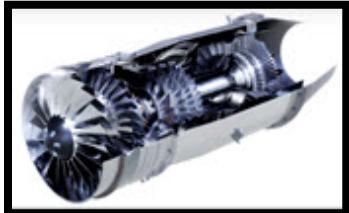




**FEA Not To Miss+ Town
Software & Engineering Solutions
Town Hall Meeting, Blog & Gossip**

AEROSPACE – Rolls Royce



ANSYS



AUTOMOTIVE - Ford



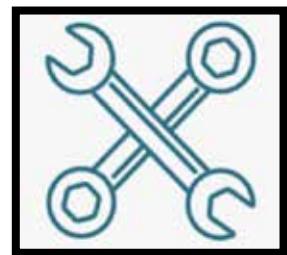
CADFEM



CATI



DYNAmore Germany



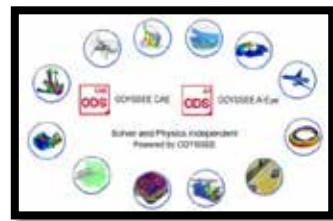
DYNAmore Nordic



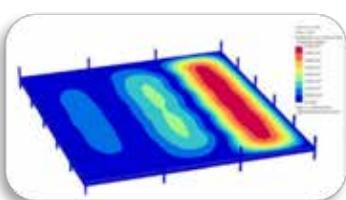
Enginsoft



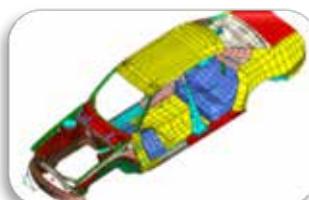
MSC - Hexagon



OASYS



OmniQuest



OZEN



Secretary – A. Horch Museum



Rancher – Sandia



Supervisor – Gossip



FEA not to miss a/k/a (FEANTM) comprises a group of interested parties sharing information. Information is presented on the website www.feantm.com and this publication ISSN # 2694-4707.

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Editors: (alpha order) Anthony, Art, Marnie, Marsha, Yanhua

Town Pretend to be Editors

The Old Cattle Rancher - No one in town knows his name. You yell "Hey, Old Rancher."

The Old Retired Pilot - No one in town knows his name. You yell "Hey, Old Pilot."

The Old Retired Racer - No one in town knows his name. You yell "Hey, Old Racer."

They are all brothers - strange family

Contact us at feaanswer@aol.com

Map Vector & town graphics in our magazine are courtesy of vecteezy

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- The websites used will have the complete articles, and higher resolution graphics/videos.
- We always reference and link to the source listed below.
- This blog/magazine is a positive venue for editorial purposes and not revenue derived

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Thanks to [Vecteezy](#) for our **Map Vector/town** and many of the graphics in our magazine

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Goodbye, AND answers to the Old Pilot Quiz

We always reference and link to the articles/information.

This blog/magazine is a positive venue, for editorial purposes, and not revenue derived



Serving coffee & Texas Sheet Cake!

Our town comprises individuals interested in solutions for the future and, of course, animals and children.

Gossip is at the local coffee shop.

Pets are welcome. (Small pets, horses stay outside!)
(Pet goats or pigs also stay outside)

Announcement – Resident - DYNAmore

[The Preliminary Agenda 16th German LS-DYNA Forum 2022 is now available](#)

As presiding town Supervisor, I call this meeting to order:

1. I appreciate my new desk and the new gavel.
2. What department is going to pay for the invoice?
3. Can someone tell me who built my desk and gavel out of LEGO® bricks?
4. I'm not sure that a LEGO® bricks desk will work for me.
5. Whoever yelled lose weight, please stand up!! The desk is not about weight – A LEGO® DESK??
6. YES, I know about LEGO bricks cars – Okay, take apart the desk and make LEGO® bricks cars
7. Why is everyone running out to take apart my desk instead of listening to my meeting?

See Automotive - LEGO® brick Crash and Tutorial

The Old Retired Rancher and the Town Secretary are arguing about cooking chile peppers.

1. Who ordered 20 burlap sacks of green chile peppers? Yes, chile is with an "e" at the end
2. The secretary ordered propane. The rancher ordered solar panels? Who ordered ten grills?
3. Why is everyone leaving for a chile pepper cook-out contest?

See Rancher – Sandia Labs - Using the sun's power to roast green chile peppers.



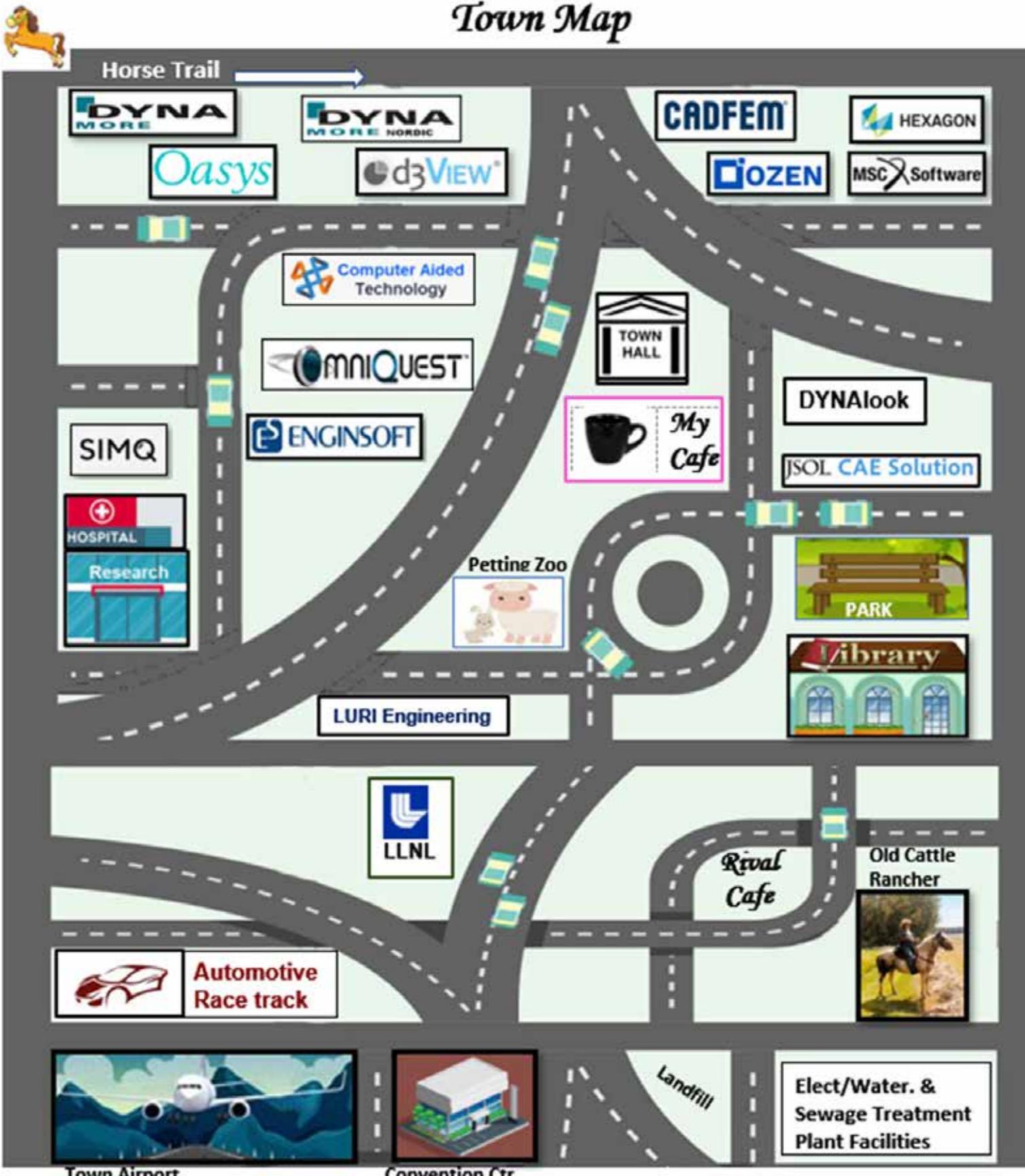
Knee Implant of one of our town residents & Improvements and Validation of an Existing LS-DYNA Model of the Knee-Thigh-Hip of a 50th Percentile Male Including Muscles and Ligaments



Agriculture Aisle

Wild chrysanthemum stem cutting - ANSYS Workbench 19.0 software & LS-DYNA software (LS-PrePOST-4.3-X64) are used to calibrate the finite element simulation model of wild chrysanthemum stem cutting

Town Map



To be removed, from the map, please notify feaanswer@aol.com with the request.

- Your town lot will be auctioned, with the Town applying all proceeds to the coffee budget.
- The town map changes pending information, and rotational building rentals.



Excerpts - Read the full article and graphics on the website

"From the first prototype car level, we committed to meshing out and building a full LS-DYNA car model," Patalak says. "That immediately allowed us to start assessing the car in all the different crash modes that our race cars encounter: frontals, roof crashes, lateral side impacts, rear impacts, and oblique impacts..."



[NASCAR's Next Gen Race Car Proven Safe by Simulation](#) - By Tim Palucka

NASCAR's 2018 announcement that it would develop a new type of race car, called Next Gen, which would be used as a platform by all race teams in the NASCAR Cup Series, predictably raised some eyebrows and caused an outcry among race teams and fans of the sport.

With all the things that could potentially go wrong in designing a new race car, why take the risk? And why throw away decades of innovations created by engineers, mechanics, and drivers to optimize their car's performance?

But NASCAR officials had their reasons. Fan attendance at racetracks was down, and the stock cars that raced under the banner of the National Association for Stock Car Auto Racing (NASCAR) now bore little resemblance to the actual stock cars rolling off assembly lines and into dealerships around the world. In fact, though they were touted as the latest in automotive engineering, the race cars were using highly modified versions of automotive technologies of the 1960s and '70s, tweaked for ever greater performance by engineers over the years.

NASCAR next gen race car - John Probst, senior vice president of Racing Innovation at NASCAR, sums up the challenge as one of "relevance."

"We need a racing platform that will make us more relevant to our original equipment manufacturers (OEMs) and our fans," Probst says. "One thing that was plaguing us was that the suspension technology on the car was from the 1960s. We hadn't really migrated with the pace of the automotive industry very well. With respect to that, our race car bodies were more like sedans than racing coupes. And it's no secret that the internal combustion engine has a lot of pressure on it from electric hybrid and fully electric powertrains. So, we had to become more relevant to our fans, our automotive OEMs, our stock car heritage, and the environmental realities."

On the business side of racing, the cost of owning a race car team was reaching outrageous levels — in the eight figures range — just to start with a modest team of a couple race cars, a driver, and some engineers and mechanics. This was keeping new owners from entering the sport at a time when NASCAR was interested in expanding....

Ensuring the safety of the Next Gen race car fell to John Patalak, Managing Director, Safety Engineering at NASCAR. Patalak became a convert to LS-DYNA simulation while working on a project with a major automobile manufacturer to improve the crash safety of NASCAR drivers. LS-DYNA simulates the response of materials to short periods of severe loading.

The first time I was really very impressed with LS-DYNA simulation work was in 2011," Patalak says. The project included a simulated human body model to test the restraint system in the automobile, including the



seats, the shoulder supports, and the rib supports around the torso of the driver. **“Frankly, I was blown away by the level of detail that you could get using LS-DYNA and the human body model — data that crash test dummies simply just don’t provide.”**

While working for NASCAR, Patalak attended graduate school at the Wake Forest University Center for Injury Biomechanics, where LS-DYNA was the standard simulation software for studies of high impact on the human body. He soon became a champion of LS-DYNA at NASCAR.

His expertise and confidence in LS-DYNA were crucial to making progress on the Next Gen car while crash test labs were closed during the pandemic. For the first time, the bulk of the crash testing would be handled by simulation.

- After more than 5,000 Ansys LS-DYNA crash test simulations, it took only two physical crash tests to verify and validate that the design was safe.

Putting LS-DYNA to the Test - “From the first prototype car level, we committed to meshing out and building a full LS-DYNA car model,” Patalak says. “That immediately allowed us to start assessing the car in all the different crash modes that our race cars encounter: frontals, roof crashes, lateral side impacts, rear impacts, and oblique impacts. We then focused our efforts on particular areas where we wanted to change performance or where we saw opportunities to make things better.”

Because designs change rapidly in the prototype stage, LS-DYNA was particularly helpful in enabling engineers to make a change and immediately assess it in many different crash modes. For example, the team was trying to get more deformation out of the front clip (the front section of a car’s frame, which is designed to crush when it hits another car or a wall) at different points as the project progressed, but they also wanted to ensure that the changes were not unknowingly introducing negative consequences for other crash modes, such as a T-bone.

“With LS-DYNA, we’re able to run all crash scenarios and assess the effects of a design change,” Patalak says. **“Was it holistically a positive change or a negative change, or what were we missing? These are things that you just don’t have the resources to do using physical testing. Being able to quantify these effects with simulations really improved the level of confidence we had in the overall design of this new vehicle.”**

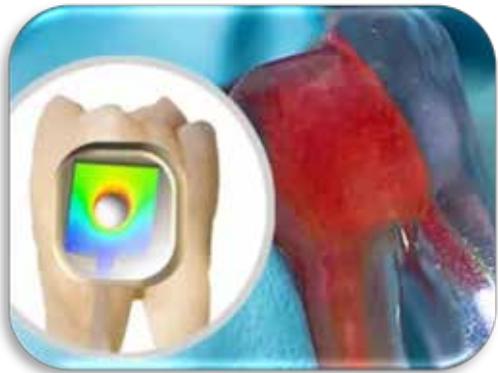
During the design process, Elevance, an engineering company dedicated to human-centered design using the virtual human body model developed by the Global Human Body Models Consortium (GHBMC), performed tests for NASCAR using Ansys LS-OPT, a design optimization and probabilistic analysis package. LS-OPT uses an inverse process of first specifying the performance criteria and then computing the best design according to a formulation. Thousands of bumper simulations were run using LS-OPT, and soon NASCAR became so satisfied with the results that they committed to having these parts built without any physical crash test data.

“These were not prototype parts but pre-production parts,” Patalak says. “When we finally had a chance to physically crash test them later on, the validation and correlation between the physical test and the simulation model was uncanny.”

...Gentlemen, Start Your Engines! - But would the Next Gen car be ready for the first demonstration race, it was — much to Probst’s relief. **“If we didn’t have Ansys LS-DYNA, I’m not sure the Next Gen car would have been ready for the 2022 season because of everything being so disrupted by the pandemic,”** Probst says.



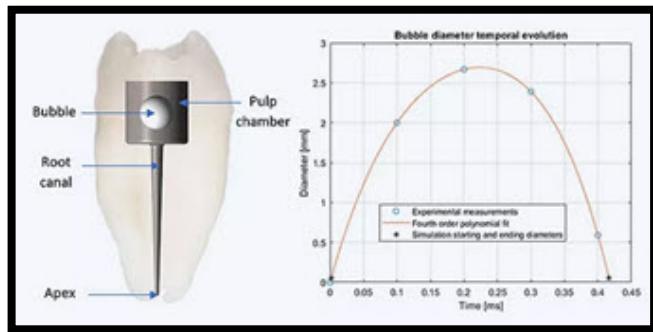
LUMENDO - Solutions in Endodontics - Simulation of a cavitating bubble inside a single root canal filled with water



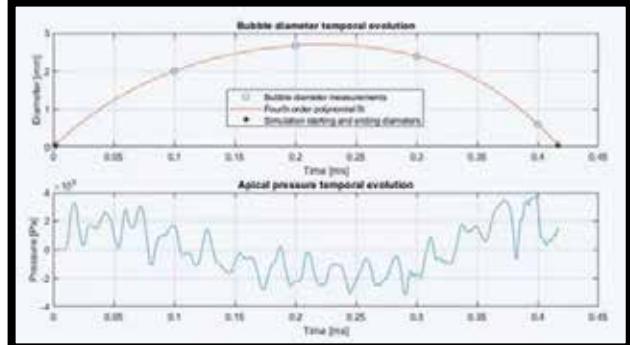
[Simulation of Laser induced cavitation with Ansys Fluent](#)

Sector: Health Specialist field: Fluid mechanics

Lumendo AG is an innovative company researching injectable filler and endodontic debridement solutions. With the simulation technology of Ansys and the help of CADFEM, new methods were tested and further developed. In certain endodontic treatments, dentist use a 3000 nm pulsed laser, which can create a cavitating bubble that emits a powerful shockwave.



Bubble diameter temporal evolution



Because of the transient simulation the minimum pressure (-0.32 MPa) and maximum pressure (0.38 MPa) at the apex could be evaluated

Task - To assess the efficiency of root canal cleaning using laser induced cavitation, CFD simulation with Ansys Fluent were performed. The goal of the simulation is to give insight into the pressure peaks and temporal evolution though the root canal down to the apex.

Solution - The simulation model consists of a moving wall, representing the free surface of the bubble, which is based on experimental data. In a first phase, the bubble is expanding induced through the laser. In the second phase the cavitation of the bubble occurs. The pressure waves are then tracked and analyzed.

Customer Benefit

- Prove of concept of simulation method for laser induced cavitation
- Increased knowledge of the design including an identification of the most critical locations.
- Useful information to start experimental validation and production without extensive iterative prototyping.
- Increased knowledge about the influence of geometrical dimensions for system tuning.
- Local information not accessible with experimental measurements.



Kevin Baur

kevin.baur@cadfem.ch



EXCERPT – For building your bean bag toss visit the website for complete instructions.



A Sensible CAD Workflow - J. Kleinschmidt - [I Convinced my Boss to let me Build America's Favorite Yard Game -](#)

Whether you call it cornhole or bean bag toss, bags or sack toss, we can all agree on one thing: the game where you throw bean-filled pouches at a hole on a board has Americans interacting with family members and avoiding political arguments since 1974!

Here, in Minnesota, we affectionately call this game, “bags”. I’ll refer to it as such from now on. I’m not here to talk about how to play bags, but you can find rules here.

We’re here to talk about how SOLIDWORKS design, costing, and rendering tools helped my stakeholders – in this case, my boss – approve decisions faster.

The Pitch - Our local office – located in beautiful Eden Prairie, MN – needed an entertaining space. The office is paired next to vacant patio that overlooks Lake Smetana to the east, and 494 to the south. What better way to spend an afternoon in June throwing bags with my colleagues? How can I make these to align with our corporate branding? The obvious answer was to make it myself. But I needed two things: a buy-in, and a budget. Fortunately, SOLIDWORKS does both – easily.

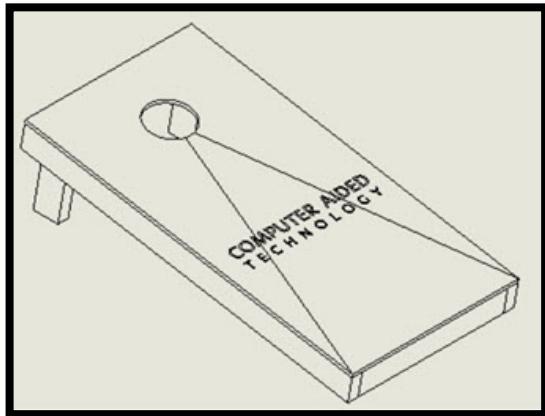
The Design - Probably one of the easiest projects I’ve ever taken on is designing a bags platform. Let’s look at the official requirements for it: Hole diameter is 6”. Hole is centered, 9” from top.

Board is 4’x2’x1/2”. Board angle is approximately 10-degrees.



One workflow I’ve been enjoying storing these parameters as global variables under Tools> Equations. This way, I can call out any of the unique measurements to the design. It also makes it easier to link values on the fly by building equations.

The design will be made up of weldments and sheet metal. This allows me to get the nominal dimensions for the framing, legs, and board. My custom weldment profiles included several standard sizes of lumber members. To learn how to customize weldment profiles, visit [here](#). My cut list is more descriptive than a standard BOM because it features the cut lengths of members. This can also be used to extract part costs using SOLIDWORKS Costing. We’ll get to that later.





Please visit the site for complete information on how to build your bean bag toss...



The Buy-in - It's time to take the design a bit further. If my boss has any chance of approving this, I will need great visual supports. Insert: Visualize.

SOLIDWORKS Visualize helps create hyper-realistic product renderings using the same CAD SLDprt and SLDasm files. It's more robust than other rendering options in SOLIDWORKS like Photoview 360. It's also not the easiest to learn. Therefore, adding appearances directly within SOLIDWORKS can save time.

The appearances tab applies 2D cosmetic textures to faces, features, bodies, or parts. We can apply these and import this model directly into Visualize.

The first pass seems good at first, but a closer inspection shows that some of the model face patterns are going in the wrong direction.

This just won't do. How will my boss be wooed into agreeing for an office "bags" set? Luckily, SOLIDWORKS appearances can address this issue quickly.

Whether you're a highly valued startup that wants to render excitement and intrigue to your stakeholders, or whether you're just trying to convince your wife to build that backyard hangout you've always wanted, Visualize brings to life what standard CAD modelling cannot. It's included with active subscription for SOLIDWORKS Professional and Premium.

SOLIDWORKS Costing is included with SOLIDWORKS Professional (Premium for assemblies.) This tool will help you calculate in-house manufacturing costs for budget approval. It can also determine the "what if's" of material procurement and manufacturing processes that optimize your lean product manufacturing. I used it to make sure I was wasting less, with 8ft instead of 12ft boards.

So, what are you waiting for? Get started by taking formal training through CATI, informal training through MySolidWorks, and start getting comfortable with the "yes" you'll start receiving on your product development.

Best wishes and happy designing!

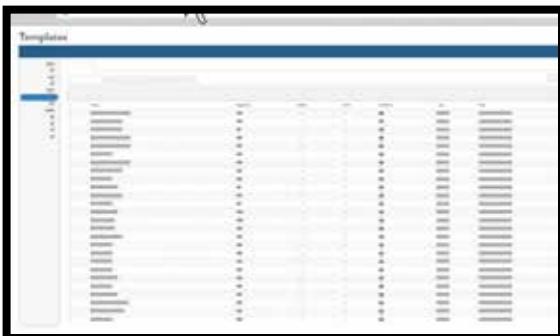
Jordan Kleinschmidt,

CSWE, Application Engineer II, Computer Aided Technology

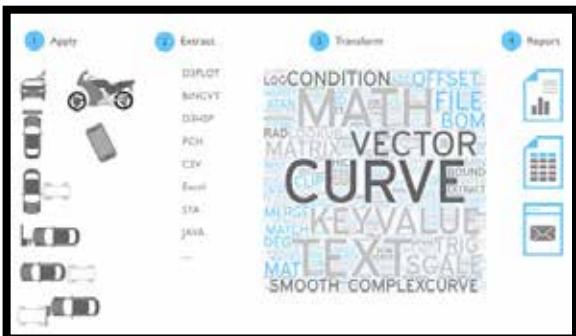


Suri Bala
Founder and CEO at d3VIEW, Inc.

"Did you know that Data integrations in its simplest form encompasses groups of responses and transformations applied to simulations or physical tests to extract data for enhanced data mining and saved for reuse later?"

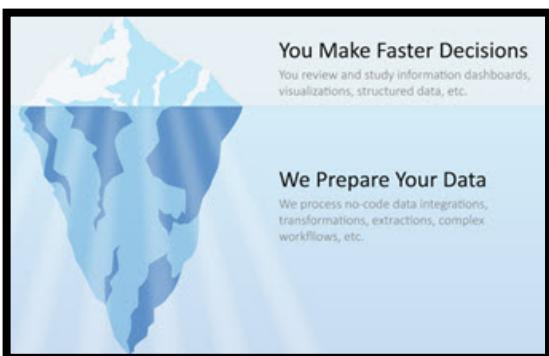


[**Embrace Efficiency with No-Code / Low-Code Data Integrations**](#) - Integrate Extractions and Transformations with Your Simulations and Experimental Data to Reveal Deeper Insights



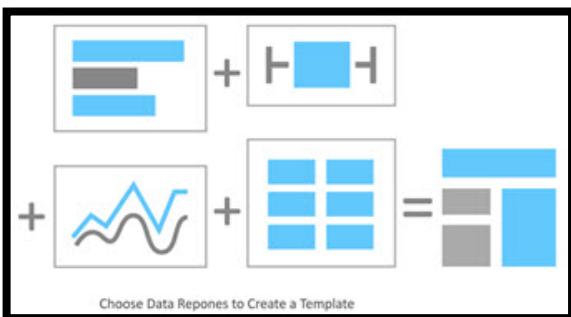
Boost Your Data Through Extraction and Transformation

Data integrations in its simplest form encompasses groups of responses and transformations applied to simulations or physical tests to extract data for enhanced data mining and saved for reuse later.



We Make It Simple for You

Built-in data integrations support extraction, transformation and storage of information with zero human intervention making it easier and faster to derive what you need from your experiments.



Define Your Extractions

- Choose from over 30 master extractions or upload a pre-existing one.
- You can also build your own using responses from your processed simulations or uploaded physical tests.

Visit the website for complete information on Data integrations



On July 1st the DYNAmore tools were relaunched under a new licensing model as a rental model.



DYNAmore Ecosystem Tools – Relaunched to a lease-based distribution model, it includes extended technical support.

We have partially renamed the tools, and you will find them in group packages. The tools will allow customers maximum flexibility and make work with LS-DYNA easier.

- The programs are written in Perl and Fortran
- The programs are available for Windows and Linux.

The DYNAmore tools, including the pre- and post-processing and the quality assurance of simulation models, are more popular each year.

Additionally, there is an increasing demand for technical support, functional enhancements, and assistance during the installation.

You can lease these packages separately. This type of leasing offers our customers the most significant possible individuality. Below is a list of the particular packages with included tools.

- **Existing customers:** a grace period until the end of Q3/2022 applies for the changeover; the keys are issued until September 30th, 2022.
- **Development Customers:** for customers who have contributed to the development of the tools, the tools will remain free of charge.
- Please note that technical support, enhancements, and updates will only be accessible for customers within the lease model.

Visit our website for the links to each tool for additional information.

DYNAmore.pre

- DM.plot2bc - Generation of *BOUNDARY_PRESCRIBED_MOTION cards or *INTERFACE_LINKING_NODE_SET binary file out of d3plot for a given node set
- DM.check-hsp - Checks the d3hsp file for various model information
- DM.check-c - "Swiss Army knife" for all kind of contact warnings
- DM.seghandle - Listing, visualization and manipulation of *INTERFACE_COMPONENT/LINKING binary files
- DM.plot2coor - Reads nodal coordinates from d3plot at selected state for a node set. Possible replacement of matching *NODE cards in a keyword file



DYNAmore.post

- DM.plotcprs - "Swiss Army knife" for manipulation or selection of d3plot file result data
- DM.check-failed - Tabulated info about failed elements and NaN forces or NaN velocities
- DM.check-binout - List contents and integrity of binout file
- DM.d3plot-head - Manipulation of d3plot header (title)
- DM.plotintrusion - Calculate maximal intrusion of a subset of nodes
- DM.plot2nodout - Extraction of NODOUT data (binout or ASCII format) out of d3plot file for a given node set
- DM.hsp-tailor - Eliminates redundant information from d3hsp or messag files in order to keep the files small

DYNAmore.quality

- DM.inspect - Customizable quality control of LS-DYNA input files
- DM.check-hsp - Checks the d3hsp file for various model information

DYNAmore.mapping

- ENVYO

DYNAmore.testing

- DM.binout2isomme - Conversion of LS-DYNA binout files to match the ISO-MME file format

Free tools for existing customers

- kin2plot - Converts Madymo kin3-resultfiles into d3plot file
- rcrel - Transformation of contact forces into a local system
- nodrel - Nodout in alternative coordinate systems

CONTACTS:



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[**@ Kathleen Fritz**](#)



Kathrin Faas

[**@ Kathrin Faas**](#)



A fully updated training schedule for autumn 2022 is now available

A fully updated training schedule for autumn 2022 is now available. [Here's a taste of September's special flavors!](#)

Linköping - Introduction to LS-DYNA and Material Failure.

Göteborg - we have the pleasure of hosting our German colleagues who will give training in Joining Techniques, Introduction to Passive Safety in LS-DYNA and CPM Airbag Modelling. We also present a course in LS-OPT – Optimization and Robustness in Göteborg.

Introduction to LS-DYNA (excerpt –visit the website for complete information)

Sept 6th - Oct 4th - Nov 8th - Dec 6th

Anders Bernhardsson, Marcus Gustavsson, Rasmus Schützer

The introductory seminar gives a quick, comprehensive introduction to the applications of LS-DYNA and is recommended for simulation engineers who want to use LS-DYNA as an FE code to simulate general nonlinear problems. Prior knowledge is not required.

The main application areas of LS-DYNA are strongly non-linear tasks such as crash, metalforming, and impact problem simulation, and these are covered in the seminar. LS-DYNA can also be used to successfully solve complex nonlinear static problems with either the explicit or the implicit solver. The participant will be introduced to both solvers as well as coupling the mechanical solvers to the thermal solver in order to simulate multiphysics problems. The seminar participant works on exercise examples to help them understand the applications of LS-DYNA and LS-PREPOST.

The seminar is suited for users with limited or no experience of the program that want an overview of the LS-DYNA possibilities and learn how to perform basic analyses. LS-PrePost is the default pre- and postprocessor for LS-DYNA and will be used for the exercise examples in the seminar. Prior to the seminar, the participant will receive an LS-PrePost tutorial as an introduction.

Seminar outline: Introduction and application examples, Implicit and explicit finite element methods
Keyword format, Elements, Contacts, Boundary and initial conditions, Constraints, Material models
Rigid bodies, Coupled analyses, Control parameters, Output format and output files
Pre and post processing with LS-PREPOST, Hands-on exercises throughout the seminar



Anders Bernhardsson

Marcus Gustavsson

Rasmus Schützer

**CASE STUDY: Seat comfort analyses – Excerpt - [Case study: A biomechanical approach to seat comfort using a Human Body Model](#)**

We spend a lot of our lives sitting, on chairs, stools, in sofas or car seats. Seat comfort is an important part of the customer experience in a car, the ergonomics of an office chair, or just for relaxing on your favorite sofa.

In this case study, we demonstrate how already existing building blocks of LS-DYNA could be applied to a basic FE-analysis of seat comfort.

FE-models of ATDs – commonly known as crash test dummies, have been available in LS-DYNA for a long time. These models are developed to give the same output signals as the physical ATDs. However, since these are models of a crash test dummy, the applicability of the models to other load cases on the human body is limited.

In recent years, however, FE-models of the human body (HBMs) have been developed primarily for injury assessment in crash simulations. Since the models are based on material data and scanned geometry from humans, it may be possible to use an HBM for evaluating other load cases to the human body.



The THUMS model - The Total Human Model for Safety (THUMS) is a human body FE-model developed by Toyota. The model is capable of simulating human body injuries, such as bone fracture and damage to the brain and internal organs in e.g. a vehicle crash. In contrast to the ATDs, the material models and geometry of the THUMS are intended to represent the tissue, bones and muscles of a real physical person. The model is available for different genders, ages and physiques. The present case study is based on THUMS AM50 (v6.1), which represents an average adult male.

Method - A basic model of a stool in two versions was developed – with and without a cushion. Material data for the cushion were taken as typical values for a car seat....

Gravity loading by mixed boundary conditions - The HBM was placed on the stool and gravity loading was applied. The objective was to reach quasi-static equilibrium...

Visit the website for the Results Explicit and Implicit - Computational Resources – Conclusion



[Numerical simulations for the structural performance assessments: a connecting rod's case study Piaggio Group uses CAE to ensure a new product design's safety and durability](#)

ABSTRACT - The Piaggio Group is the largest European manufacturer of two-wheel motor vehicles, and one of the world leaders in its sector. The Group is also a major international player in the three-and four-wheel light transport sector. The connecting rod is one of the most important components in powertrain systems, so it requires very careful structural analyses because its failure implies serious damage to the entire engine.

Piaggio is developing a new twin-engine for motorbike applications, and consequently paid particular attention to the development of the connecting rod. This technical case study explains how the engineers investigated the soundness of the design by means of CAE simulations. Firstly, a multibody model was implemented to evaluate the dynamic loads over time, after which it was possible to verify the safety of the part's design using various structural performance assessments, including buckling, hardware design deformations under operating conditions, and durability. Piaggio finds that the use of CAE in the early design stages saves design time, and, therefore, money, and improves product competitiveness

The Piaggio Group is the largest European manufacturer of two-wheel motor vehicles and one of the world leaders in its sector. The Group is also a major international player in the three-and four-wheel light transport sector.

Project Objectives

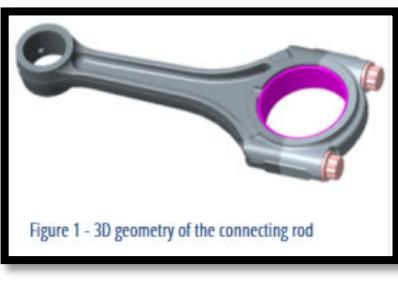


Figure 1 - 3D geometry of the connecting rod

The connecting rod is one of the most important components in the powertrain systems, very careful structural analysis are required; its failure implies serious damage to the entire engine. Piaggio is developing a new twin engine for motorbike applications and consequently a particular attention has been paid to the connecting rod development, as shown in Figure 1.

In this project, the design soundness of this component has been investigated through the employment of CAE simulations. Firstly, a multibody model has been implemented to evaluate the dynamic loads over the time and, afterwards, it has been possible to verify the safe design of the part by the followings structural performance assessments:

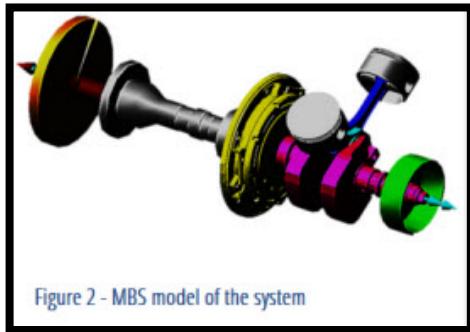


Figure 2 - MBS model of the system

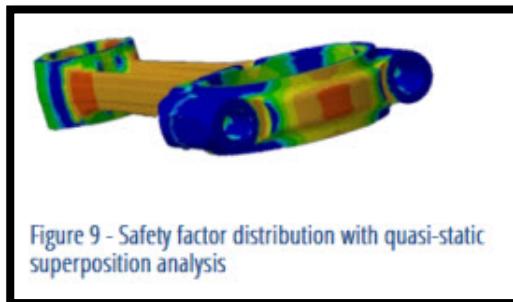


Figure 9 - Safety factor distribution with quasi-static superposition analysis

FE ANALYSES TO:

- investigate buckling issues;
- compute the natural mode shapes and frequencies of the system (modal analysis);
- perform and analyze the connecting rod's eyes deformation;

DURABILITY ANALYSIS.

Modelling and simulations | Multibody model - The multibody model has been implemented to simulate the bench test conditions of the powertrain system according to Piaggio's standards. The dynamical behaviour of the system has been analyzed under the effect of the engine's combustion pressure (at maximum torque, maximum power and maximum speed), evaluated using CFD simulations, and the test rig reaction. For each corresponding speed, in stationary conditions, has been computed the load time history acting on the connecting rod (and on the other components). It has also been assessed the maximum tensile and compressive conditions of the connecting rod, used for the following analysis.

FE analyses | Buckling analysis - The buckling analysis has been performed using a simplified model, with only the connecting rod assembly, without piston, piston pin and crankshaft. The assembly has been constrained with a spherical joint on the big eye, allowing the rotation of the internal surfaces and, on the small eye, locking only the displacements along the transversal directions of the connection rod. An explorative compressive (bearing) load has been applied to the small eye; as output, it has been obtained a load multiplier and consequently the buckling critical conditions. The first buckling critical condition has been compared with the maximum compressive load during the operate. The geometry and boundary conditions are shown in Figure 3. (view figure on the website)

Additional information can be viewed with figures on the website for:

- Modal analysis and Eyes deformation analysis
- Durability analyses
- Eyes deformation
- Conclusions

In the early stages of development of a new idea, the simulation is the only way to correct the design mistakes. In this project, CAE tools have been exploited to predict the mechanical performance of a connecting rod to be used in a new twin engine for motorcycle applications. The implementation of an accurate numerical models, an efficient integration between CAE tools, improve the products competitiveness, speed up the process, reducing, for example, the cycles of physical experimentation saving considerable time and therefore money.



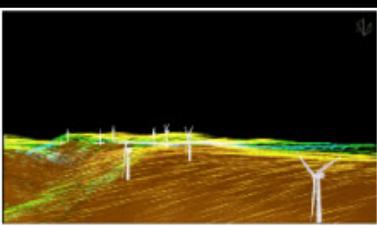
Kambiz Kayvantash, Sr. Director of AI/ML Solutions for Design and Engineering at Hexagon Manufacturing Intelligence

ODYSSEE CAE enhances your knowledge by answering complex engineering questions in real-time that would otherwise take hundreds of hours to simulate and analyze.

[**ODYSSEE – Optimal Decision Support System for Engineering and Expertise**](#)

ODYSSEE CAE - With only a few previous CAE simulations, ODYSSEE predicts, optimizes, and robustly generates accurate results in real-time.

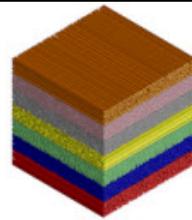
ODYSSEE CAE produces full-time history outputs, including complete CAE analysis with detailed post-processing of results.



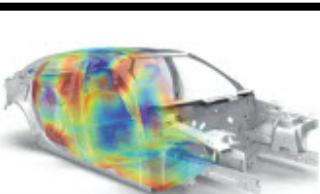
Computational Fluid Dynamics (CFD)



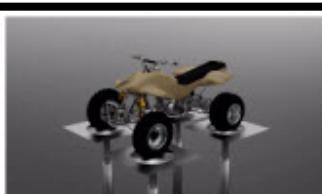
Structures



Materials



Acoustics



System Dynamics



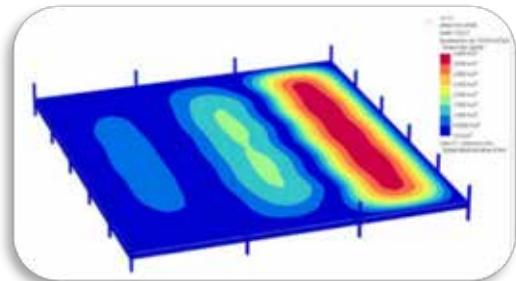
Autonomous



Manufacturing



**Marta Kempa, MBA - Marketing Coordinator & Seppi
Oasys LS-DYNA
Oasys Software, Tutorials & Classes Not To Miss**



[Webinar on footfall analysis using OasysGSA](#)

In case you missed our sponsored webinar by the IStructE, check out the recording on the link above.

GSA is a comprehensive structural analysis program with versatile design capabilities.

The webinar guides you through how to use GSA to assess your building or bridge for footfall: human induced vibration to CCIP-016, SCI P345, or AISC DG11.capabilities.

It is important to know how your structure will respond to use. Will the human induced vibration disturb the occupants or even stop them from working? It is even more important to know the environmental impact of your structure and the different scheme options. With GSA you can measure the embodied energy, carbon, and other factors.

From footbridges to laboratories, whether built in steel, concrete, or timber, Oasys GSA is the program that experienced engineers rely on to give them the answers.



Peter Debney is a Chartered Engineer and a Fellow of the Institution of Structural Engineers (IStructE), as well as a member of the International Association for Bridge and Structural Engineering (IABSE). He is the senior consultant, structural application specialist, support manager, and quality manager for Arup in the Oasys software group. He has been a Visiting Professor at the University of Bradford and is a visiting lecturer at several universities. He is a regular public speaker and has published a book on Computational Engineering.



Visit the website for the conference pictures

[Thank you for joining us at the UK Oasys LS-DYNA Conference 2022!](#)

It was great to be able to get everyone together, catch-up with one another, and learn more about ways in which we can collaborate further.

We will be sharing conference content via our website and YouTube channel. Look for a notification when this is available to view.



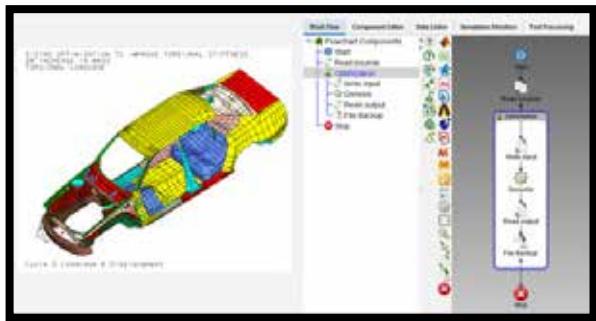
Many thanks once again for your attendance and we look forward to seeing you at future events.

The Oasys LS-DYNA Team





Introducing ILIAD's What-If tool. The brainchild of our late founder Dr. Garret Vanderplaats, the What-If tool allows engineers and designers to explore the impact of their design parameter limits and constraint bounds without needing to rerun any simulations.



What If? A Tool for ILIAD - Design is an iterative process which often necessitates reassessment of design parameters and constraints. When optimization is used in assisting design, engineers may find themselves asking “what if” a constraint was relaxed slightly, or a parameter was allowed more flexibility? When computer models are complex or computation resources are limited, it may be infeasible to answer these questions by traditional means.

Figure 1: Torsional stiffness optimization of a car body model (left) with an ILIAD workflow (right) using Genesis' finite element analysis capability.

Using data gathered from an optimization sub-flow, ILIAD constructs a reduced order model of the underlying analysis which may be used as a proxy for a complete simulation when assessing the affects of minor adjustments of variables bounds.

The workflow shown in figure 1 represents a sizing optimization in which part thicknesses of a car chassis are optimized for torsional stiffness subject to a mass constraint. This problem is a good candidate for the What-If tool both because the analysis is complex and because designers may reassess their mass requirements and thickness restrictions in various design iterations.

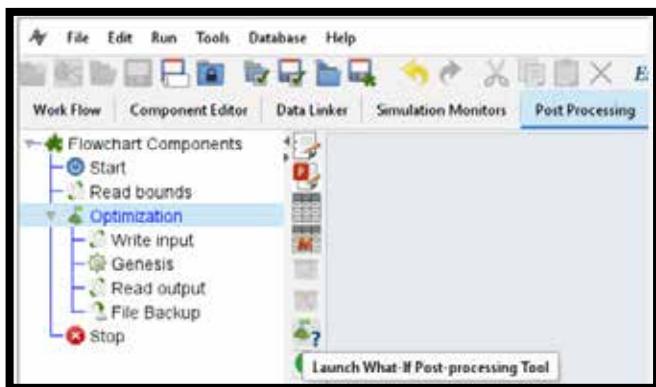


Figure 2: What-If tool is found by selecting the desired optimization from the Flowchart Components tree in the Post-Processing tab.

What-If allows users to select variables to include in follow-up optimizations of the reduced order model, which can return new optimum in real time if variable limits are changed or a constraint is relaxed or tightened.

This instant human-machine feedback is perfect for designers looking to squeeze the best possible performance out of their parts and in the case of mass-production, a few extra pounds off a car body may mean millions of dollars in savings in materials and downstream costs.

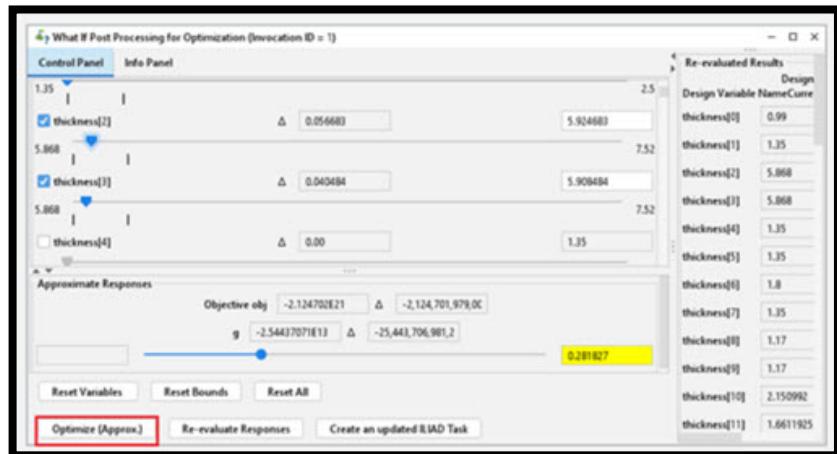


Figure 3: Main What-If panel showing bounds and value of each variable, approximated responses, and reevaluated response values. Approximate optimization highlighted in lower left.

If a more suitable result is projected by What-If than the original optimization, the What-If tool can rerun the analysis to validate the new design point.

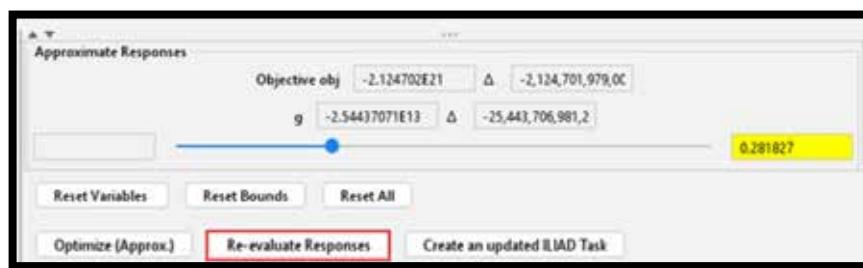
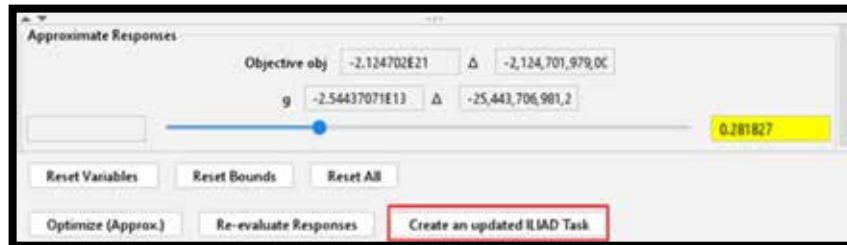


Figure 4: The button to call the analysis to reevaluate the responses using new design variables is found at the bottom of the panel.



If the bounds of design parameters are altered, the What-If tool can create a duplicate workflow as a new task in the project that uses the altered variable limits. This assists in project management when an engineer wants to compare and store results of optimizing a system subject to different design considerations.

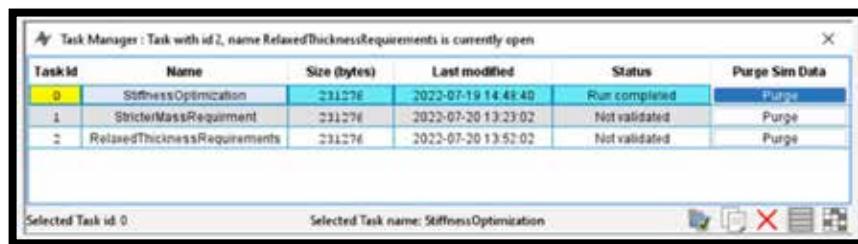


Figure 5: Button to create a new task in the project using the new variables bounds.

Figure 6: Window showing tasks representing various design requirement cases for a chassis torsional stiffness optimization created by the What-If tool.

Check back for weekly tips and tricks to learn how ILIAD and the What-If tool can assist engineers deliver better designs in less time!



Metin Ozen

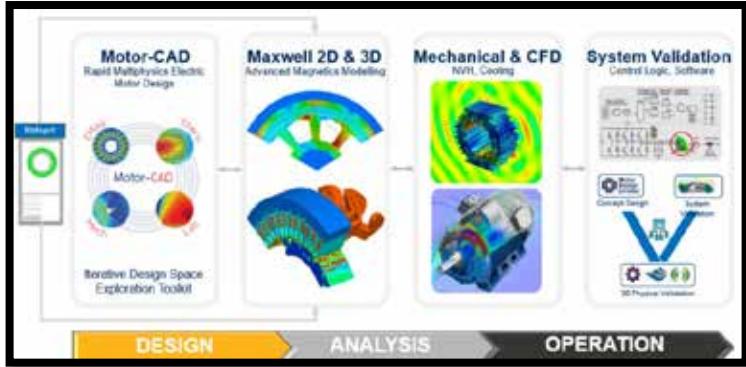
Principal & CEO at Ozen Engineering, Inc. and Mallett Technology, Inc.

Ozen Engineering, Inc. now has two training facilities at the following locations:

1210 E. Arques Ave., Suite #207, Sunnyvale, CA 94085; and

4601 Creekstone Drive, Suite 112, Durham, NC 27703

Training courses are primarily held at our Sunnyvale location, unless otherwise noted. If you are unable to attend the training sessions in person, don't worry! Remote participation via GoToMeeting is available for all courses.



ANSYS ELECTRICAL MOTOR SIMULATION SOLUTIONS

The electric machine design industry has developed rapidly in recent years. Designs need to be developed in short timescales, integrated and designed as part of a wider complex system, and designed to be manufactured at scale

Engineers who design electric machines need simulation tools that can be employed for quick, accurate product development. Ansys' electric machine design flow provides a complete virtual prototyping laboratory for machine design and development.

The Ansys electric machine simulation platform provides a complete solution for electric machine design and development. From the initial concept design stage to detailed multi-physics analysis and system validation, Ansys can provide a seamless end-to-end solution with couplings and automated workflows between various specialist tools.

The first piece in the workflow which covers the initial design of the machine with minimal input data to meet the target requirements is mostly done in Ansys Motor-CAD. Ansys Motor-CAD facilitates this cutting-edge design approach by providing the electric machine designer with a dedicated multi-physics design tool for electric motors. Motor-CAD provides rapid analysis over wide torque/speed operating ranges enabling comprehensive design space exploration. Within Motor-CAD there is a significant amount of embedded engineering expertise that can considerably expedite the design process. Motor-CAD is used worldwide in many different industries. It is particularly well adapted in the automotive and aerospace sectors where many class-leading manufacturers use it as a fundamental tool in their electric machine development process.

The Lego Challenge – Software LS-DYNA

Can simulation predict reality? This video answers that question and demonstrates the impressive capabilities with simulation.

Software	Time	Model Size	Impact	Model by
LS-DYNA	54 h w/192 Cores	45 Mio elements	60 km/h	DYNAmore and Scale

References: (excerpt) Thanks to Philippe Hurbain and dk for sharing the CAD data to create these models!

Porsche: <http://omr.ldraw.org/files/331>

Bugatti: <http://omr.ldraw.org/files/602>

DYNAmore Express: LEGO Crash Simulation in LS-DYNA - Data Management for Large-Scale Models

Speaker: Marko Thiele
(Scale GmbH)

Given that in our professional lives we are dealing on a daily basis with highly sophisticated crash models, it seems obvious that, when we saw a video of an actual physical crash of a LEGO® Porsche Technic Model on YouTube, we instantly thought we should be able to simulate this with the LS-DYNA® FEM solver.

Setting up a process, which involves every aspect of working with CAD data, meshing, dealing with solver files, submitting and monitoring the simulations, and finally handling the result files of simulations, is an important step when developing a Simulation Data Management (SDM) system such as LoCo and CAViT. Therefore we decided to use this LEGO® crash as a challenge and benchmark for our software.



[**Ford Unveils America's First Electric Pickup Truck Purpose-Built for Police: 2023 Ford F-150 Lightning Pro SSV**](#)

- 2023 Ford F-150® Lightning™ Pro Special Service Vehicle provides the modern, always-on work-ready truck police departments need to help lower costs, drive efficiency and accelerate customers' sustainability goals
- F-150 Lightning Pro SSV combines benefits of an electric powertrain with law enforcement-specific interior features of F-150 Police Responder®, including police-grade heavy-duty cloth seats, built-in steel intrusion plates and available roof-mounted LED warning beacons
- Ford Pro™ helps make the transition to electric easier for municipal customers with its top-selling1 police vehicle lineup, software, charging, service and FinSimple™ financing – now offering municipal loan options for charging solutions including installation, hardware and software

EXCERPT - DEARBORN, Mich., July 28, 2022 – Ford Pro™ continues to help guide cities into an electrified, software-driven world with the launch of America's first electric pickup truck purpose-built for police: the 2023 Ford F-150® Lightning™ Pro Special Service Vehicle.

Ford has been providing police departments with the vehicles they need to protect and serve communities for more than 70 years. Currently, Ford Pro customers include more than 12,000 police departments across the country and its police vehicle lineup outsells all other police vehicles combined¹. The company attributes this success and customer loyalty to the automaker's close collaboration with its customers, specifically the Ford Police Advisory Board...

An intelligent electric truck purpose-built for police

The 2023 Ford F-150 Lightning Pro SSV blends familiar Built Ford Tough® power and performance, including available sub-four-second 0-60 mph acceleration capabilities⁴, with the vehicle's high-tech electric platform and innovation with Ford Pro's real-time software and support.

The F-150 Lightning Pro SSV is designed to handle specialized departmental needs outside of pursuit situations, such as assisting at an accident or crime scene or giving departments the ability to tow a boat or trailer. Purpose-built features from F-150 Police Responder® include:

- Police-grade heavy-duty cloth seats with reduced bolsters to help holstered officers enter and exit the vehicle more easily
- Built-in steel intrusion plates in the front seatbacks.
- Available red/blue, amber/white roof-mounted LED warning beacons
- An upfit-friendly reinforced instrument panel top tray for easy mounting of police equipment
- Easy-to-clean vinyl rear seats and vinyl flooring



[Rolls-Royce unveils radical new approach to gas turbine development with Orpheus demonstrator at Farnborough International Air Show](#)

Known as Orpheus, the first demonstrator engine concept, on display at Farnborough International Air Show (FIAS), has been developed using a completely agile approach – built nearly twice as fast as a conventional engine programme, with the second demonstrator within the family, already on test in Bristol, UK.

Rolls-Royce Defence business has designed, built, and run an innovative small engine concept in under 18 months - a truly transformational project that will change how products and technologies are developed for the UK's Future Combat Air Strategy (FCAS).

Pioneered by a team of highly skilled engineers, manufacturers, and programme managers, the Orpheus project has allowed for trial and collaboration across the business, combining proven methods of engineering with innovative digital technologies.

The pace of innovation shown by British industry continues to push new boundaries and the Orpheus engine is yet another example of that.

Throughout the programme, Rolls-Royce has tapped into more than 30 UK-based small and medium size businesses, working on techniques such as Additive Layer Manufacturing to ensure Orpheus is adaptable and scalable for multi applicability and combines both electrical power generation and propulsive power.

ORPHEUS

Breaking All Boundaries - Think Big. Start Small. Scale Fast.

Founded on the principles of creating a family of affordable, twin-spool small engines, Orpheus will provide pioneering capability solutions for a broad range of future Defence markets by utilising common engine architectures and technologies that can be rapidly scaled, adapted and tailored for multiple applications.

Drawing on a world-class legacy of engineering expertise and innovation, the Orpheus family range offers the most efficient/low fuel burn engines in this market segment. With embedded electrical power generation capability, the engine family is ready for future, more-electric vehicles.



Gaze at the full-color images from NASA's James Webb Space Telescope. From neighboring exoplanets to the most distant galaxies in our early universe, these images usher in a new era of astronomy and show off the capabilities of all four of the instruments on Webb. One of those instruments, the Mid-Infrared Instrument (or MIRI), is managed by JPL for NASA

Picture credits - Credits: NASA, ESA, CSA, and STScI

The images include some taken by the telescope's Mid-Infrared Instrument, which the Jet Propulsion Laboratory manages for NASA.

The dawn of a new era in astronomy is here as the world gets its first look at the full capabilities of NASA's James Webb Space Telescope, a partnership with ESA (European Space Agency) and CSA (Canadian Space Agency).



The full set of the telescope's first full-color images and spectroscopic data, are available at: nasa.gov/webbfirstrimages

"Today, we present humanity with a groundbreaking new view of the cosmos from the James Webb Space Telescope – a view the world has never seen before," said NASA Administrator Bill Nelson. "These images, including the deepest infrared view of our universe that has ever been taken, show us how Webb will help to uncover the answers to questions we don't even yet know to ask; questions that will help us better understand our universe and humanity's place within it."

"The Webb team's incredible success is a reflection of what NASA does best. We take dreams and turn them into reality for the benefit of humanity. I can't wait to see the discoveries that we uncover – the team is just getting started!"

NASA explores the unknown in space for the benefit of all, and Webb's first observations tell the story of the hidden universe through every phase of cosmic history – from neighboring planets outside our solar system, known as exoplanets, to the most distant observable galaxies in the early universe.

"This is a singular and historic moment," said Thomas Zurbuchen, associate administrator for NASA's Science Mission Directorate. "It took decades of drive and perseverance to get us here, and I am immensely proud of the Webb team. These first images show us how much we can accomplish when we come together behind a shared goal, to solve the cosmic mysteries that connect us all. It's a stunning glimpse of the insights yet to come."

"We are elated to celebrate this extraordinary day with the world," said Greg Robinson, Webb program director at NASA Headquarters. "The beautiful diversity and incredible detail of the Webb telescope's images and data will have a profound impact on our understanding of the universe and inspire us to dream big."



Town Airport Quiz

August

The quiz was left in the suggestion box by The Old Retired Pilot. We are sending it out to the residents and guests. No one in town knows his name. You yell, "HEY, Old Pilot."

The Old Pilot and the Town Secretary are arguing which is rather a common occurrence

One of them yelled, "IF IT's thin and fast it's a fighter jet."
(Thin? We're not saying who yelled that)

Quiz - can guess the names?

(The answers are at the bottom of the Goodbye page)



A _____

B _____



C _____



D _____



US Airforce Week in Pictures



Air combat training - An F-16C Fighting Falcon, assigned to the U.S. Air Force Weapons School and piloted by Col. Cameron Dadgar, Nevada Test and Training Range commander, participates in a training mission during exercise Red Flag-Nellis 22-3 over the NTTR, Nev., July 14, 2022. The 414th Combat Training Squadron conducts Red Flag exercises to provide aircrews the experience of multiple, intensive air combat sorties in the safety of a training environment.

(U.S. Air Force photo by Tech. Sgt. Alexandre Montes)



Maj. Joshua Gunderson, F-22 Raptor Demonstration Team commander and pilot, maneuvers into a climb after a tactical pitch at the Cold Lake Air Show in Alberta, Canada, July 17, 2022.

The F-22's two Pratt and Whitney F119 Turbofan engines bring a combined 70,000 pounds of thrust in combination with two-dimensional thrust vectoring to enable maximum maneuverability for the multirole air-to-air stealth fighter.

(U.S. Air Force photo by Tech. Sgt. Don Hudson)



25 years of the F-22

A U.S. Air Force F-22 Raptor assigned to the 3rd Wing conducts a training sortie above Joint Base Elmendorf-Richardson, Alaska, July 19, 2022. This year marks the F-22's 25th anniversary of consistently providing America and its allies with fifth-generation air superiority.

(U.S. Air Force photo by Senior Airman Patrick Sullivan)



Research - Development Knee Replacement

August

A town resident was having difficulty walking. It turns out that they needed knee replacement surgery.

One of the advantages we now have in medical research is the use of simulations before manufacturing an implant. One software used in Medical Devices Simulations is LS-DYNA. It encompasses material models, making it valuable in the biomedical analysis of bone, soft tissue, and muscle.

Below are 3 knee X-rays (Xray's are not of our resident, Carlo, who is now doing great!)

- (#1) A normal knee, the space between the bones indicates healthy cartilage (arrows).
- (#2) A knee that has become bowed from arthritis. It shows severe loss of joint space (arrows).

Pic Source [The Center Orthopedic & Neurosurgical Care & Research](#)

- (#3) A leg bend after an implant

Pic Source [OrthoCarolina Official Team Physician of the Carolina Panthers](#)

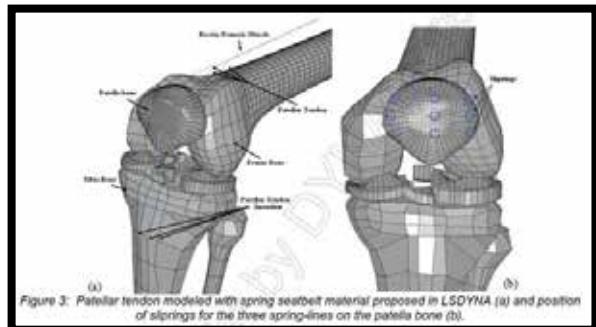
#1

#2

#3



Thanks to new innovated uses of software in the medical field there are many papers available. Below in just one of the many papers that are on DYNALOOK in the medical field.



Improvements and Validation of an Existing LS-DYNA Model of the Knee-Thigh-Hip of a 50th Percentile Male Including Muscles and Ligaments

Dr. Chiara Silvestri, Mario Mongiardini,
Prof. Dr. Malcolm H. Ray
Worcester Polytechnic Inst., Worcester, MA, USA

A detailed review of an existing LSDYNA finite element (FE) model of the Knee-Thigh-Hip (KTH) of a 50th percentile male was accomplished. The main scope was to refine some aspects of the model for obtaining a more appropriate and biofidelic tool for injury mechanics investigation of the KTH in frontal car crashes. Detailed reviews of this model were performed with regards to material properties of the bone models used for representation of the pelvis, femur and patella...

**This Month: Agriculture (thanks to MDPI)**

Wild Chrysanthemums (Chinese: 菊花; pinyin: Júhuā) were first cultivated in China as a flowering herb as far back as the 15th century BC. (wikipedia)

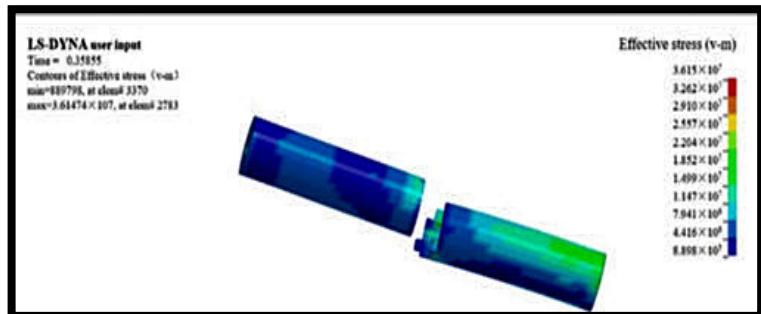
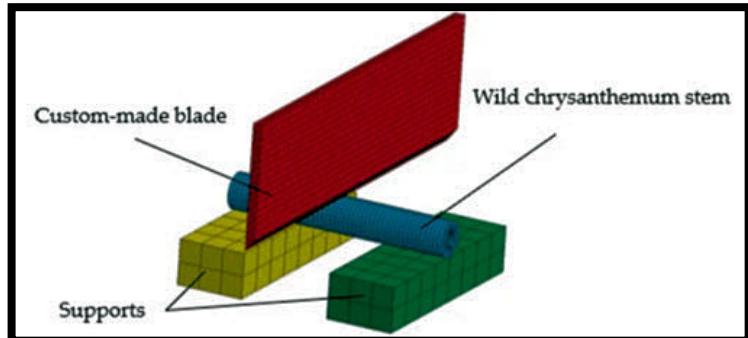
ANSYS Workbench 19.0 software and LS-DYNA software (LS-PrePOST-4.3-X64) are used to calibrate the finite element simulation model of wild chrysanthemum stem cutting

**Finite Element Model Construction and Cutting Parameter Calibration of Wild Chrysanthemum Stem**

by T. Wang, Z. Liu, X. Yan, G. Mi, S. Liu, K. Chen, S. Zhang, X. Wang, S. Zhang and X. Wu

College of Mechanical and Electronic Engineering,
Northwest A&F University, Xianyang 712100, China

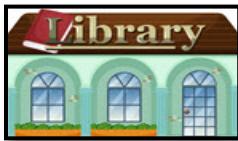
Abstract - Due to a lack of an accurate model in finite element simulation of mechanized harvesting of wild chrysanthemum, the stem of wild chrysanthemum in the harvesting period is taken as the research object. **ANSYS Workbench 19.0 software and LS-DYNA software (LS-PrePOST-4.3-X64) are used to calibrate the finite element simulation model of wild chrysanthemum stem cutting.**



The results showed that the maximum error between the simulated and the actual value of the maximum shear force of wild chrysanthemum stems with different diameters is 7.8%. This indicates that the calibrated parameters of the relevant stem failure model can be used in the finite element method simulation and provide a basis for subsequent simulations.

The stem diameter distribution at the cutting height of the chrysanthemum is obtained. The maximum shear forces at different diameters (7 mm, 8 mm, 9 mm, 10 mm, and 11 mm) within the cutting range are determined as 120.0 N, 159.2 N, 213.8 N, 300.0 N, and 378.2 N, respectively, by using a biomechanical testing machine and a custom-made shear blade. The Plastic_Kinematic failure model is used to simulate the cutting process by the finite element method. The Plackett–Burman test is employed to screen out the test factors that significantly affect the results, namely, the yield stress, failure strain, and strain rate parameter C. The regression model between the shear force and significant parameters is obtained by central composite design experiments.

To obtain the model parameters, the measured values are substituted into the regression equation as the simulation target values. In other words, the yield stress is 17.96 MPa, the strain rate parameter C is 87.27, and the failure strain is 0.0387. The maximum shear force simulation test is carried out with the determined parameters.



Do you have questions? Pull up a chair, have coffee, and here are the answers.

When is the next LS-DYNA conference in Germany?

[The 16th German LS-DYNA Forum will take place from October 11-13, 2022.](#)

Where is the next LS-DYNA conference in Germany?

Bamberg and online

Can the papers be found from previous conferences?

The [DYNALOOK](#) website presents papers from European and Int'l LS-DYNA User Conferences.

Additionally it provides by papers from other users. 2266+ papers are available.

Below is an excerpt from one of the papers from the 13th European LS-DYNA Conference.

AUTOLIV - 13th European LS-DYNA Conference – Ulm Germany – PDF - Coupling feedback control loop-based model in Simulink to finite element model in LS-Dyna: Application to reposition forward leaning occupant to upright posture

A. Soni, S. Schilling, H. Hinrichs, C. Verheyen, M. Grikschat, B. Eickhoff, A. Lucht, A. Cirstea (Autoliv)

Forward leaning postures have been observed for current car passengers [1] and are expected to occur even more frequently in future autonomous vehicles [2]. For existing restrain systems a strategy to provide optimized protection is to deploy mechatronic belt pre-pretensioner (MBPPT) before the crash targeting to maintain or better prevent possible forward leaning postures, mostly induced through pre-crash vehicle maneuvers [3 - 5].

2.1 Passive safety environment in LS-Dyna

The describing right-handed coordinate system has the X-axis points in the reverse driving direction and the Z-axis in an upwards direction. The passive safety environment consists of a rigid UN R16 steel seat with a UN R16 mannikin in 50° forward bent posture as illustrated in fig. 1.

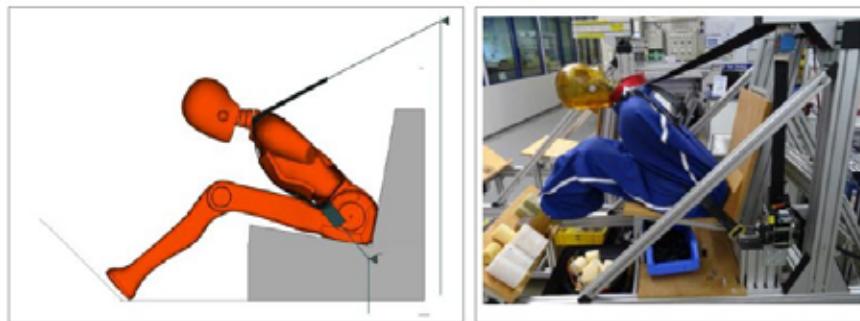


Fig.1: Passive safety environment consisted of UN R16 mannikin in 50° forward bent posture, in CAE (left) and physical (right) representation.



The Old Cattle Rancher's Ranch

No one knows his name. You yell, "HEY, old rancher."
Agriculture, Soil, Equipment, Cattle, and whatever he wants.

August

This month I'm bringing you Rhubarb Pie and roast green chile

Excerpt from Sandia Labs News Releases – Visit the site for the complete article



[Using the power of the sun to roast green chile](#) - Greener approach to a New Mexican staple opens possibilities for sustainable food roasting

ALBUQUERQUE, N.M. — Every August and September the unmistakable pungent aroma of roasting green chile permeates the air across New Mexico and neighboring states.

This delectable staple of regional cuisine is green in color, but roasting the chile pepper to deepen the flavor and make the inedible skin easier to remove is hardly environmentally friendly.

In New Mexico alone, burning propane to roast the peppers leads to a seasonal emission of approximately 7,800 metric tons of carbon dioxide — the equivalent of driving 1,700 cars for a year.

Sandia National Laboratories engineer Kenneth Armijo, who grew up on a chile farm in Sabinal, located between Albuquerque and Socorro, New Mexico, thought there was a “greener” way to roast green chile. The results of his experiments roasting chile with concentrated sunlight was shared at the American Society of Mechanical Engineers’ conference on energy and sustainability.



“The principle behind this research was to see if high-temperature food roasting, not just peppers, could be done with solar and produce comparable results as traditional propane roasting, and the answer is yes,” Armijo said. “We used green chile to showcase the culture of New Mexico. Combining the state-of-the-art facilities and research at Sandia National Labs with the culture, food and people of New Mexico is just so special. What other national lab in the world would have done this?”

Sandia National Laboratories engineer Ken Armijo installs a chile roaster on top of the solar tower above a field of mirror heliostats. Armijo will present his research at a conference on energy and sustainability this July. (Photo by Randy Montoya)

In his day job, Armijo uses the power of the sun at Sandia’s National Solar Thermal Test Facility to explore new ways to capture the sun’s power for electricity and industrial process heat.

...Armijo’s father, a chile farmer and roaster, donated several burlap sacks of green chile and his experience assessing properly roasted chile. Armijo’s father grows organic, heirloom chile from seed passed down through multiple generations.

Using 38 to 42 of the 212 heliostats — mirror-like devices used to focus sunlight — at the test facility, Armijo was able to achieve a temperature above 900 degrees Fahrenheit uniformly across the roasting drum, he said. This is comparable to the temperature of a traditional propane chile roaster.



Town secretary My Virtual Travel Outing

August

Thank you for joining me on my visit to this month's museum. I visit a museum every month.



The August Horch Museum

Located on the very ground of the first Audi factory, at the origin of great automotive history.

Experience the spirit of the pioneers and their inventive genius of more than 115 years of automotive production in Zwickau.





Supervisor - Coffee & Gossip

August



Hi, here we are again, Quincy and Dusty, and we want food with sugar. Pretend you're sending low starch/low carb treats since we both have insulin problems. We are sick of dieting! Mom says she's dieting too, but we see her in the ranch truck sneaking candy!!

We found out some friends, Mango and Jasper, in Colorado, are also sick of dieting! What is with Moms and dieting?

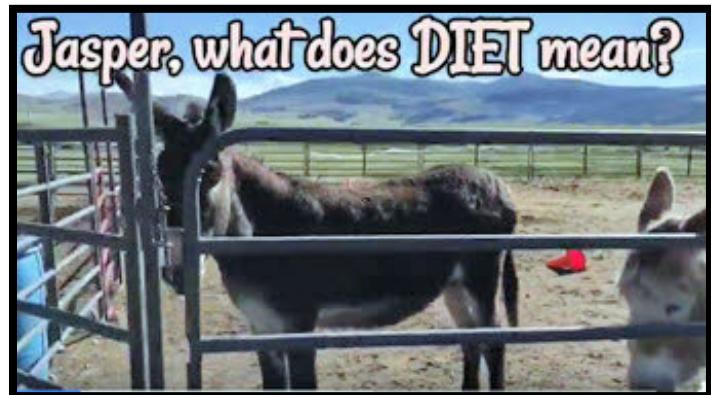
We will all go on strike and hold up signs saying, "MOM, WE WANT REAL FOOD!" Explain to Mom that Candy doesn't spell Diet. Can Mom read?

Mango and Jasper live in Colorado and wrote to us about their mom making them stay on a diet.

Another Mom and another diet – we think that there's a pattern emerging: Mom = Diet

You can see them on their facebook page. FACEBOOK – [MANGO and JASPER](#)

Their mom's website <https://www.equigrace.com/>





Guapo Botting lives in Texas - here is Guapo giving his Mom the EYE that says

1. I see you.
2. Stay where you are, I'm a fast little Squirrel.
3. What do you mean I can't run along the fence?
4. If you would put out food, my day would be easier.



Coyote Pups in Livermore, CA

1. We did it! We followed Mom to the old crazy lady!
2. WAIT – is that her with that camera?
3. Tell her to put down the camera and give us more water. YIP YIP
4. Do you think she understands yipping?

If these pups don't stop yipping on my front lawn, I'm telling their Mom she has to move. They have an entire pasture to hide, run and yip. I'm not the Coyote pup safety zone, while their parents go hunting!



CONVENTION CENTER - Exhibit Hall Poster Board

August

Town Residents Poster Board of news, events, gossip not to miss.

	<p>Sept 2nd AIRPOWER22 - Austrian Armed Forces event - a military performance on the ground and demonstrations by the Austrian Air Force, the Flying Bulls, and international military aerobatic squadrons. They will be joined by participants from civil aviation, a static show of civil exhibitors from the aviation industry, research and education, and an extensive supporting event at the airfield, including the Military Aviation Museum.</p>
	<p>FNSS Plastic Battle Armor Modeling Show - Modelers will select the relevant competition category and upload pictures of their models on fnssplasticbattle.com between the dates July 25th and September 5th 2022 to participate in the competition.</p>
<p>Thanks to Ke Wang Dalhousie Univ.</p>	<p>Dalhousie University wants to send a student or alumnus to the Falling Walls Lab pitch competition in Berlin, Germany on November 7. The global contest provides a platform for students and early-career professionals to share solutions to pressing global challenges and draws contenders from academic institutions in close to 90 countries around the world.</p>

 BRITISH SOCIETY FOR STRAIN MEASUREMENT	<p><u>Sept. 06 08</u></p>		<p><u>Oct. 11-13 LS-DYNA</u></p>
	<p><u>Oct. 18-19 LS-DYNA</u></p>		<p><u>Crash Analysis</u></p>
	<p><u>YSA22 - Young Stress Analyst Competition Sponsored by AIRBUS</u></p>		<p><u>Nov.16 – 17 Human Modeling and Simulation in automotive engineering</u></p>



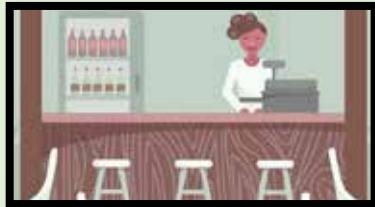
CONVENTION CENTER

YouTube Booths

July

Welcome to our Convention Center exhibit hall & Coffee Cafe. Coffee, of course vanilla, hazelnut, and other flavors are courtesy of our favorite coffee shop (not the rival coffee shop).

Current videos
from our booth visits:
On June 29



Free Coffee for
visiting our exhibitors

[Computer
Aided
Technolog](#)



META
v23.0.0 Release Highlights

[BETA
CAE](#)

[Rocky
DEM](#)

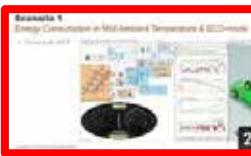
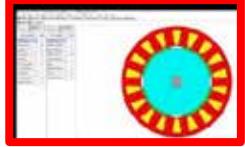


Trap Door Example

1. Trap door is now opening in the database
2. Trap door events
3. Trap door logic

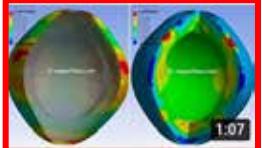
[Oasys
LS-DYNA](#)

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[DYNAmore](#)

If you have a YouTube Channel, send us the URL feaanswer@aol.com



Oasys Software Turkey Representative
BIAS Engineering

We became the representative of Oasys PRIMER Turkey, the preprocessor designed for the fastest preparation of LS-DYNA models.

BIAS Engineering supports the latest LS-DYNA features;

Oasys PRIMER

- With Oasys PRIMER, LS-DYNA models can be easily read and written.
- The Oasys PRIMER user interface has been specially designed to avoid any incompatibility with LS-DYNA and provides easy access to a variety of powerful pre-treatment tools.
- It is also possible to read and write different file formats such as Abaqus, Nastran, IGES, JT and Layup.

Oasys PRIMER has a number of tools to help you position passenger dummies within a model.

These tools are;

- Dummy positioning
- Adjustment of seat position with mechanism
- Pre-compressed seat sponge
- Seat belt placement for automatic placement after dummy positioning



About BIAS - One of the most established companies in Turkey, offering advanced engineering solutions within the framework of mechanical engineering disciplines, founded in 1997. Their main fields of activity are R&D, CAE software, test-measurement systems sales, project-analysis and test-measurement services.



CONVENTION CENTER Booth - Curt Chan

August



Curt Chan, [Hover Cars Podcast Host](#)

"Thank you for joining us and listening to the podcast episodes. The podcasts are brought to you by myself, Curt Chan, and Josh Poley, with Mary Kate Joyce as your third podcast host."

(Although Curt, Josh and Mary-Kate are employees of Ansys, their views do not represent those of Ansys.)



[Hover Cars Podcast](#)

The days of tackling getting better gas mileage in the automotive industry is a one-directional approach in our rearview mirror. Now we're challenged with improving safety and autonomy and communicating with other automobiles or collecting data to help evolve the transportation industry.

Available Podcasts: Join us for this new series

- They Dynamic Duo: Safety and Autonomy
- Space, Simulation and Skunk Works Projects
- The need for speed though simulation
- Vehicle Autonomy and Teenage Drivers
- To Digital and Beyond
- Secrets of a Tech Leader
- A Curious Case of Jane Trenaman
- Simulation and Autonomy
- Muscle Cars and Modeling
- Transforming Education and the Engineers of tomorrow

Since the dawn of time, dreamers have imagined our future, and engineers have brought these visions into reality. But it's much easier to imagine all wonderful things than it is to make them happen or to predict the future at all. Today, many of our daily gadgets and technology were unimaginable just a few years ago. And yet, things predicted 70 years ago that seemed obvious next steps still elude us today. Having a computer in your pocket seemed unobtainable yet driving to work in your hover car was almost a foregone conclusion.

But why? We don't all drive hover cars because the technology challenges are more complex than we realized. It is a challenging problem, even by today's standards. And the number of hard problems is growing. New revolutionary technologies are being invented, causing everything to become more connected and more complex. New creations create even more complicated, hard problems to solve.



CONVENTION CENTER

Booth - Jenson Chen

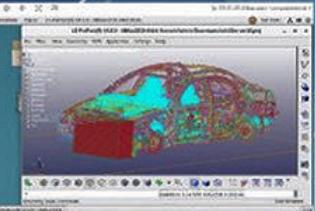
August



Jenson Chen - Dyna Forming Engineering & Technology [DFETECH](#)

NICE DCV is a great enabler for many industries for all kinds of remote working.
NICE EnginFrame is an advanced web front-end for accessing technical and scientific applications in the Cloud. It has a broad base of successful production deployments in Oil&Gas, Automotive, Aerospace, Medical, Financial Services and Research markets.

What Is NICE DCV?



NICE DCV is a powerful remote visualisation protocol that enables users to securely connect to graphically intensive 3D or 2D applications hosted locally or on a remote 3D visualisation server or cluster of servers on-premises or in the cloud.

NICE DCV provides high performance and low latency for demanding 2D/3D applications

NICE DCV operates even in low bandwidth conditions for superior user experience

Access your high performance desktop from the browser on a regular PC or tablet

QR code, DFETECH logo, NICE DCV logo, AWS logo.

What is Enginframe ?

NICE EnginFrame is the market leading HPC portal providing users with easy web-based access to their HPC environment whether it is running on premises, in the cloud, or as a hybrid system. It empowers engineers, designers and researchers to fully utilise complex HPC systems without having to learn challenging command line syntax, by providing access to HPC applications, resources, and data from within a web browser.

COMPATIBLE
EnginFrame integrates with the leading HPC schedulers for maximum productivity

SIMPLE
EnginFrame makes it easy to submit application workloads from major HPC software vendors

PROMPT
EnginFrame makes using complex HPC systems easy, making users more productive

ANSYS Authorized and Certified Channel Partner (ASEAN)

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sales.id@dfetech.com +62 821 1333-7965
sales.vn@dfetech.com +84 35 929-8303



CONVENTION CENTER

Kathleen Fritz

August



Kathleen Fritz - DYNAmore GmbH



**Have you visited the link below?
You're all invited**

**The 16th German LS-DYNA Forum
will take place from October 11-13,
2022 in Bamberg and online.**

The Preliminary Agenda 16th German LS-DYNA Forum 2022 is now available

Why should you join us? It is the main event dedicated to LS-DYNA in Central Europe.

- approx. 100 technical presentations,
- keynotes from renowned speakers
- an accompanying hardware and software exhibition
- the opportunity to speak with engineers in your field
- Presenters can present in English or in German.
- You can optionally submit your abstract for the Ansys "Level-up 3.0" online conference.



Schedule 2022

- Monday, 10 Oct. from 6 p.m.
Get together in the exhibition and conference registration
- Tuesday, 11 Oct. from 8 a.m.
Start of the conference
- Tuesday, 11 Oct. from 8 p.m.
Gala Dinner
- Wednesday, 12 Oct. from 8:30 a.m.
Second conference day
- Wednesday, 12 Oct.
Day 1 Online Conference
- Thursday, 13 Oct.
Day 2 Online Conference

VENUE - Welcome Kongress hotel Bamberg

Specially designed for congresses and conferences, it awaits you with impressive architecture. Walking from their location, directly on the banks of the river Regnitz, will bring you to the historic old town of Bamberg. Bamberg's Old Town has been on the UNESCO World Heritage List since 1993. The city grew continuously around a medieval core and today has one of the largest unspoiled old town centers in Europe.

ORGANIZERS:





CONVENTION CENTER Booth - Kit MacDonald

August



Kit MacDonald, Application Engineer at Computer Aided Technology,

Here they are -- the final four SOLIDWORKS advanced mates so you can blow your colleagues away with perfect control of complex assembly models: You can learn all about "The Final Four" mates here in the last video of the series, Episode 4



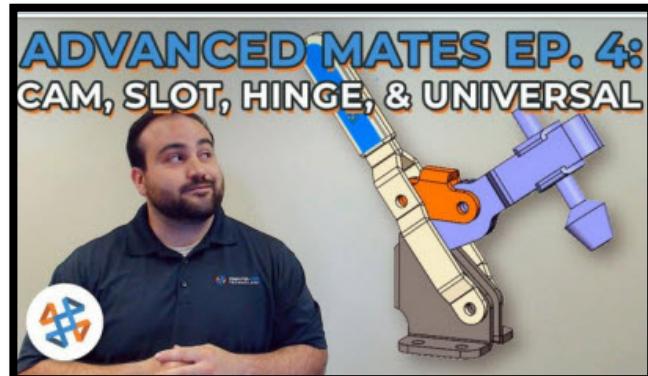
I have learned SO MUCH creating these videos and I hope they can help you out when your standard mates just aren't swinging it.

- Replicate a piston with the Cam Mate
- Create easy slide motion with the Slot Mate
- Get your swing on with the Hinge Mate
- Become a cosmic power with the Universal Joint Mate

If you haven't already, take a look at the other 3 episodes in our series!

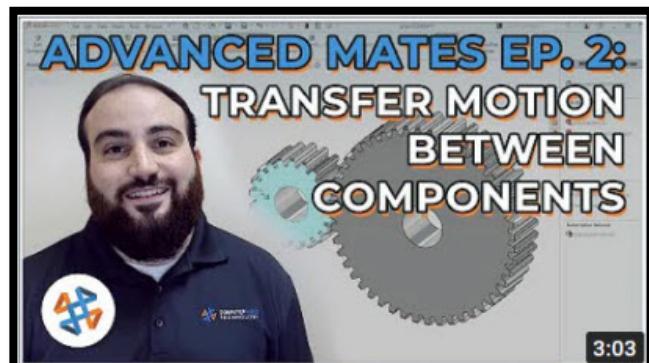
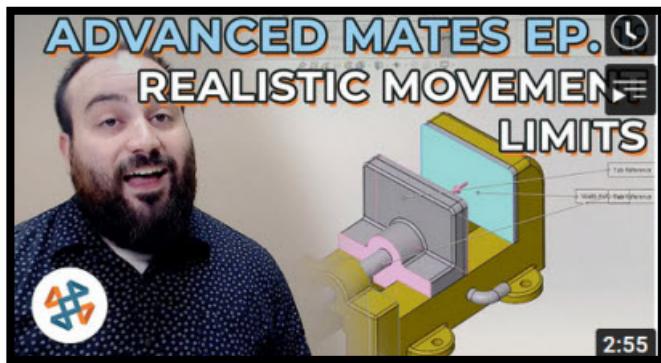
[SOLIDWORKS Advanced Mates Ep.4:](#) **The Final Four**

[SOLIDWORKS Advanced Mates Ep. 3:](#) **Evaluate Complex Relationships**



[SOLIDWORKS Advanced Mates Ep. 1:](#) **Realistic Movement Limits for Assemblies**

[SOLIDWORKS Advanced Mates Ep. 2:](#) **Gears Screws, and Rack & Pinion**





CONVENTION CENTER Booth – Madhukar Chatiri

August



Madhukar Chatiri, CEO at CADFEM India, Simulating to Engineer a better World

"We are glad to be a part of India's biggest Electric Motor Vehicle show EV India Expo as a corporate contributor, a great event to explore all EV motor vehicles in one place."



Visit Corporate Contributor

CADFEM India Pvt Ltd.

Hall No. 5, Stall No. EV-60

EV INDIA 2022 | 7th - 9th September

- Tune in as we speak at the E-Charge Forum and on the latest emerging EV Technologies.
- Let's make this event successful together.
- Drop into our booth at Hall No:5, Booth No: EV-60 to get a glimpse of simulations in the space which is extremely crucial.
- Mark your calendars.

Engineering Simulation opens up a huge range of possibilities for every engineer. However Simulation is more than Software! CADFEM India offers solutions that are critical for success with your product innovation and development. We offer leading software and hardware solutions, support, consultancy as well as transfer of know-how.

EV India 2022 Expo is an International Electric Motor Vehicle Show will provide the opportunity and platform to electric vehicle manufacturers to showcase their latest Products , technology and equipment ,Smart and NextGen transport ,electric passengers cars, scooter, motorcycle, cycles, buses etc to meet and network with the trade industry as well as end users with the main aim to find out new business and protection of the environment .



CONVENTION CENTER Booth - MeDiTATE

August



Marco Evangelos Biancolini

RBF Morph CTO & Founder - Associate Professor of Machine Design



Leonardo Geronzi
ESR 02

Leonardo Geronzi, our ESR 02, has published his first article titled "High fidelity fluid-structure interaction by radial basis functions mesh adaption of moving walls: a workflow applied to an aortic valve in the Journal of Computational Science."

[High fidelity fluid-structure interaction by radial basis functions mesh adaption of moving walls: a workflow applied to an aortic valve](#)

Leonardo Geronzi, Early Stage Researcher 02 in the MeDiTATE project, published the paper titled High fidelity fluid-structure interaction by radial basis functions mesh adaption of moving walls: a workflow applied to an aortic valve in the Journal of Computational Science.

This work has been developed in collaboration with:

- Emanuele Gasparotti, Katia Cappellini and Simona Celi
BioCardioLab (Bioengineering Unit, Fondazione Toscana "G. Monasterio", Heart Hosp., Massa, Italy)
- Ubaldo Cellà, Corrado Groth, Stefano Porziani and Marco Evangelos Biancolini
Dept. of Enterprise Engineering "Mario Lucertini" (University of Rome Tor Vergata, Roma, Italy).

The open access full text is available [here](#).

Abstract - Fluid-Structure Interaction (FSI) can be investigated by means of non-linear Finite Element Models (FEM), suitable to capture large deflections of structural parts interacting with fluids, and Computational Fluid Dynamics (CFD). High fidelity simulations are obtained using the fine spatial resolution of both the structural and fluid computational grids. A key enabler to have a proper exchange of information between the structural solver and the fluid one is the management of the interface at wetted surfaces where the grids are usually non-matching. A class of applications, known also as one-way FSI problems, involves a complex movement of the walls that is known in advance as measured or as computed by FEM, and that has to be imposed at the boundaries during a transient CFD solution. Effective methods for the time marching adaption of the whole computational grid of the CFD model according to the evolving shape of its boundaries are required. A very well established approach consists of a continuum update of the mesh that is regenerated by adding and removing cells to fit the evolution of the moving walls. In this paper, an innovative method based on Radial Basis Functions (RBF) mesh morphing is proposed, allowing the retention of the same mesh topology suitable for a continuum update of the shape. The proposed method is exact at a set of given key configurations and relies on shape blending time interpolation between key frames. The study of the complex motion of a Polymeric-Prosthetic Heart Valve (P-PHV) is presented using the new framework and considering as a reference the established approach based on remeshing.



CONVENTION CENTER Booth - Rasmus Schutzer

August



Rasmus Schutzer - DYNAmore Nordic AB

"October 18th is a date you don't want to miss. Now is the time to register and join us in Gothenburg, Sweden. We welcome you and hope you attend the Nordic LS-DYNA Users' Conference."

[Nordic LS-DYNA Users' Conference 2022](#) will be held 18-19 October 2022 in Gothenburg, Sweden.

On October 18-19, LS-DYNA users from the Nordic countries, the Baltic states and the rest of Europe will meet at The Swedish Exhibition & Congress Centre (Svenska Mässan) in Gothenburg. Participation is free of charge but you must register your participation in the conference via link below Register to conference.

The central part of this event is the user presentations about the software and its usage. This event is an ideal forum to discuss your experiences on LS-DYNA and LS-OPT with other expert users in simulations of complex mechanical problems.

The conference will provide a great opportunity to share and discuss experiences, to obtain information on upcoming features in LS-DYNA, LS-OPT and LS-PrePost and to learn more about new application areas. For further information please klick on Call for Papers on link below.

If you have any questions, please contact us using e-mail: conference@dynamore.se

- In order to make the most out of these conference days we kindly ask for your cooperation and encourage you to make an oral presentation, where you talk about your experience in CAE and using simulations to facilitate your work, improve quality, reduce cost, research and any other exciting areas you may use simulations for.
- The presentation should be no more than 20 minutes and we would like to receive a short abstract of your topic for organisational purposes.
- Abstract should be submitted no later than May 20.
- Please send us your abstract using the link on our website noted above.

In addition to interesting presentations we also invite you to attend the conference dinner in the evening of the 18th. You must pre register your attendance via link Register to conference below.

Important dates

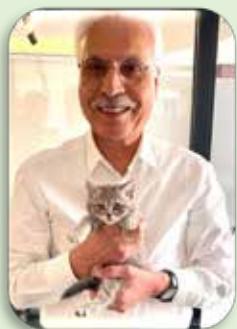
- [Register to conference: 16 September 2022](#)
- Conference date: 18-19 October 2022

For more information visit our conference page - We look forward to meeting you in Gothenburg.



CONVENTION CENTER Booth - **Tarık ÖĞÜT**

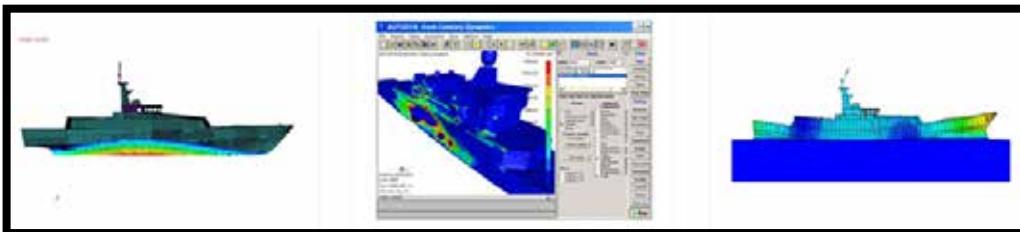
August



Tarık ÖĞÜT, FIGES

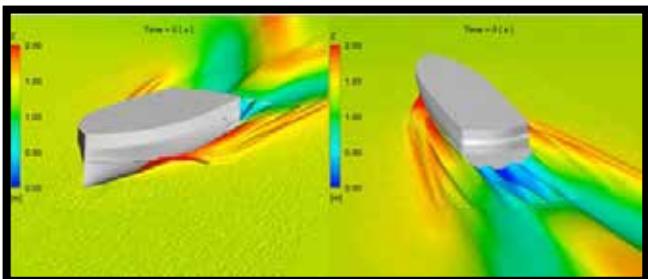
"Welcome aboard, UZAY. FIGES wishes success to UZAY, the newest member of our Bursa Office, in his new role."

Hydrodynamic Vessel Analyses



Finite Elements Model Creation Methodology for Vessels,

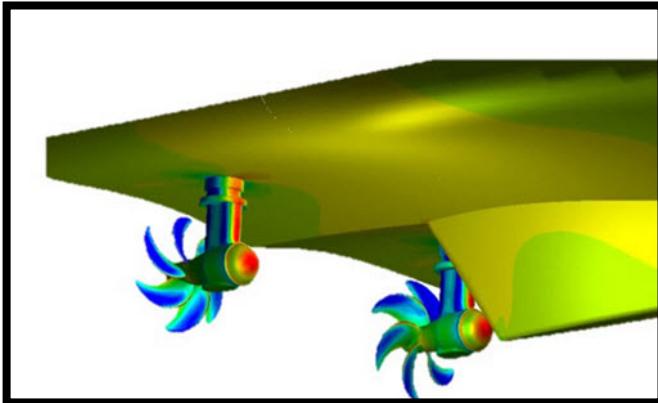
Global and Local 3D Strength Analyses,



Under water explosion analyses (Global Shock Analyses)

Global vibration analyses (including marine effects)

Antenna layout electromagnetics analyses,
Mathematical modelling and simulation



Boat Form and Obsession Optimization

Track estimation and propeller design suitable for the track

Determining the power requirement

Antenna layout electromagnetics analyses
Mathematical modelling and simulation

Graphics Courtesy of Vecteezy



Goodbye and Come Back Soon



QUIZ ANSWER:

The TAI TF-X
The Eurofighter Typhoon
The Dassault Rafale
California Hawk



Our Town Salutes our US military,
NATO and Friends of the US and
NATO. We salute Freedom.