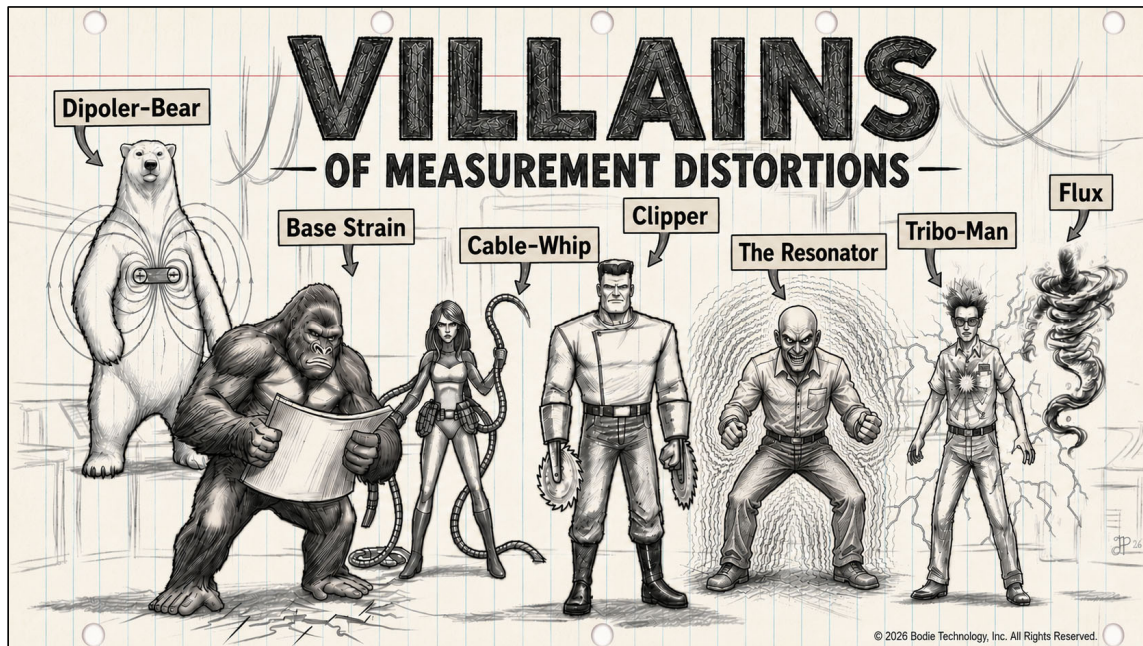


BODIE
TECHNOLOGY, INC.
The Noisy Data Experts®

Expert Shock Measurement Troubleshooting



- Do you have persistent data-collection problems with your shock tests, or unexplained distortions in your measurements?
- Are your measurements credible and accurate – and how confident are you in those assessments?
- Bring Dr. Diehl to your facility to troubleshoot shock-measurement problems. He will review your test and data-acquisition set-up and results to identify distortion sources and improve confidence in your measurements. For an independent check, he can use his own PCB/Endevco shock sensors with his MECALC DAQ (sampling up to 5-MSa/s) or connect your sensors to his DAQ.
- Identify what may be causing **your specific problems** and **receive practical solutions** to battle the *Villains of Measurement Distortions*.

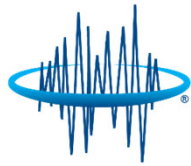
Have a measurement problem? Let's talk.

www.BodieTech.com

954-780-6181



[Let's Talk](#)



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TECHNOLOGY, INC.
The Noisy Data Experts®

What Our Customers Are Saying

Training • Kornucopia® ML™ • Consulting

“Ted Diehl has the best material I have seen explaining aliasing and all the ‘gotchas’ in the measurement process.”

Luke A. Martin, Ph.D., Principal Engineer, NSWC Dahlgren

“I really liked learning more about digital signal processing as well as learning about Pseudo Velocity Shock Spectra (PVSS). If you are doing any type of shock testing, this training is a must!”

Sergio Serrano, Test Engineer II, Blue Origin

“Kornucopia® ML™ delivers flexible tools for dynamic data from simulations and physical tests, bridging instrumentation teams and modelers. It enables best-practice workflows for acquisition, processing, and analysis ... with speed, clarity, and traceability.”

Christopher Stout, Ph.D., Chief — Engineering Analysis and Evaluation Division, Picatinny Arsenal

“A standout aspect of the training was Ted’s ability to quickly grasp the essence of a problem from a short explanation and offer practical, insightful recommendations. His deep understanding and real-time problem-solving made the experience incredibly valuable.”

Blace W. Jacobus, General Engineer, Picatinny Arsenal



Kornucopia® ML™

Enhancing & Automating the Post Processing of Shock Testing



MECALC

Test Configure Setup View Store Utility About

Acquire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Start	IP 100	READY	VVS	20000 mV	2790.60	N	Trigger	AL125	MECALC_100						
Trigger	IP 100	READY	K1_C361000TH	3 mm	5590.70	N	Laser, Clamp Side	AL125	MECALC_100						
Abort	IP 100	READY	K1_C361001SH	3 mm	5590.14	N	Laser, Tip Side	AL125	MECALC_100						
	IP 100	DISABLED	VOLT	5000 mV		N		AL125	MECALC_100						
	IP 100	READY	S-1.86-10V	1000 uStrain	11.13	R	1.9%	Bot, SG1	AL125	MECALC_100					
	IP 100	READY	S-1.79-10V	1000 uStrain	11.10	R	3.6%	Bot, SG2	AL125	MECALC_100					
	IP 100	READY	S-1.86-10V	1000 uStrain	11.15	R	1.9%	Bot, SG3	AL125	MECALC_100					
	IP 100	READY	S-1.86-10V	1000 uStrain	11.18	N	1.9%	Top, SG1	AL125	MECALC_100					
	IP 100	READY	S-1.79-10V	1000 uStrain	11.07	N	3.6%	Top, SG2	AL125	MECALC_100					
	IP 100	READY	S-1.86-10V	1000 uStrain	11.01	N	1.9%	Top, SG3	AL125	MECALC_100					
	IP 100	DISABLED	VOLT	5000 mV		N		AL125	MECALC_100						
	IP 100	READY	A-391836	20000 G	5590.35	R		Bot, 352AR2	AL125	MECALC_100					
	IP 100	READY	VOLT	5000 mV		N		AL125	MECALC_100						
	IP 100	READY	A-10553	20000 G	177.90	N		Top, 727-206	AL125	MECALC_100					
	IP 100	DISABLED	VOLT	5000 mV		N		AL125	MECALC_100						

Expand Export



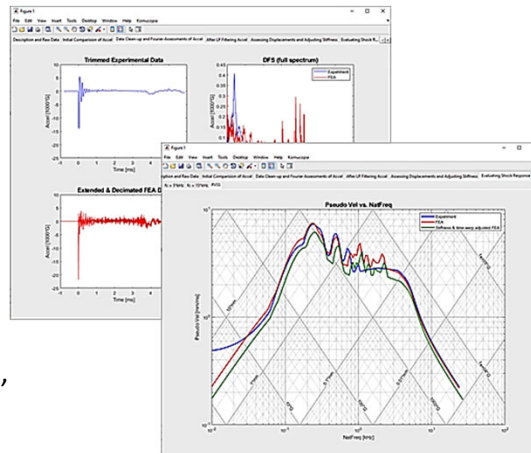
Well Organized Data & Results

	Time [msec]	A3 [m/s^2]	U3 [mm]	NE11_SNEG [%]
1259	0.9982	-2.6053e+05	-17.3595	0.0731
1260	0.9990	-2.6022e+05	-17.3684	0.0774
1261	0.9998	-2.1613e+05	-17.3775	0.0815
1262	1.0006	-1.3953e+05	-17.3867	0.0851

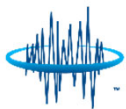
- Wrestling with tons of messy/noisy datasets?
- Needing to process various sensor types?
 - Accelerometers, lasers, strain gauges?
- Needing to compute/plot SRS / PVSS?
- Trying to salvage valuable shock data corrupted by zero shift, drift, or other measurement distortions?

Kornucopia® ML™ solves these problems and many more!

Kornucopia is unique software that enhances your team's accuracy, avoids units-related errors, and creates efficient, reusable work-flows.



Find out more:



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**Specializing in solving complex problems in
nonlinear mechanics with a proven mix of
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For use with MATLAB[®]

Customized Training

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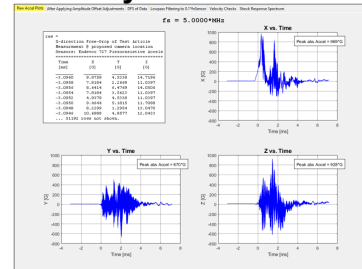
Enabled by

MATLAB[®]

MathWorks[®]

- Wrestling with tons of messy/noisy datasets?
- Struggling to calculate with datasets in various units?
- Needing to transform shock data into SRS/PVSS plots?
- Trying to salvage valuable shock data corrupted by zero shift, drift, or other measurement distortions?
- Searching for spectrum/filtering tools designed for unique challenges presented by transient FEA?

Noisy Shock Data



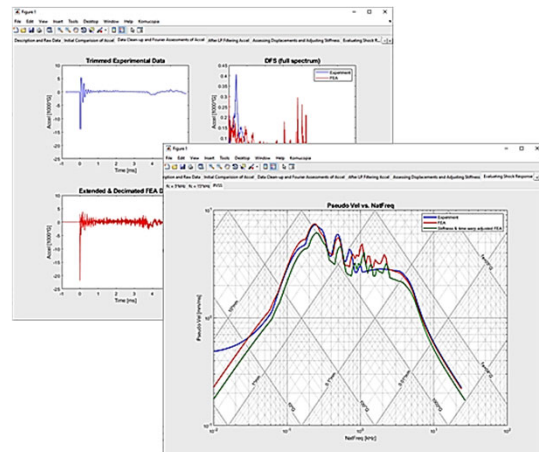
Kornucopia[®] ML[™] solves these problems and many more!

Kornucopia is unique software that works with all your data - numbers, units, column names, and descriptive meta-info. Kornucopia's powerful Units-engine with added artificial intelligence is coupled to a library of over 120 functions for processing noisy, real-world data. Kornucopia enhances your team's accuracy, avoids units-related errors, and creates efficient, reusable work-flows.

Well Organized Data & Results

	Time [msec]	A3 [m/s^2]	U3 [mm]	NE11_SNEG [%]
1259	0.9982	-2.6053e+05	-17.3595	0.0731
1260	0.9990	-2.6022e+05	-17.3684	0.0774
1261	0.9998	-2.1613e+05	-17.3775	0.0815
1262	1.0006	-1.3953e+05	-17.3867	0.0851

```
Vo = -20e3*mm/s; % Initial vel
v = k_integrate(odReg('Time'), odReg('A3'), Vo);
d = k_integrate(odReg('Time'), v, 0*mm);
```



Find out more:



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Kornucopia



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Let's Talk

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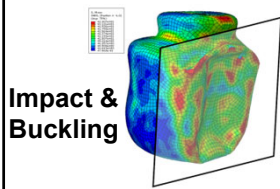


Kornucopia[®] ML[™]

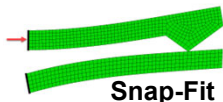
Unique tools designed to work with nonlinear transient messy/noisy data, derived from either physical measurements and/or numerical simulation data

Software Highlights

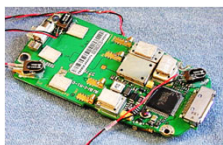
- Large library of easy-to-use advanced functions to process all kinds of messy/noisy data.
- Works with a variety of *units*, including mixed units, ultimately helping to avoid mistakes.
- Imports large variety of data files including PhoenixKonnnect / MECALC and Abaqus ODB.
- Flexible tools for adjusting, cleaning, averaging & curve-fitting messy/noisy data curves.
- Easy-to-use DSP and SRS tools for processing noisy, frequency-rich data.
- Advanced data salvaging tools help recover physically meaningful acceleration, velocity, and displacement from shock data affected by zero shift, drift, and other distortions.
- Highly automated plotting creates presentation-ready plots and figures.
- Kornucopia's *Results Workbooks*[™] allows you to easily store all plots in a single figure.
- We still believe in documentation - see our extensive help system & examples library.



Impact & Buckling



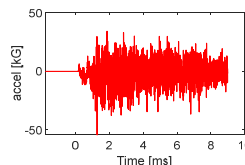
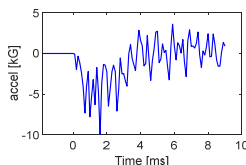
Snap-Fit



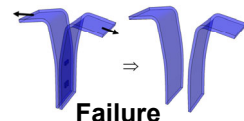
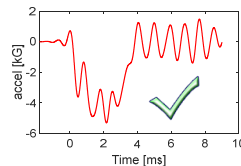
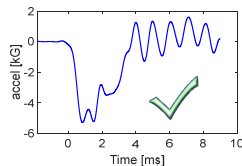
Shock of Electronics

Find out more →

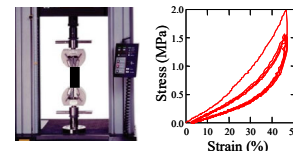
Technology to turn a mess...



into success!



Severe Nonlinear Impact



Adv. Material Testing

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Short Course Training



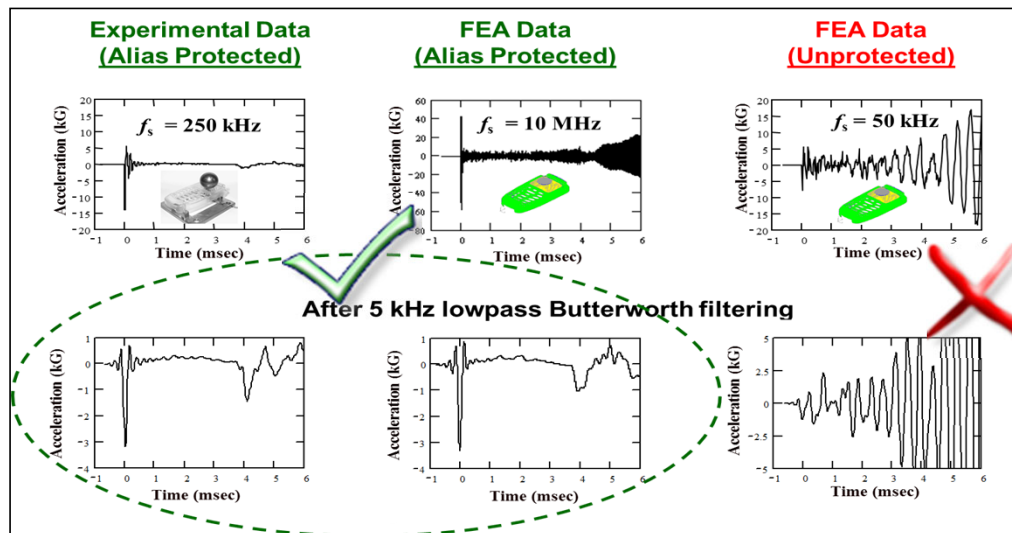
Bodie Technology, Inc.
The Noisy Data Experts™

Do any of these *resonate* with you?

- Having difficulty correlating simulations & physical shock/impact testing?
- Unsure how to confidently filter noisy signals?
- Concerned you or colleagues are aliasing test or simulation output?
- Confused by those crazy PVSS plots with all those axes on them?
- Uncertain how to determine the stiffness contributions in a system?

Take our Training – Get Answers

Learn how to turn a mess into success!



Find out more →



[Short video](#)



[Training](#)

The Noisy Data Experts™

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Bodie Tech Training

Taught LIVE by Dr. Ted Diehl, leveraging his 35+ years of applied nonlinear structural mechanics experience



Unique training classes taught using a structural mechanics framework for handling:

- Nonlinear, noisy, messy, and/or transient data from physical measurements and/or numerical simulations.
- Problems ranging from shock/impact to messy nonlinear material measurements.

Analyzing Noisy Data From Physical Tests & Transient FEA

Learn to collect and process noisy data with confidence!
This **TRAINING SERIES** comprises 4 stand-alone modules.

- **Sign-up for only the modules you want**

1. **DSP Essentials – 12 hrs**
2. **Understanding Shock Spectra and PVSS Analysis – 11 hrs**
3. **Working With Noisy Transient Dynamic Simulation Models - 9 hrs**
4. **Working with Physical Measurements from Severe Mechanical Shock & More - 12 hrs**

Save 20% with the
4-Module Noisy Data Bundle
includes modules 1 – 4
44 hours of training!

Advanced Energy Methods to Enhance Test & Simulation Analysis

Learn how to use energy quantities and their derivatives to quickly find dominant contributors to your structure's response, including how to make various predictions of performance based on changes to your system's components.

Additional training details and sign-up →



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[Training](#)

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Courses open to attendees from all companies, organizations, universities...

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