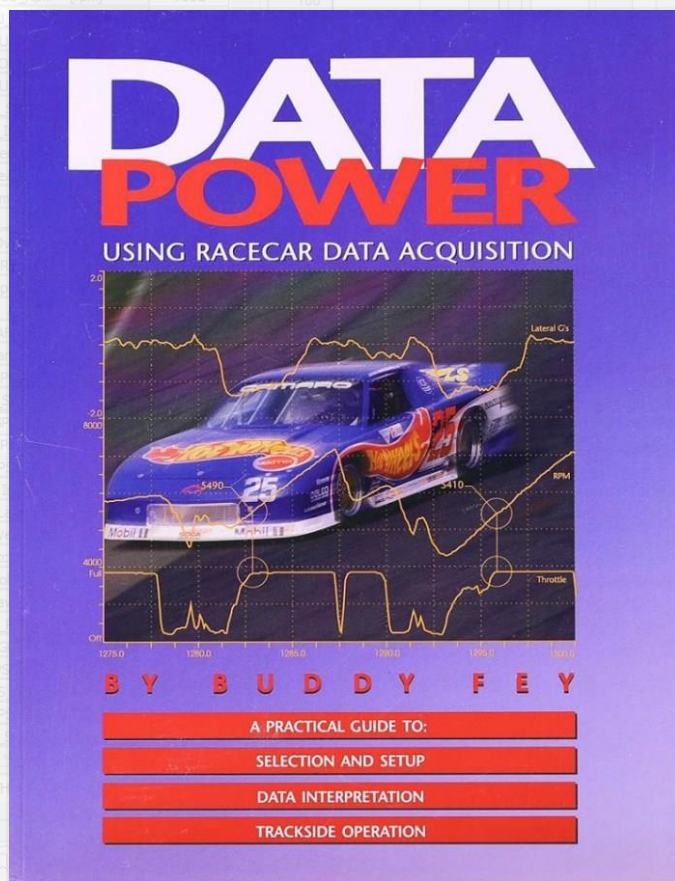


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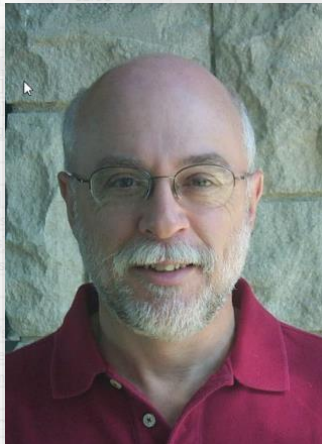
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Jeff Braun – Racing Engineer and Inside Racing Technology
Jonathan Goring – 3x National Driving Champion



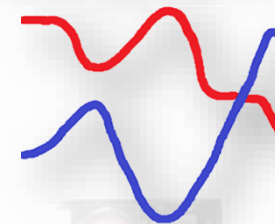
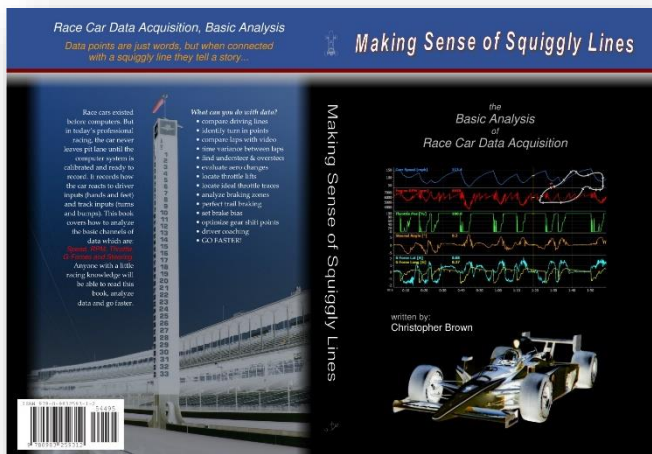
Buddy Fey



Jeff Braun



Jonathan Goring



Contact Info

Roger Caddell

roger@aimsports.com
www.aimsports.com

Chris Brown

info@cb-racing.com
www.squigglylines.com

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