SEPT 2026

FEA – CAE – AI – IT

Research, Development & more

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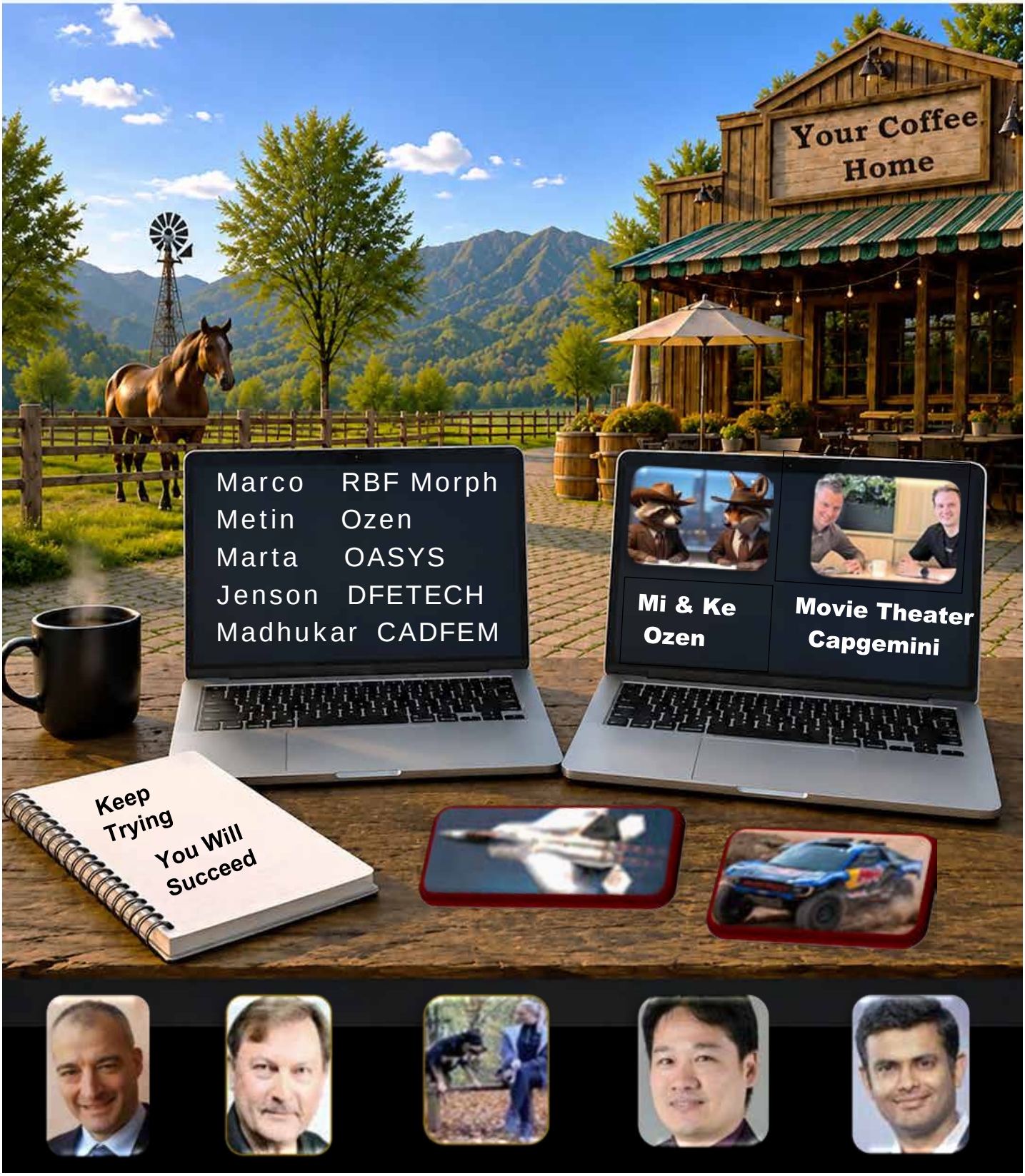

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PARKING & COFFEE ARE FREE.

R & D • CAMPING • TOWN MAP

Horses have the right of way

Automotive & Racing

Old Rancher

Aerospace

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R&D BUSINESS PARK

Engineering & Industry

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Residents pretending to be editors: All family - strange family.
No one knows their names. You only have to yell:

The Old Rancher: "Hey, Old Rancher." **The Old Pilot:** "Hey, Old Pilot."

The Old Race: "Hey, Old Racer." **Racer's Daughter:** "Hey, Slow Down."

Town Conversations

Creation **is born from trying. If it doesn't work, learn & try again. You Will succeed. Inventions, simulations, cures, wouldn't exist with that passion to keep trying**

MARTA

Delivering fire safety solutions for mega-span exhibition buildings. Arup engineers provided innovative fire engineering solutions for the project, that balance fire safety, operational efficiency, & architectural expression.

MADHUKAR

Article - The Institute for Occupational Safety and Health (the German IFA) provides support to the statutory accident insurance institutions in Germany when it comes to scientific & technical issues relating to occupational safety & health protection.

MARCO

PhD researcher at Kingston University Muram Abbadi is working with technology company RBF Morph on helping perfect a new flexible wing for aircraft. Her project combines computer design & wind tunnel testing to develop a morphing wing which will be used on civil aircraft.

MI & KE

MingYao Ding, builds on the earlier Google Antigravity & Ansys Mech. demonstration by connecting Antigravity to a live Mechanical session through the Mechanical MCP server.

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Article - Impact Fracture Thresholds of Ceramic Femoral Heads ...A parametric explicit dynamic analysis was performed using LS-DYNA (version 960) on an axisymmetric model of a 32 mm ceramic femoral head

JENSON

This webinar, Ansys Mechanical (Ansys Additive Prep) by Mohammad Hazim, will explore the capabilities of an innovative software solution that revolutionizes the preparation of 3D models for additive manufacturing (3D printing)

FEANTM

A NEW CHAPTER BEGINS

FEANTM has:

- **A new look**
- **A broader direction**
- **Perhaps even new management, although, like the town itself, new management may only almost exist.**

What definitely does exists is a completely redesigned magazine

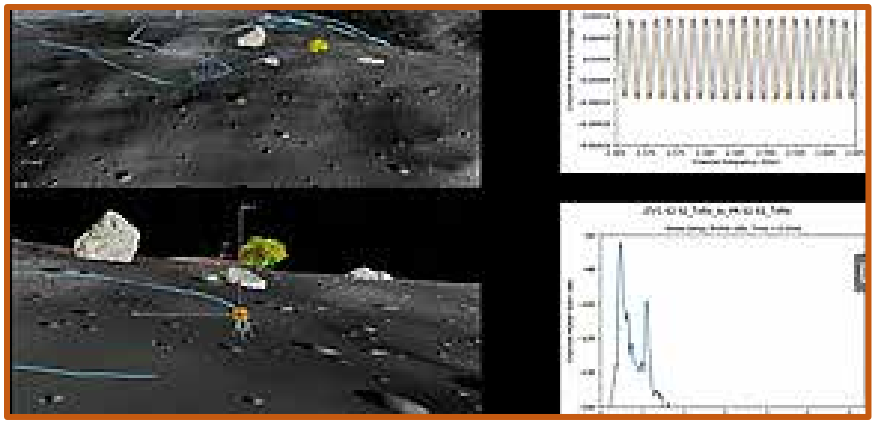
Going forward we will be bringing together
FEA • CAE • IT • AI and information from around the globe.

A special thank you to our residents continuing to be part of:

- **The new look.**
- **The new direction.**
- **The same slightly unusual town.**

Contact: feaanswer@aol.com
Communication • Feedback • Information

SYNOPSYS **Quote,** “Space missions have always depended on simulation. What has changed is the fidelity, scope, and practical value of those simulations. As NASA and the broader space community prepare for future Artemis missions, those advances are becoming essential.



Excerpt - Web - SYNOPSYS- Creating a Digital Twin of the Moon, Shawn Carpenter

Technical video left can be viewed on the website

Returning humans to the Moon and establishing a sustained presence there will require more than launch, flight, and landing capabilities.

It will also require communications systems that perform reliably in an extreme and largely unfamiliar environment

Every asset, assumption, and variable must be tested and validated well before launch. That includes the high-bandwidth cellular network planned for the lunar surface and the antenna-bearing systems that will depend on it, including spacesuits, rovers, landers, and orbital relays.

At Synopsys, we are helping create a digital twin of the Moon to test and validate those systems.

Working with Cesium, part of Bentley Systems, Keysight, and NASA’s Glenn Research Center through the Lunar 3rd Generation Partnership Project (Lunar 3GPP), we are combining high-fidelity topography, communications modeling, mission dynamics, and hardware validation in a virtual environment designed to support Artemis planning and operation

Modeling RF propagation across the lunar surface - communications begin with physics. And physics on the Moon is very different from physics on Earth.

In the lunar vacuum, signals are not affected by atmospheric losses such as oxygen or water vapor absorption. But they still experience spreading loss, and they can be significantly influenced by the reflective and absorptive properties of the lunar regolith. Terrain becomes one of the most important variables in determining whether a signal reaches its destination.

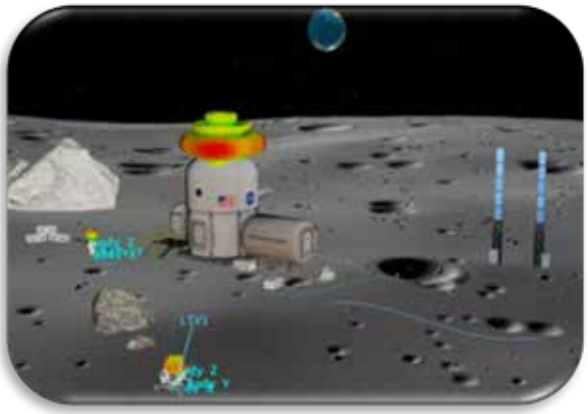
That is why high-resolution lunar data is so important. Cesium’s 3D tiles, built from datasets captured by NASA’s Lunar Reconnaissance Orbiter, represent the Moon with a level of geospatial accuracy far beyond earlier models, which were too coarse for applications such as telecommunications planning.

High geospatial accuracy makes it possible to answer critical questions:

- Will a ridge interrupt line of sight between assets?
- Will a crater create a persistent coverage gap for astronauts or rovers?
- Will large boulders or terrain features create multi-path reflection interference that reduce signal quality even in good coverage areas?
- How will connectivity change as vehicles move across the surface or as surface relays shift position?

Without this kind of modeling, NASA would face fundamental limitations. There is no opportunity for physical site surveys, no iterative field testing, and no ability to walk the terrain and refine deployments over time.

Critical design decisions must be made without direct access to the environment itself. Treating terrain as an active engineering variable inside a broader mission simulation helps close that gap



A digital model of the lunar environment, created with Ansys RF Channel Modeler, helps engineers see how terrain and movement could affect wireless coverage during a mission

Validating antenna performance on every mission asset - A communications system is only as reliable as the antennas connecting it.

In a lunar mission, antennas are embedded in everything: the cellular infrastructure itself, the spacesuits astronauts wear, the rovers they drive, the landers that carry crews and cargo, and the relays on the surface and orbiting overhead. Each of those antennas must perform in a different physical configuration, on a different platform, under different conditions of movement and orientation.

The digital twin allows engineers on Earth to evaluate that performance in context. High-fidelity antenna models are placed onto detailed representations of the assets on which they will be mounted, then assessed as those assets move through realistic mission scenarios. What looks robust in isolation may behave very differently on a rover crossing uneven terrain or in a spacesuit as an astronaut turns, bends, and moves on the lunar surface.

In addition to reducing signal quality, poor antenna performance can disrupt telemetry, delay commands, weaken situational awareness, and narrow safety margins for astronauts operating with little room for error…

The complete article can be found on the website with additional product information.

NVIDIA & NPS **- Article quote, "NVIDIA AI Supercomputer Comes Online at Naval Postgraduate School** - NVIDIA founder and CEO Jensen Huang joined school leadership in Monterey, California, to commission the system, which will fuel AI education and research at the US military's premier technical graduate university" Excerpts – read the website for complete information and videos

YouTube - [Discover how NVIDIA is collaborating with the Naval Postgraduate School (NPS)]

Todd Lyons, EVP at the Naval Postgraduate School Foundation, details how NPS is utilizing NVIDIA DGX and NVIDIA

This collaboration will empower thousands of students to work and build applications with AI.

Web – [Nvidia - NVIDIA AI Supercomputer Comes Online at Naval Postgraduate School]

NVIDIA founder and CEO Jensen Huang joined school leadership in Monterey, California, to commission the system, which will fuel AI education and research at the US military's premier technical graduate university.

NVIDIA founder and CEO Jensen Huang today visited the Naval Postgraduate School in Monterey, California, to commission an NVIDIA DGX GB300 system — bringing one of the world's most powerful AI platforms fully online for the students, researchers and faculty at the U.S. military's flagship graduate university

"Our nation depends on our men and women who fight on the front lines. Nothing is more valuable to you than information and insight, and information and insight in a timely way, and to understand its impact and consequence," Huang said at the event. "I can't imagine anything more important."

The DGX GB300 supercomputer with NVIDIA Mission Control software gives NPS's more than 1,500 in-resident students and 600 faculty on-premises access to large-scale AI computing, including model training and inference capability for applications spanning weather prediction, cybersecurity, and disaster resilience and response planning.

The commissioning, which took place during the school's three-day Converge @ NPS event, marks the latest chapter in an ongoing collaboration to develop AI-based technologies at NPS for education and real-world applications.

It's built based on an NVIDIA AI Technology Center on the Monterey campus — a dedicated hub for AI research and graduate instruction, now anchored by the DGX GB300.
"As we modernize our technology, we must also modernize how we educate our leaders," said Admiral Samuel Paparo, commander of the U.S. Pacific Command. "Access to advanced computing capability means NPS students and faculty understand the opportunities and responsibilities that come with these technologies."

Training Leaders to Build With AI - NPS educates active-duty officers and international partners across disciplines — from space operations to ocean science — awarding graduate degrees while centering each program on applied research with direct relevance to real-world problems.

"Leadership is about being in service of something else. You're in service of your team. You're in service of your country. You're in service of your mission," Huang said to attendees. "And all of this technology is just tools to help you."

The DGX GB300 gives those programs new technical depth: the ability to train foundation models in house, run high-fidelity simulations at scale and develop AI tools with immediate applicability.

Huang told attendees that even if they aren't experts in computer science, today's computers running AI make it easy. "The most important advice that I would give to someone is to engage the technology," Huang said. "It's not as hard as you think it is, and the reason for that is because, on first principles, technology is supposed to get smarter and smarter over time."

NVIDIA has also expanded the collaboration through its Deep Learning Institute, putting instructor toolkits in the hands of NPS faculty so AI is woven through graduate curricula across departments.

Many of you will command in AI-enabled environments. Information will move at lightning speeds, compressing response times," Paparo said. "Our advantage will come from leaders, like you, who can use the technology to see, understand, decide and act faster while exercising the judgment, experience and leadership that machines cannot provide. That education is happening here at NPS."

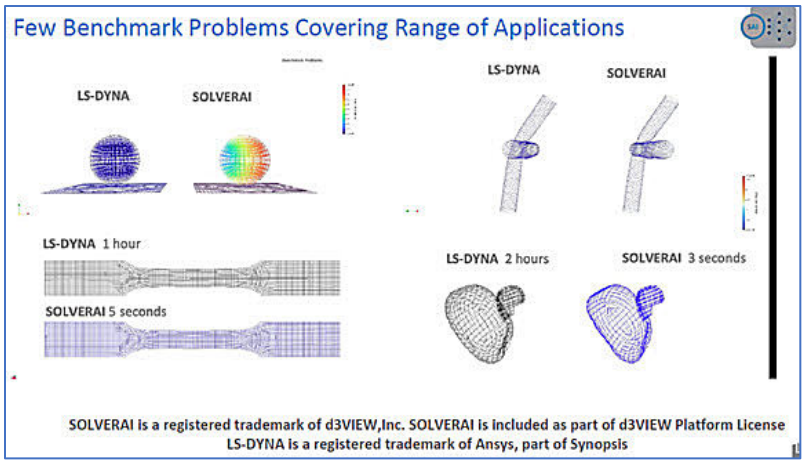
From Ocean Models to Digital Twins - NPS runs a regular cadence of hackathons that have produced advances in autonomy, ocean research and operations planning — applied work that demands serious computing to scale.

Researchers are using AI to model sea conditions, predict atmospheric changes and build digital twins of complex environments — work that feeds directly into the scientific domains where NPS has deep expertise. The DGX GB300 will now power these workloads on campus.

Through the school's partnership with MITRE, a nonprofit organization, NPS has developed a framework built on NVIDIA Omniverse libraries that provides high-fidelity digital twin environments for simulating real-world navigation and decision-making under uncertain conditions.

NVIDIA Partner Ecosystem Brings AI Infrastructure to Life - The DGX GB300 at NPS didn't come together in isolation. DDN, VAST and Vertiv joined the effort as hardware and systems integration partners.DDN contributed high-performance data infrastructure to help researchers efficiently access, manage, protect and scale data for demanding AI workloads. VAST Data provided a unified data platform to enable secure data access and management across edge, core and cloud environments. Vertiv provided the racks, cooling and power infrastructure needed to bring the system online, as well as installation sequencing, testing and commissioning support, and fluid management and monitoring.

Quoting Suri Bala, "Leveraging advanced artificial intelligence, d3VIEW now integrates SOLVERAI, deployable across both on-premise and cloud environments. SOLVERAI is designed to learn from existing simulation results or CAD data provided in neutral formats, as well as from Workflow-generated, curated Design-of-Experiments (DOE) datasets, to systematically build predictive intelligence."



D3View Brief Release Notes, now available for d3VIEW R2026.08.24 Build

Contact: info@d3view.com.

Originally developed to address AI-driven material calibration incorporating full strain-field responses and time-history predictions, SOLVERAI has since evolved into a core component of a broader application framework. It now supports learning and prediction across a wide spectrum of engineering problems, ranging from material behavior at the coupon level to highly dynamic, non-linear systems such as airbag deployment involving leakage, contact, and transient interactions.

SOLVERAI can be deployed as a standalone capability or embedded within end-to-end workflows to automate and streamline complex engineering processes. Development is expected to accelerate through 2026, with SOLVERAI becoming an integral intelligence layer within the d3VIEW platform, enabling scalable, AI-driven modeling and prediction across universal engineering systems.

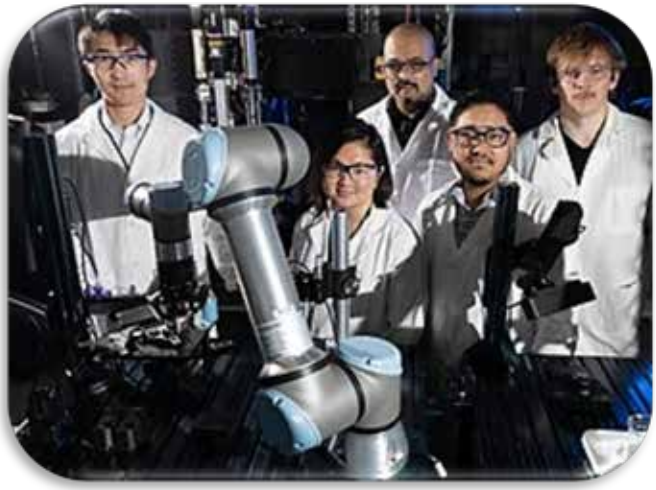
Among the slides that are included in the presentation:

- Few Benchmark Problems Covering Range of Applications
- SOLVERAI Latest Version with Connections and custom Training
- 3-Point Bending Predictions using 4 Training Simulations
- Accuracy vs # of simulations (3 Point Bending)
- Energy Aware Train and Predict

Section 2

- Truly Artificial Intelligence - LLMs, Agents, Agentic-Workflows
- Integrate any LLM Provider to Power AI-Applications in d3VIEW
- Monitoring LLM Spending
- Intelligent vs Agentic Workflow Framework
- HPC Interface Agent
- Visualization Agent
- Simulation Agent
- Seamless AI-Agent Integration
- AI-Agent Result Exploration
- AI-Agent Result Visualizations
- Workflow Agent
- Ontology Driven Virtual Product Development
- Tracking Simulations using Assembler
- Implicit Tracking of Systems and Assemblies with Simulations

LLNL Article, “Lawrence Livermore National Laboratory (LLNL) scientists and engineers, in conjunction with the Department of Energy (DOE) and National Nuclear Security Administration (NNSA), are increasingly looking to AI, robotics and automation to help accelerate advanced manufacturing, materials discovery and experimental science.



Web – LLNL - [How LLNL is using AI, robotics and automation to accelerate advanced manufacturing - Jeremy Thomas]

Image - Lawrence Livermore National Laboratory is increasingly looking to AI, robotics and automation to help speed the process of advanced manufacturing. Pictured are (from left) Robotics and Automation scientists and engineers Tony Qin, Karly Knox, Abhik Sarkar, Aldair Gongora and Michael Troksa. (Photo: Blaise Douros/LLNL)

The work is part of a broader push to move faster from concept to deployment in mission-relevant technologies. For Chris Spadaccini, who leads LLNL’s Materials Engineering Division and has helped drive much of the Lab’s advanced manufacturing research, that urgency is straightforward.

“In our national security space, agility is paramount as we move forward,” Spadaccini explained. “To be able to go from concept to deployment on timescales that are commensurate with the changing global threat environment is extremely important for our mission.”

Tools such as AI, robotics and increasingly autonomous laboratories, he said, can help make scientific workflows faster and smoother. Across the Lab, teams are developing systems designed to reduce bottlenecks in materials development, process optimization, inspection and production. They see this work as one of the clearest examples of how AI can move from software into real scientific and engineering workflows.

Spadaccini highlighted a distinction between automation and autonomy. Whereas in an automated lab, robotic systems carry out pre-programmed tasks and move through a defined workflow, an autonomous lab goes a step further: using AI to collect data, analyze results and determine what should happen next.

That distinction is becoming more important at the Lab’s Advanced Manufacturing Laboratory, where researchers are combining robotics, automated experimentation and AI to build more adaptive systems. Staff Engineer Aldair Gongora said the work operates on two levels: teams are using autonomous systems to accelerate science while also building the tools and methods needed to make those systems possible in the first place. As part of that effort, Gongora leads Project ARMOR, which explores more flexible robotic execution, including robots that can adapt when samples or objects move in an unstructured environment.

In practical terms, Gongora said, autonomous laboratories add a learning layer, using AI to guide the next experiment. The concept is rooted in the familiar scientific cycle of “design, build, test, learn,” but with AI helping researchers navigate experiments more quickly and at greater scale.

“We’re going beyond just rigid automation,” Gongora said. “The AI and the machine learning is what’s allowing the Lab to think, reason and decide what experiments to run next, and how to run them.”

That doesn’t mean scientists are being pushed out of the process. Instead, Gongora and other researchers describe these systems as tools that can take over repetitive, time-consuming tasks and free scientists to focus more on designing experiments, interpreting results and deciding where to go next. Gongora compared the shift to what high-performance computing (HPC) did for computational science: not replacing researchers but giving them the ability to tackle bigger and more complex problems.

Materials Research Automation Engineer Sydney Gothenquist works on the Alloy Prediction and Experimentation (APEX) platform, which combines AI, robotics and automated workflows to accelerate alloy development. (Photo: Blaise Douros/LLNL)

The same approach is also showing promise in materials discovery, where the design space can quickly become too large for humans to explore manually.

Staff robotics engineer and principal investigator Mason Sage is involved in both Project ARMOR and APEX (Alloy Prediction and Experimentation), which combines AI, robotics and automated workflows to accelerate alloy development. The idea is to use AI algorithms to design experiments, automation and robotics to conduct them, and AI again to analyze the results and guide the next round of experiments. Both ARMOR and APEX are supported by LLNL’s Laboratory Directed Research and Development program.

For alloy design, that approach matters because the number of possible combinations is enormous. Sage said the design space is so large that even running one experiment every second since the birth of the universe would not come close to exploring it fully. Autonomous experimentation, he said, offers a way to search that space more intelligently.

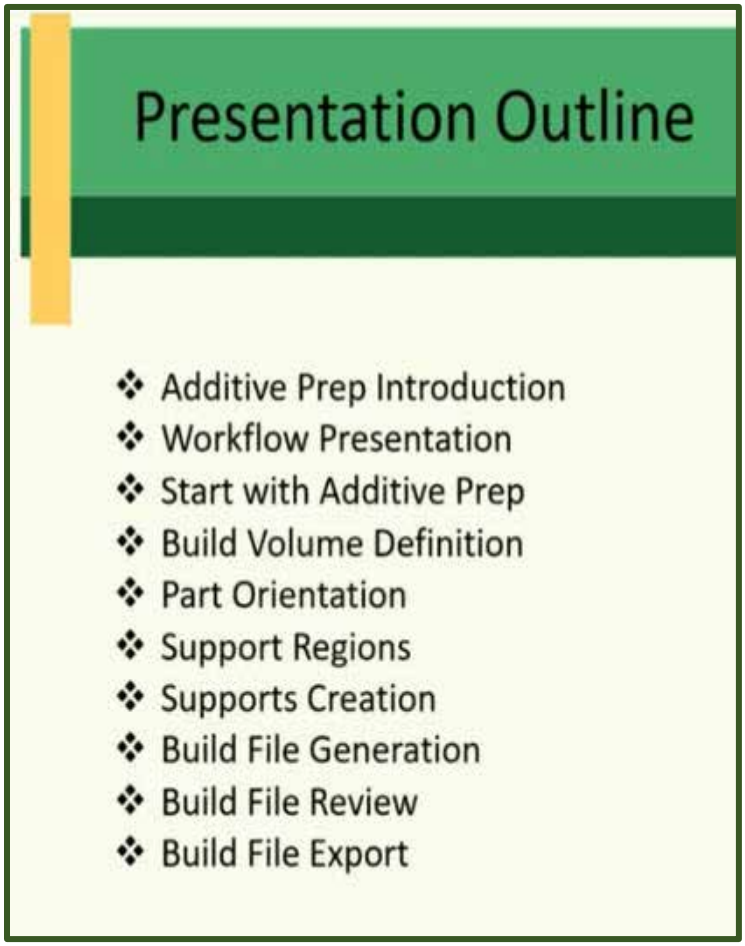
“What autonomous labs gives us is the ability to think very outside the box,” Sage said. “These machine learning algorithms don’t think how a traditional human scientist would. They think in hyper-dimensional space, and they can reason over dozens and dozens of variables simultaneously.”

Sage said one of the biggest technical challenges is that most scientific equipment was designed around human workflows, not robotic ones.

“In some cases, vendors provide software interfaces that make automation easier. In others, we have had to write our own software or retrofit legacy equipment to allow various types of laboratory equipment to communicate with our autonomous lab,” Sage explained. “This work can be painstaking, but it’s our secret sauce and is absolutely essential to closing the loop between AI, robotics and real experiments.”

The complete article can be found on the website with additional product information.

A webinar by Mohammad Hazim on Ansys Additive Prep is among the webinars on our YouTube Channel

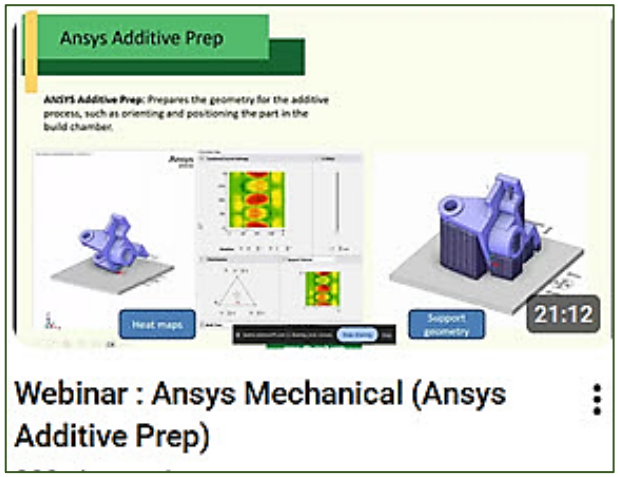


YouTube DFETECH Channel

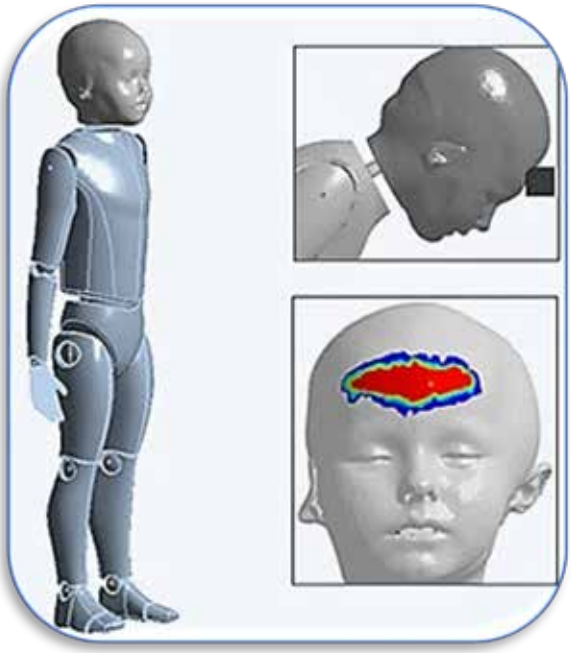
Webinar : Ansys Mechanical (Ansys Additive Prep)

This webinar will explore the capabilities of an innovative software solution that revolutionizes the preparation of 3D models for additive manufacturing (3D printing).

Specifically designed for complex geometries in industries such as aerospace, automotive, and medical. Ansys Additive Prep helps optimize designs and process parameters to ensure flawless builds.



Quote Article by The Institute for Occupational Safety and Health (the German IFA) provides support to the statutory accident insurance institutions in Germany when it comes to scientific and technical issues relating to occupational safety and health protection. In order to investigate a particular hazard scenario in kindergartens, they turned to CADFEM
Images: © Institute for Occupational Safety and Health (IFA)



WEB – CADFEM - Simulation commissioned by the Institute for Occupational Safety and Health

Sector: Engineering firm/development service provider, Health

Specialist field: Biomechanics, Structural Mechanics

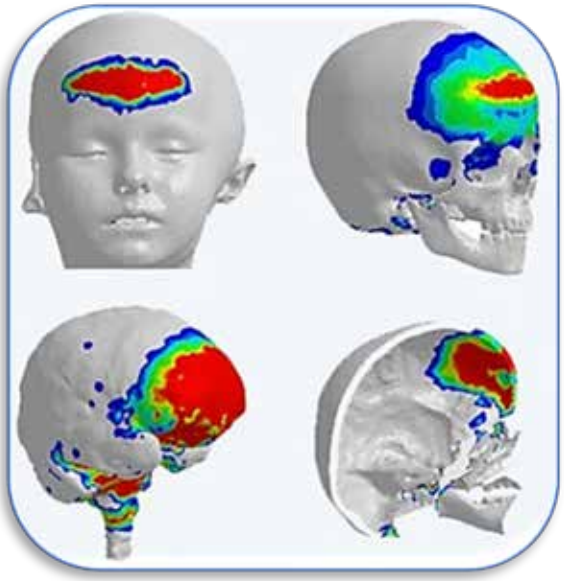
The body model (left), an impact scenario (top right), and the load (bottom right).

Task - The Institute for Occupational Safety and Health (IFA) provides support to the statutory accident insurance institutions in Germany when it comes to scientific and technical issues relating to occupational safety and health protection. Developing appropriate guidelines for the design of furniture edges usually requires a complex series of tests which facilitate the determination of various load scenarios that would affect a child's head in the event of a fall that is followed by an impact on a given piece of furniture. Naturally, human experiments are out of the question, so the IFA has been investigating new ways of dealing with this that would make it possible for them to issue reliable statements concerning the damage in view. In collaboration with CADFEM, a simulation model was created for the purpose of answering this very question.

Mesh-generated components of the head c: a complete head, a skull, and brain mass.

Solution - The simulation was based on real CT (computed tomography) scan data, which was transferred into a digital geometry model (STL) and then linked with Ansys ICEM so that numerical calculations could be performed.

The impact simulations were performed within Ansys Workbench using the LS-DYNA ACT Extension. Following creation of the simulation model and development of a corresponding workflow, those involved were able to calculate and evaluate different impact scenarios by altering a variety parameters. A variety of impact points – such as the forehead and the cheek – were allowed for, and impact velocities and edge radii were subjected to modifications.



Loads occurring on and around particular components of the head (going clockwise): a complete head, a skull, a section of a skull, and a brain mass.

The Institute for Occupational Safety and Health (the German IFA) provides support to the statutory accident insurance institutions in Germany when it comes to scientific and technical issues relating to occupational safety and health protection. **In order to investigate a particular hazard scenario in kindergartens, they turned to CADFEM.**

Images: © Institute for Occupational Safety and Health (IFA)

Customer Benefit - Since impact tests are, for ethical reasons, not feasible, the corresponding investigations must be carried out using dummies or virtual models. Numerical simulation has enormous advantages over costly series of dummy-based tests – which, in any case, only ever produce very limited results. Once a simulation model has been created, a broad variety of camber-based variants can be simulated, automatically evaluated, and then compared with each other within a short space of time. When it comes to dummy tests, it is necessary that the point at which particular data (relating to, for example, forces or acceleration) is to be measured and evaluated be precisely defined for any given test. When it comes to simulations, on the other hand, all the data contained within the entire body model remains available at all times. Furthermore, CT scan data can be used to create realistic models of the head – which then also provides data from within the inside of the skull.

Courtesy of Institute for Occupational Safety and Health

"**RBF Morph, Article Quote,** "PhD researcher at Kingston University Muram Abbadi is working with technology company RBF Morph on helping perfect a new flexible wing for aircraft. Her project combines computer design and wind tunnel testing to develop a morphing wing which will be used on civil aircraft.

Web – Kingston Univ. - Kingston University PhD student launches innovative aviation project to develop civil aircraft morphing wing

Explaining the science behind the project, Muram said: "Drawing on the Wright brothers' wing-warping principle of smooth, continuous shape change, it explores controlled camber variations across representative flight conditions to optimise aerodynamic performance and support significant reductions in fuel consumption and emissions."

Muram has also been sponsored by Air Charter Service (ACS), a Surbiton-based aviation company, throughout her PhD at Kingston University. She is currently in the third year of her doctorate, having previously graduated from the University with a master's in aerospace engineering in 2019.

Muram's relationship with RBF Morph developed through Ansys part of Synopsys, a simulation software company which she uses to run numerical simulations to assist on the project and heard about them through both wider-reading and during a training session.

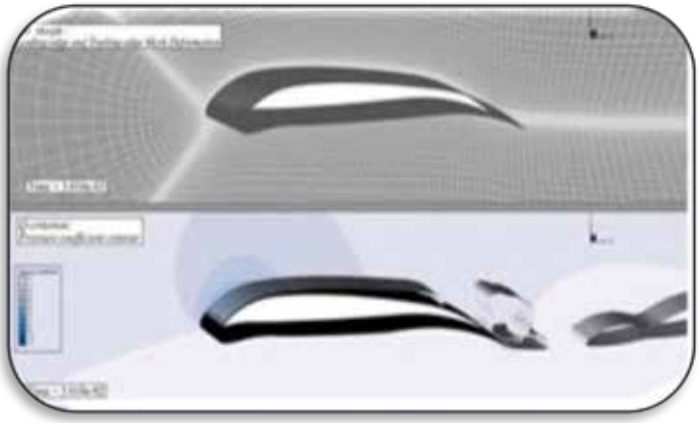
CFD simulations indicate that the morphing wing technology can achieve up to a 15% reduction in drag and an average 12% increase in lift, leading to improved aerodynamic efficiency.

Working with partners across industry - Muram explained how her work with RBF Morph has helped develop her project. "RBF's dynamic meshing capabilities directly aligned with my research and really excited me. I reached out to them straight away to tell them about my project, and they showed great interest. They generously provided a trial licence, which allowed me to explore and utilise their technology.

SPECIAL ANNOUNCEMENT

Web – On October 1, we'll be in Göteborg at ANSYS Simulation World Nordics in Göteborg - discover how our technology is helping engineers make simulation faster, smarter, and more efficient.

If you're attending, Emanuele Di Meo and Riccardo Serenella from RBF Morph will be in Göteborg at our booth, we'll be showcasing how RBF Morph helps engineering teams accelerate product development through advanced mesh morphing shape optimization, Fluid-Structure Interaction (FSI), Reduced-Order Modeling (ROM), and AI-driven simulation workflows.



Screenshot of an animation showing the wing in action - watch the full animation on our social media channels

“Working on this project has been highly collaborative and rewarding, with ACS demonstrating outstanding corporate social responsibility through genuine enthusiasm and meaningful support, and the RBF team providing responsive guidance and comprehensive tutorial packages that showcase the software’s capabilities – skills I’m excited to apply to large, innovative projects in industry.”

Founder of RBF Morph Marco Evangelos Biancolini said: “I'm extremely pleased—this milestone reflects years of dedicated work in aeronautical research. We’ve contributed to the optimization of winglets and propellers, and we firmly believe that morphing wing methods represent one of the most promising technologies in this industrial sector. We’re proud not only to provide our technology, but also to bring the full depth of our expertise and experience in the aeronautical field.”

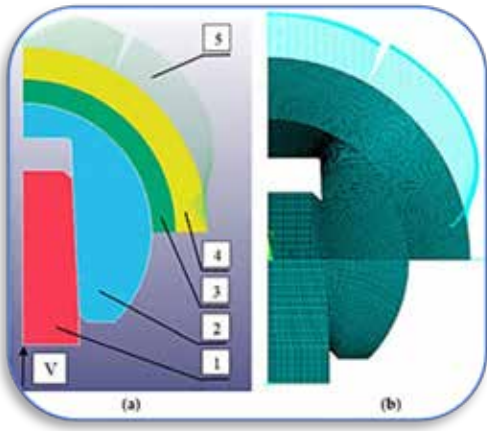
Air Charter Service have continued to support Muram throughout her studies after she was awarded the Mountfitchet Scholarship. “When we launched the Mountfitchet Scholarship we wanted it to go to somebody passionate about sustainability in aviation, and Muram was the perfect candidate,” they said.

“Since then, she has continued to impress, particularly through her use of advanced numerical simulations to demonstrate how morphing wing technology can reduce drag and lower fuel consumption. These aerodynamic developments are key to making the next generation of aircraft more sustainable. We are beyond proud to have helped support Muram in her studies thus far and can’t wait to see the impact of her findings on the aviation industry.”

Professor of Aircraft Technology at Kingston Jian Wang, who is Muram's supervisor added: "Access to specialist tools such as RBF Morph, facilitated through collaboration with industry partners, enables the accurate modelling of complex aerodynamic shape adaptations. This capability is instrumental in strengthening the alignment between academic research and industrial application, accelerating knowledge transfer, and supporting innovation within the aerospace sector."

The next step in the project is for some physical testing of the wing which Muram hopes to undertake over the next few months.

Article, "Methods: A parametric explicit dynamic analysis was performed using LS-DYNA (version 960) on an axisymmetric model of a 32 mm ceramic femoral head articulating with a ceramic liner within a Ti-6Al-4V acetabular shell. Ceramic behavior was described by the Johnson–Holmquist JH-2 damage model, validated against published impact and retrieval data."



Web – MDPI - [Impact Fracture Thresholds of Ceramic Femoral Heads in Total Hip Arthroplasty: An Explicit Dynamic Finite Element Analysis]

Vladimir Pakhaliuk and Aleksandr M. Poliakov
Laboratory of Biomechanics, Engineering Dept.
Sevastopol State Univ., Russia

Figure 1. Model of a hip joint prosthesis: (a) geometric, (b) finite element; elements: 1—stem neck, 2—ceramic head, 3—ceramic liner, 4—acetabular cup, 5—springs with dampers (Winkler foundation). Arrow V indicates the direction of impact velocity.

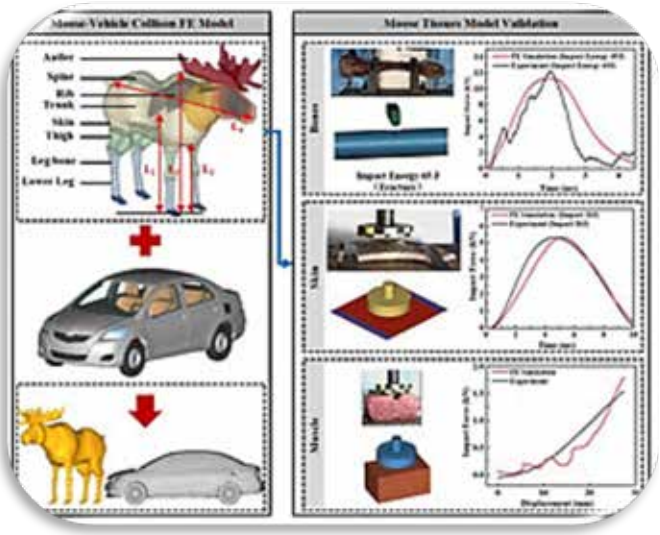
Abstract - Background/Objectives: Fracture of ceramic femoral heads in total hip arthroplasty is a rare but catastrophic complication requiring urgent revision surgery. Most finite element studies are limited to static loading and do not capture dynamic behavior under impact conditions from stumbling or falling. The objective was to determine impact fracture thresholds of alumina (Al2O3) and yttria-stabilized zirconia (ZrO2, Y-TZP) femoral heads using explicit dynamic finite element analysis. **Methods: A parametric explicit dynamic analysis was performed using LS-DYNA (version 960) on an axisymmetric model of a 32 mm ceramic femoral head articulating with a ceramic liner within a Ti-6Al-4V acetabular shell. Ceramic behavior was described by the Johnson–Holmquist JH-2 damage model, validated against published impact and retrieval data**. Bone stock viscoelasticity was a Winkler foundation (stiffness 50–500 N/mm, damping 0–1.0 N·ms/mm). Impact velocity ranged from 0.01 to 0.45 mm/ms, consistent with implant telemetry during stumbling…

1. Introduction - Hip arthroplasty is one of the most common and effective surgical procedures in orthopedics, with over two million procedures performed worldwide annually. The use of ceramic bearings with alumina (Al2O3) and zirconia (ZrO2) femoral heads is justified by their superior tribological characteristics, with low coefficient of friction, high hardness, and superior wear resistance, which are qualities that are critically important for young and physically active patients [1,2]…

2.1. Geometry and Finite Element Model - The geometric model of the hip joint prosthesis contains the following elements: stem neck (1) made of Ti-6Al-4V, ceramic head (2), ceramic liner (3), acetabular cup (4) made of Ti-6Al-4V, and springs with dampers (5) representing the Winkler foundation (Figure 1). The model is shown in both geometric and finite element representations. Geometric parameters correspond to a standard thin-wall implant configuration: head diameter 32 mm, liner wall thickness 3 mm, cup wall thickness 4 mm, and a 12/14 taper junction. **The apparent curvature of the discrete spring-dashpot elements visible in the finite element model is a visualization artifact of LS-PrePost post-processing: the discrete elements connect displaced acetabular cup nodes to fixed foundation nodes, and their inclined appearance reflects relative nodal displacement rather than any physical deformation of the Winkler foundation elements…**

I love tractors, planes, drones, trains, military tanks
And my YouTube shorts of ChatGPT giving me diet advice.

Moose Month here on the ranch.



Article, "To effectively simulate the MVC process, a finite element (FE) model of a moose was developed using the explicit finite element simulation software LS-DYNA.

Web – Science Direct - Driver injury analysis and protection strategies in Moose-vehicle Collisions

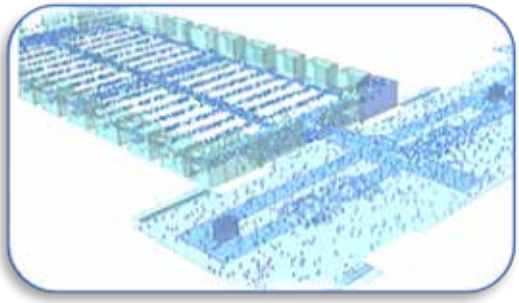
Zhengsheng Hu, Xinghua Wang, Yansi Ding, Min Deng, Yan Wang, Ming Zhang, Gongxun Deng, Yong Peng, Qitao Tan

Excerpts: Abstract - In recent years, the frequency of moose-vehicle collisions (MVC) has constantly increased, becoming a serious traffic safety issue. Addressing the lack of research on collision response and driver injury in such scenarios, this study presents the following contributions: (1) A finite element (FE) model of MVC was developed and validated, analyzing the influence of impact velocity, offset, and impact angle on vehicle collision kinematics. The results show that collision speed and position are significant factors influencing the vehicle's response….

2. Materials and methods - To effectively simulate the MVC process, a finite element (FE) model of a moose was developed using the explicit finite element simulation software LS-DYNA. The validity of various biological tissue models was verified through drop-weight impact tests. By coupling with a FE model of a Toyota Yaris vehicle, a MVC FE model was constructed. Based on the developed model, typical collision scenarios were constructed through parameterized collision boundary conditions. The effects of impact velocity, collision location, and impact angle on the MVC response were quantitatively analyzed using structure deformation, cabin intrusion, and vehicle acceleration, identifying significant influencing factors. To effectively replicate the driver injury process, the study analyzed the impact of various factors on driver injury levels and elucidated the injury mechanisms in such accidents.

2.2. Vehicle impact response evaluation index - By analyzing the frame-by-frame animation of the d3plot results file from LS-DYNA simulations, the deformation process and characteristics of the entire vehicle and its main components can be assessed.

Article, "How can large-span spaces meet stringent safety requirements without compromising spatial openness or freedom? As the largest modern intelligent exhibition venue in Central and Western China, Zhengzhou International Exhibition and Convention Centre Phase II offers a compelling answer to this question."



Web Oasys - Delivering fire safety solutions for mega-span exhibition buildings - The project occupies a site area of approximately 610,000 square meters. It comprises 13 standard exhibition halls, three multi-functional halls, a main entrance hall with two secondary entrance halls, together with supporting facilities including catering facilities & underground parking.

An approximately 1.7-kilometre east–west central concourse connects all these components, forming a comprehensive large-scale exhibition & convention destination.

Arup engineers provided innovative fire engineering solutions for the project, that balance fire safety, operational efficiency, and architectural expression, offering new design approaches for large-scale exhibition spaces. Using pedestrian simulation software, Oasys MassMotion, they were able to optimise different areas of the building whilst delivering unified fire safety solutions for the whole structure.

Innovative fusible ETFE strategy enables simplified design - Ethylene Tetrafluoroethylene (ETFE) membrane structures were introduced above the central concourse and entrance hall to enhance spatial transparency and create a lightweight, contemporary architectural expression. As a recyclable and reusable material, ETFE is considered one of the carbon-neutral materials promoted in China. Its excellent light transmittance allows abundant natural daylight into the space.

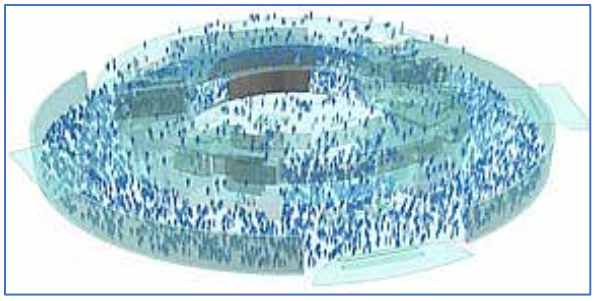
The adoption of ETFE membranes also brought significant benefits to the fire safety strategy: It eliminates the need for traditional fire separations within the central concourse and between adjacent buildings, enabling uninterrupted, fully open public volumes and creating a seamless spatial experience.

On this basis, the engineers further developed a refined zoned activation strategy for the ETFE membrane. It is designed to rupture locally in response to the fire source location, such that only adjacent zones are activated while the remaining areas retain their integrity. This strategy ensures fire safety whilst minimising the impact of localised fire events on the overall building environment and lifecycle operations, reflecting an efficient, targeted and sustainable performance-based fire engineering approach.

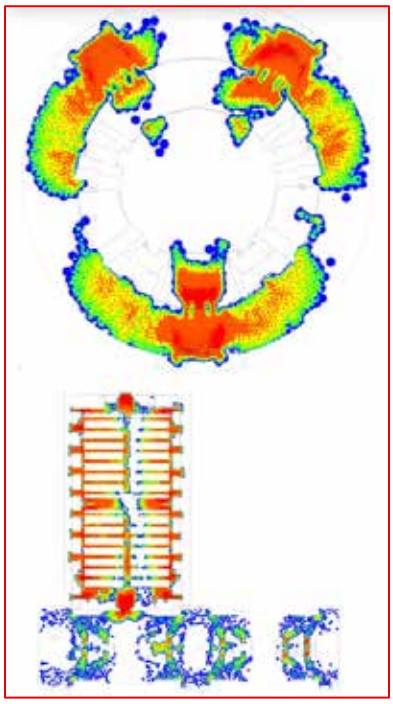
Special fire compartmentation for connected flexible exhibition spaces - The project includes 16 exhibition halls, each spanning approximately 10,000 to 20,000 square metres, all designed as column-free, large-span spaces. The engineers adopted special fire compartmentation measures that avoids introducing fixed physical fire barriers within the space. This approach preserves uninterrupted sightlines and delivers a seamless exhibition experience.

To address the challenge of extended evacuation distances in large-scale exhibition halls, a performance-based fire engineering approach was implemented.

Through detailed evacuation simulations and quantitative analysis using MassMotion, the engineers verified the effectiveness and reliability of the evacuation strategy, resolving key challenges associated with fire safety design in ultra-large spaces and ensuring occupant safety.



Occupants were assigned within the model according to the functional layout of different areas. The simulations evaluated the time required for occupants to evacuate from rooms and reach safe zones, such as staircases or outdoor areas. Adverse scenarios, including the potential unavailability of certain staircases, were also considered. The results were used to validate the effectiveness of the proposed evacuation strategy.



Arup also carried out fire resistance analyses for key steel structural elements within the exhibition halls, main entrance hall and central concourse, supported by the targeted application of a new generation of intumescent fire protection coatings. Featuring a thin, and smooth finish, the coating significantly reduces construction complexity while achieving a high-quality architectural appearance.

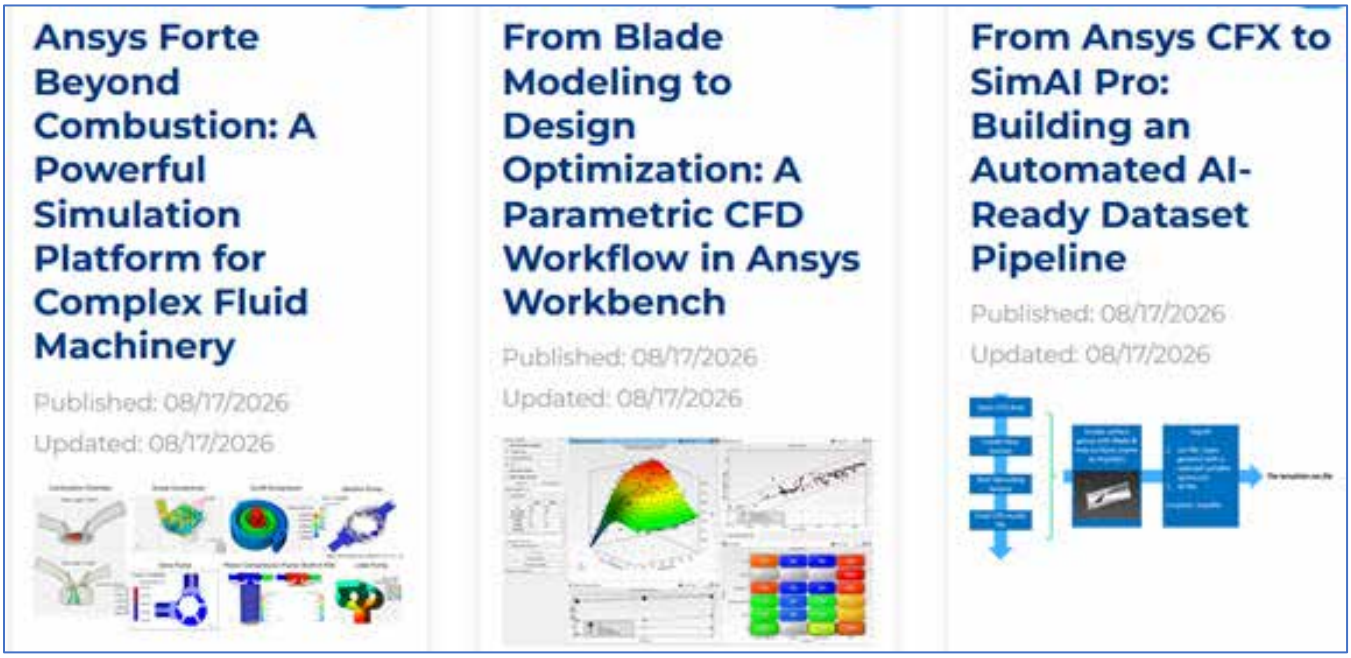
By applying a systematic and forward-looking fire engineering approach, the team helped the project achieve a careful balance between safety, efficiency and spatial quality, demonstrating how integrated design thinking can unlock both technical performance and architectural ambition in large, complex developments.

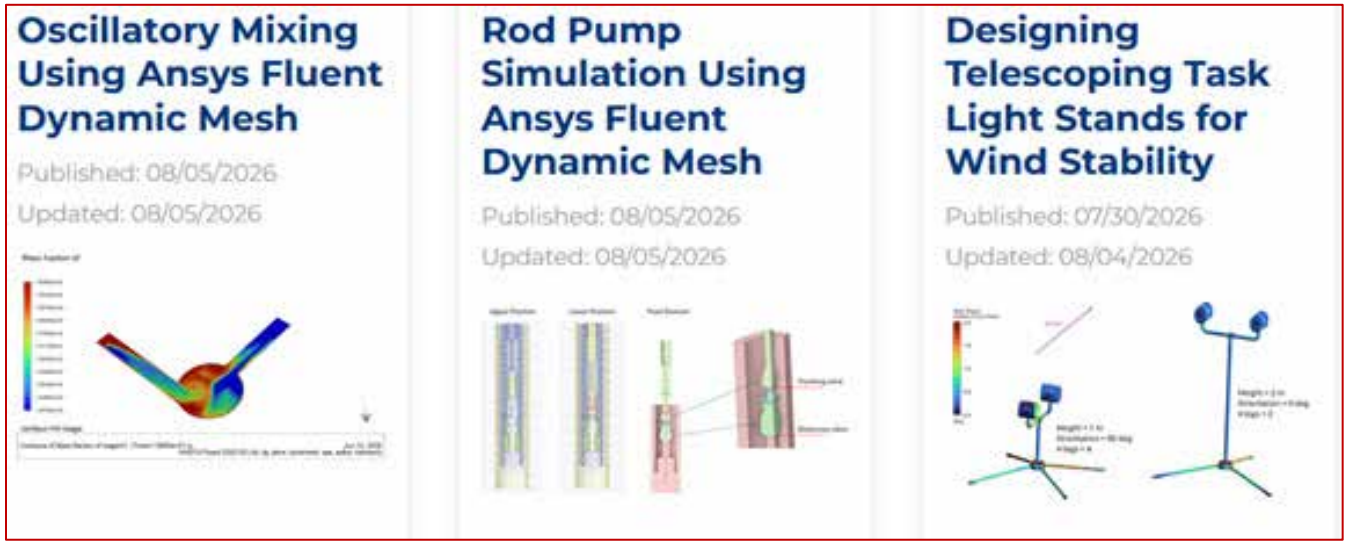
SPECIAL ANNOUNCEMENT

The Oasys LS-DYNA Environment introduces the new IIHS Spec 2 v 2.0 model

On the official SimuTech Blog, our expert engineering staff keeps you informed by authoring original, comprehensive content about the latest in Ansys simulation software, technical enhancements and releases, new and emerging technologies, thought leadership insights, product development best practices, simulation consulting case studies, client success stories, and how-to guides.

Web – Among the articles on the SimuTech Blog

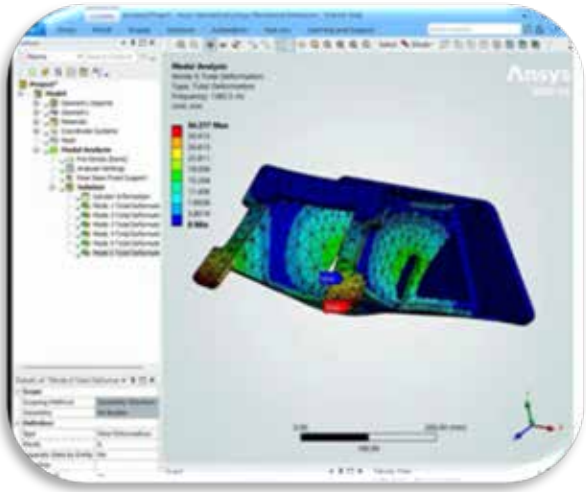




Mi (a resident news raccoon) & Ke (a resident news coyote)

Mi, “know anything on googled antigravity**?”**

Ke, “I called Mike at Ozen/SIMUTECH. He knows a video we can learn from.”



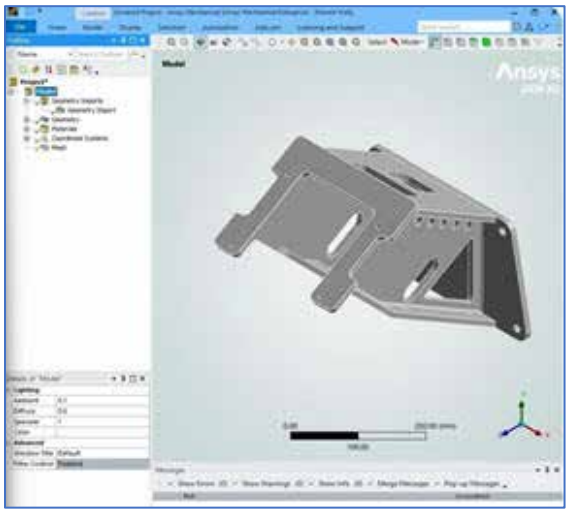
Web – YouTube

Demo: Google Antigravity and Ansys Mechanical MCP

See how Google Antigravity Interacts Directly with Ansys Mechanical Using the Mechanical MCP Server

MingYao Ding, SVP of Application Engineering at SimuTech

In this follow-up Tips & Tricks video, MingYao Ding, SVP of Application Engineering at SimuTech Group, builds on the earlier Google Antigravity and Ansys Mechanical demonstration by connecting Antigravity to a live Mechanical session through the Mechanical MCP server. Using a bracket model, Ming explores how AI-assisted interaction can help inspect the model, recommend analysis approaches, and support more advanced simulation workflows.



What you’ll see / learn in the video:

- Connecting Google Antigravity to Ansys Mechanical through the Mechanical MCP server
- Interacting with a live Mechanical model using AI-assisted prompts
- Reviewing model information and identifying potential analysis approaches
- Building workflows for modal and static structural analysis
- Exploring random vibration and fatigue-related simulation tasks
- Seeing how MCP-based interaction may support Ansys Mechanical workflow automation

I've revised and updated my training course, "Material Flow Simulation with ALE and Particles in LS-DYNA." It now includes a detailed explanation of the various types of metal cutting, the MC-SPG modes and settings required for each, and the material models used. Most importantly, all of this takes place within the Ansys Workbench environment, so you don't need to be a k-file ninja.

Material Flow Simulation with ALE and Particles in LS-DYNA

Meshless and ALE approaches when FEM reaches its limits

October: Wed, 14.10.2026 - Thu, 15.10.2026

Live Online Training-No.: 9041518

09:00 am - 05:00 pm (GMT +2:00)

Ideal for simulation engineers with prior LS-DYNA Workbench experience.

Description - Simulating mechanical processes with extremely large deformations, fragmentation, or material separation often pushes traditional Finite Element Method (FEM) formulations beyond their limits. Scenarios like fluid-structure interaction (FSI) with destructible or highly deformable solids challenge even coupled FEM-CFD models. To address these limitations, LS-DYNA offers robust mesh-based and mesh-free methods tailored for such conditions. This seminar introduces three powerful approaches: the Arbitrary-Lagrangian-Eulerian (ALE) method for modeling the mechanics of fluids, gases, and multi-material interfaces; the Smooth Particle Hydrodynamics (SPH) method, which uses particles to simulate fluid and solid behavior under dynamic loading; and the Smoothed Particle Galerkin (SPG) method, which is especially suited for simulating material failure and cutting. All methods are embedded in the intuitive Ansys Mechanical PrePost interface, enabling engineers to simulate real-world processes efficiently without deep scripting or solver knowledge.

Participants should be familiar with basic FEM workflows and want to expand their skills in modeling fluid and particle dynamics. The course supports method selection, application depth, and confidence in meshless modeling.

Duration - 2 days **Prerequisites** - Knowledge of Workbench LS-DYNA

Software used - Ansys LS-DYNA, Ansys LS-PrePost

Benefits - Model material flow and FSI using ALE in LS-DYNA

- Use equations of state for liquids, gases, and solid materials
- Assess meshless methods compared to standard FEM
- Select the right method: ALE, SPH or SPG based on your task

The Pasture Movie Theater

FEANTM Town & Residents welcome you

coffee and popcorn are free

The conversation with Jeroen Egelmeers and Ton Godtschalk begins in a relaxed manner via Teams. They know each other from workshops, client projects, and substantive sessions at Capgemini Academy. There's laughter about SEO buzzwords and odd prompts – things they often run into in their daily

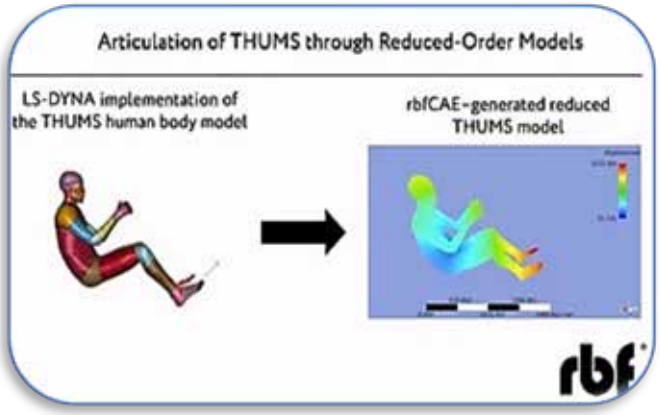
Web – CAPGEMINI - You don't have to be a software engineer to reap the full benefits of GenAI Excerpt:

'How can people benefit from this technology?' ...The topic at hand: how AI is changing work and what that requires of professionals.

As the lead of training services at Capgemini Academy, Ton Godtschalk is responsible for Capgemini's entire training portfolio and develops strategic training offerings in areas such as AI, cloud computing, and data science. He considers the big picture and translates technological trends into concrete learning pathways. Jeroen Egelmeers brings those programs to life. He gives training courses on prompt engineering, speaks at conferences, and works with a wide range of target groups. Jeroen says, "We complement each other without it ever feeling like we're working in separate boxes."..

Read the complete conversation on the website.

“**RBF CAE - We are pleased to share** a **new Master's thesis developed at the University of Rome Tor Vergata by Samuele Staz**i, under the supervision of Prof. Marco Evangelos Biancolini and the co-supervision of Emanuele Di Meo, Entitled "Articulation of THUMS through Reduced-Order Models."



Web – RBF CAE **"Articulation of THUMS through Reduced-Order Models,**

You can read the presentation and the full thesis on the website.

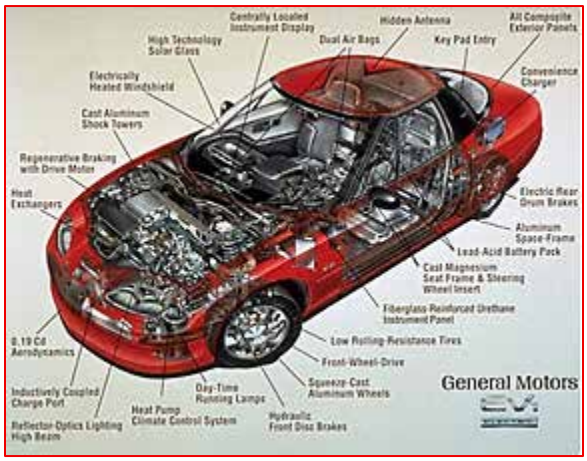
The research presents an efficient methodology for articulating the THUMS (Total Human Model for Safety) digital human model by combining reduced-order modeling with the mesh morphing capabilities of the rbfCAE platform.

The proposed framework enables realistic joint articulation while preserving mesh quality, eliminating the need for repeated remeshing operations. By integrating reduced-order models with mesh morphing, the methodology supports computationally efficient crashworthiness and occupant safety simulations, opening new opportunities for parametric studies, virtual prototyping, and AI-enabled engineering workflows.

This work demonstrates how advanced simulation technologies can be combined to address complex biomechanical challenges, contributing to more scalable and efficient approaches for human body modeling and safety engineering

No one knows his name.
You yell, "HEY, old racer."

A cutaway illustration of the GM EV1 highlighting many of its novel tech features.



Web – [GM The GM EV1 changed how cars stop](#) - Chris Perkins, Senior Writer and Editor, GM News

Engineers love to chase efficiency, maximizing the potential of what's in front of them. With the pioneering GM EV1 – the first modern electric vehicle from General Motors – they looked in an unexpected place: The brakes.

To meaningfully boost the EV1's driving range, getting the most out of mid-1990s battery technology, GM engineers and designers left no stone unturned, creating a lightweight car with bodywork meant to slip through the air.

They also reinvented the automotive braking system, setting a template for so many vehicles to come.

A typical automotive braking system uses friction to convert kinetic (rolling) energy into thermal (heat) energy. When the driver pushes the brake pedal in a modern car, hydraulic fluid flows to brake pads that squeeze against a rotating disc attached to each wheel. It's a very effective method for slowing a car down, but all that heat energy is wasted, lost into the atmosphere.
The EV1 team wanted both regenerative and friction braking, and they wanted to keep things simple for drivers, controlling both with the conventional brake pedal. To do so, they created a new and revolutionary kind of braking system: Brake-by-wire, where the brake pedal activates an electronic system that controls regenerative braking and the conventional brakes simultaneously.

In a conventional automotive braking system, the brake pedal is connected directly to the hydraulics. Brake-by-wire adds an electric intermediary, which unlocks regenerative capability. When the driver presses the brake pedal, the system generates an electrical signal that goes to a computer. The computer determines how much braking force the driver wants and how to achieve it.

In the EV1, the computer is called the Brake Torque Control Module (BTCM), and it translates the brake-pedal signal into a mix of friction and regenerative braking. (For safety, the brake pedal is also connected to a fully mechanical backup system.)
At the time, GM described this as "the world's most efficient and intelligent stopping system ever fitted to a production automobile."

Conceptually, the EV1's braking system operates exactly like the braking systems in GM's modern EVs. Press the brake pedal, and the car's computers decide how much friction and regenerative braking to actuate. Should the electronic system fail, it's connected to a mechanical backup, just as in the EV1…

No one knows her name.
You yell, "HEY, Slow Down"

Web Ford - Ford Raptor T1+ Takes Second Overall in American Racing Debut at Vegas to Reno
Kelsey Quartuccio

The Ford Raptor T1+ has raced across some of the most demanding terrain in the world. This week, Ford Racing brought the ultimate Raptor home.

Mitch Guthrie Jr. & co-driver Kellon Walch finished second overall at the 2026 Casey Folks Vegas to Reno, delivering an overall podium in the Ford Raptor T1+'s first race on American soil & its first competition outside international rally raid. Running in full FIA Dakar specification, Guthrie and Walch fought for the overall victory throughout more than 500 miles of Nevada desert, completing approximately 800 kilometers of competition with no mechanical issues in 7 hours and 43 minutes.

The Raptor T1+'s homecoming comes during a year rooted in Ford's racing history. As Ford celebrates 125 years since Henry Ford's 1901 victory that helped set the company in motion, and the United States marks its 250th anniversary, an American driver and co-driver brought one of Ford Racing's most global competition vehicles back to the American desert — and onto the podium.

"Bringing the Raptor T1+ home to race in the United States was important to us, but doing it with Mitch and Kellon and finishing on the overall podium makes this a really special moment for Ford Racing," said Mark Rushbrook, Global Director, Ford Racing…

US Airforce Picture of the Month

Smoke and thunder - An F-22 Raptor assigned to the F-22 Raptor Demonstration Team flies past pyrotechnic smoke during the Arctic Thunder Open House at Joint Base Elmendorf-Richardson, Alaska, Aug. 8, 2026. The F-22 is the Air Force's premier fifth-generation fighter, combining stealth, supercruise and advanced sensor capabilities.
(U.S. Air Force photo by Airman 1st Class Theodore Gowdy)

Extending the mission - A U.S Air Force F-16 Fighting Falcon receives fuel from a KC-135 Stratotanker in the U.S. Central Command area of responsibility Aug. 7, 2026. Aerial refueling extends the range and endurance of combat aircraft supporting operations throughout the region.
(U.S. Air Force photo by Master Sgt. James K. Thomas)

Bank on it - **A C-17 Globemaster III** flies over Altus Air Force Base, Okla., Aug. 13, 2026. The C-17 provides rapid strategic airlift of troops and cargo while supporting tactical airlift, aeromedical evacuation and airdrop missions worldwide.
(U.S. Air Force photo by Senior Airman Jonah Bliss)

Web - KIZILELMA SUCCESSFULLY COMPLETES FIRST FIRING TESTS FROM ITS INTERNAL WEAPONS BAY

Ushering in a new era in the history of world aviation, the KIZILELMA Unmanned Fighter Aircraft has successfully completed its first firing tests from its internal weapons bay. In tests conducted in Çorlu, KIZILELMA scored direct hits on designated targets using TEBER-82 and TOLUN munitions carried in its internal bay.

The development of Türkiye's first unmanned fighter aircraft, KIZILELMA, continues with the integration of new capabilities. As part of work carried out at the Çorlu Flight Training and Test Center in Tekirdağ, KIZILELMA carried out live firings for the first time using munitions loaded in its internal weapons bay.

FIRST FIRING FROM THE INTERNAL WEAPONS BAY - Indigenously developed by Baykar, KIZILELMA's serial production model, tail number S2, first successfully completed firing tests on Saturday, 25 July, using a ROKETSAN-produced TEBER-82 carried in its internal weapon station, followed on Tuesday, 28 July, by tests using an ASELSAN-produced TOLUN munition. During the tests, KIZILELMA took off from Çorlu, proceeded to the target area, and fired the munitions from its internal bay, scoring direct hits on the designated targets. In doing so, Türkiye's first unmanned fighter aircraft advanced its capability to conduct precision strikes on strategic missions while maintaining a low radar signature.

LOW RADAR SIGNATURE - Thanks to its internal weapons bay, KIZILELMA will be able to penetrate deep into hostile territory and strike using indigenous munitions while maintaining a low radar signature. Carrying munitions within its fuselage reduces its radar cross-section while preserving its high speed and aerodynamic efficiency, enabling KIZILELMA to carry out strategic missions more effectively in areas with dense air defense coverage.

MOMENTUM BUILDS IN THE INTEGRATION OF INDIGENOUS MUNITIONS - KIZILELMA has previously completed successful firing tests with the GÖKDOĞAN air-to-air missile, as well as TOLUN, TEBER-82 KGK, and LGK-82 munitions. Having also successfully struck its target with the JET-230 supersonic missile, KIZILELMA is now seeing accelerated integration of indigenous munitions. As a result, Türkiye's first unmanned fighter aircraft continues to expand its effectiveness against a growing range of targets

Agriculture, Machinery, Soil, Equipment,
and whatever he wants to share.
My dog, Scout, & my horse, Cowboy - St. Cloud, MN, USA

Charred vegetation after burning in a wildfire is a product of combustion.

Excerpt - Web - - Univ. Colorado - What happens inside a wildfire? One PhD student is finding out
By Alexander Servantez

What happens during a wildfire? The short answer is: much more than we know.

As wildfires burn through trees, grasses and other vegetation, heat from the flames set off thousands of chemical reactions at once. Molecules break apart, recombine and transform into new compounds, releasing gases, soot and other carbon-rich particles into the air.

While scientists can see the products of these reactions, what happens in between is much harder to understand. Many of the chemical reactions that drive combustion take place so quickly that they are nearly impossible to observe.

That's where Jas Shahanand comes in. Shahanand, a sixth-year PhD student in the Paul M. Rady Department of Mechanical Engineering at CU Boulder, is finding ways to capture and identify some of these fleeting molecules, giving researchers a closer look at the hidden chemistry of combustion.

He believes the work, recently published in the American Physical Society's PRX Energy journal, could be the foundation for more accurate wildfire emissions models, improved climate prediction and even cleaner fuel sources in the future.

"These chemical reactions are often very generalized because they occur in a black box. But there's actually a lot of good information hidden in those intermediate processes," said Shahanand. "My goal is to analyze those processes from a gas-based perspective to help provide a deeper understanding of how combustion chemistry really works."

Tiny chemical thieves - The key to Shahanand's research lies in a type of tiny molecule called radicals. PhD student Jas Shahanand working in a laboratory with machinery all around him. Radicals, created by heat and other high energy environments, act as the driving force behind combustion. They come with an unpaired electron, making them extremely unstable and reactive. When they react with other stable molecules, they steal an electron to create a pair. This sets off a chain reaction of molecular-level theft—new radicals crashing into molecules and robbing electrons over and over again. Eventually, these reactions facilitate molecular growth, where gas-phase chemistry proceeds to particle-phase. This can especially be seen during wildfires, when gases like methane or ethylene transform into char and soot

Understanding these "radical" reactions can tell us a lot about different forms of combustion, from how engines work to interstellar and planetary behavior. But according to Shahanand, they are very short-lived.

“We’re talking nanoseconds,” Shahanand said. “It’s very difficult to run experiments and watch them propagate at that speed.”

To combat this, Shahanand and his team in the Particulate Chemistry and Diagnostics Lab, led by Professor Hope Michelsen, began studying a specific kind of radical: resonance-stabilized radicals.

Unlike normal radicals, the unpaired electron in these molecules is spread out across multiple atoms, allowing them to be more stable and live longer. This gives researchers a much better chance at detecting and studying them, revealing chemical behavior that has largely remained unknown.

“We’ve always known the chemical pathways, but determining which radicals are causing the reaction has always been based on educated guesses,” said Shahanand. “Now, we can confirm those chemical species in our experiments and create models that identify and characterize them for future tests.”
The “fingerprints” of the future

One particular experiment, conducted by Shahanand and his team at Lawrence Berkeley National Laboratory’s Advanced Light Source in Berkeley, California, analyzed chemical reactions when lignin—a material found in plants and trees—is heated without oxygen during a process called pyrolysis.

Lignin pyrolysis is widely known for generating aromatic compounds called substituted anisoles, which have potential to be transformed into a renewable biofuel. But the process can also produce unwanted byproducts such as char and tar.
…
Shahanand and his group discovered that by slightly modifying anisole molecules, they were able to drastically increase the amount of radicals produced under natural lignin pyrolysis conditions.

He says this finding could one day help scientists “control” these chemical reactions, allowing them to better produce useful compounds while limiting undesirable ones.

“If we want to better fight wildfires or produce clean, cost-effective fuel, we need to have a fundamental understanding of the chemistry,” Shahanand said. “We need to know which reactions are good for our goals and which reactions create bad byproducts. To do that, we need to know what’s actually happening inside of the reaction, which is where our research comes into play.”

They also are the first researchers to create a complete “fingerprint” for some radicals they detected that are especially relevant to combustion. Much like a fingerprint can identify a person, these results can help researchers identify a specific molecule or radical.

Previously, scientists only had a reference curve covering part of the spectrum. Shahanand and his team filled in the gaps, producing a complete set of data across the full range and giving researchers a clearer way to identify the radical in future experiments. Going forward, Shahanand says he wants to continue studying all types of chemical reactions and the radicals behind them. His next work will examine chemicals and conditions more akin to what takes place when an actual forest is burning.

But he believes his research has the power to impact many other aspects of society, as well.

“Maybe we want to explain why certain warming effects exist in different ecosystems. Or maybe understand how chemistry facilitates combustion in space or other planets with different atmospheres,” Shahanand said. “Whatever it is, it all comes back to these fundamental ideas.”