Enabling non-VR applications to be experienced in immersive, collaborative environments

TECHVIZ

Mechdyne
ENABLING DISCOVERY

TECHVIZ, INSTANT VR & COLLABORATION SOFTWARE

No data conversion

Visualize and modify your model in real-time, from more than 200 compatible applications (Catia, Creo, NX, Navisworks and many more)

Universal VR solution

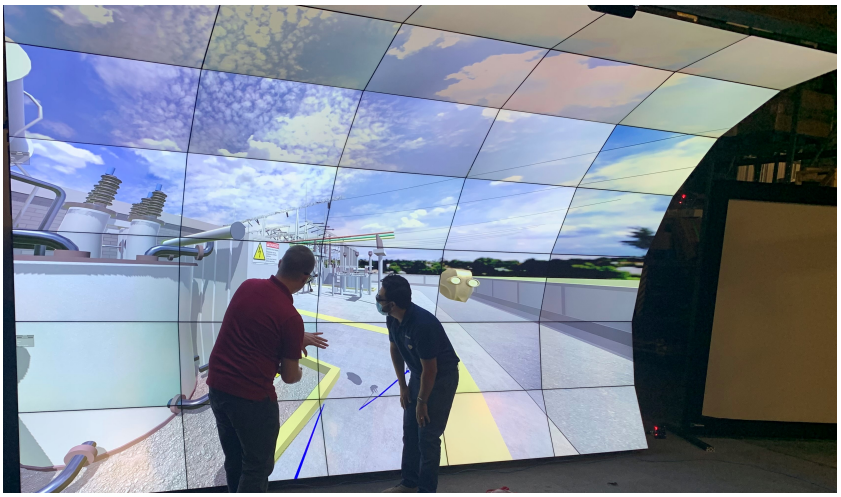
Compatible with all VR displays: headset, powerwall or immersive room.High performance for largest models. Top level data security for multisite collaboration

Made for engineering

Comprehensive set of features to accelerate development cycles and fully intergrates in existing engineering processes

A unique technology

TechViz is a Virtual Reality software editor founded in 2004 that provides a market-leading immersive 3D visualization technology. The head office is located in Paris where cutting edge technology is developed by R&D experts in computer architecture, 3D rendering and cluster computing.



MECHDYNE VIRTUAL REALITY AND ADVANCED VISUALIZATION ENVIRONMENTS

Mechdyne is the world's longest-standing company specializing in design, delivery, and support of large-scale VR and visualization environments. Founded in 1996, Mechdyne has expertise with all display technologies, graphics computing, and software for creation of immersive and high resolution systems at any scale. Together with TechViz, Mechdyne can deliver a solution that generates insight and value one day one.

Mechdyne has the teams and processes to deliver solutions globally. Our software specialists can provide start-up and embedded services for a multitude of industries and applications. Contact us for more information on turn-key solutions.

Mechdyne
ENABLING DISCOVERY

Mechdyne Corporation | www.mechdyne.com

Americas: 1-641-754-4649
EMEAA: +44 116 318 4083

MORE THAN 300 PRESTIGIOUS REFERENCES HAVE CHOSEN OUR SOLUTIONS

AUTOMOTIVE

Optimize car design review, meet safety standards, study control systems of the vehicle dynamics, and accidentology

AERONOTICS & AEROSPACE

Improve technical review, mitigate risks, reassure on PLM process, check safety requirements, optimize engineering project reviews and simulations

MANUFACTURING

Optimize product reviews, reduce time-to-market a product, validate staff comfort and ergonomics

ARCHITECTURE

Enhance customer understanding and gain a competitive advantage by offering your clients virtual modeling and walk-throughs

CONSTRUCTION

Review design projects, identify potential errors and reduce costs and risks, coordinate workers and tasks better

ENGINEERING

Optimize projects by visualizing complex data, explore design issues and improve prototyping

SHIPBUILDING

Identify potential design errors, benefit from a realistic understanding of the data model, ergonomics, path planning, visibility, and enhance maintenance operations

ENERGY

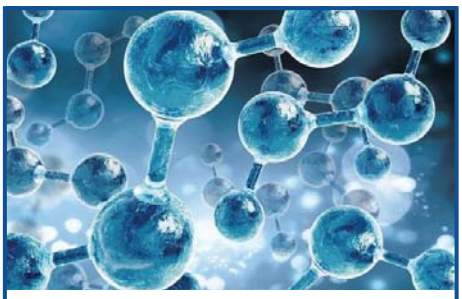
Monitor training sessions, enhance safety during maintenance operations in remote or hazardous locations (nuclear, solar, wind turbine)

MILTARY & DEFENCE

Validate system performances such as manpower, communications, radars and sensors, and practise potential dangerous scenario

RESEARCH

Drive scientific advancement, improve collaboration between teams , facilitate knowledge transfer with other stakeholders and the general public



PHARMACEUTICAL

Improve Molecular Research and drug development process, enable scientists to visualize human body and brain's anatomy

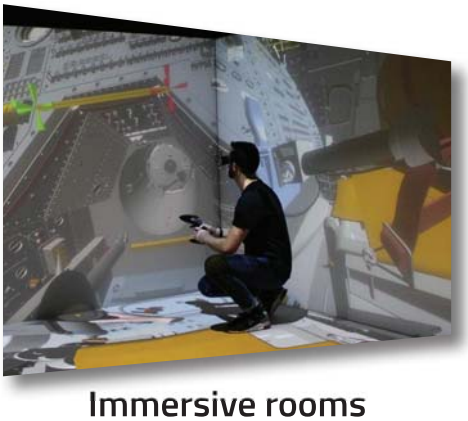
EDUCATION

Improve learning outcomes through immersive and interactive experiences, and lower barriers to understand complex information

TECHVIZ SOFTWARE

Mechdyne
ENABLING DISCOVERY

TechViz is a VR software and a unique technology that instantaneously displays in 1:1 scale any CAD model on any type of virtual reality system (Immersive rooms, head-Mounted displays and Powerwalls). Acting as a driver to a VR system, TechViz enables to be fully immersed in virtual reality, to interact with the native 3D data and to make changes in real time.



Immersive rooms

Head-Mounted Displays

Powerwalls

Engineering-grade scalable VR software

TechViz VR software can display very large CAD models (up to 1 billion triangles), while keeping a high frame rate. It ensures a comfortable experience for the user, avoiding VR motion sickness. You can work either from Windows (7, 8, 10) or from Linux, and it is scalable to unlimited display channels. TechViz is compatible with 3D applications based both on OpenGL and DirectX.

Instant VR and Collaboration

Our collaborative option is ideal to collaborate instantly in VR with co-workers in different locations in real time, with any application and on any VR device. TechViz VR Collaboration is ideal to improve communication to pursue decision and validation processes without physical meeting. It can also be used to provide remote training, in real time, at any distance. Teamwork becomes easier within the corporate structure, especially between people working from different locations in the world. Our solution ensures real time data update and synchronization from the different departments based in various locations. Navigation and interaction from every site is fluent: people can join or leave a session without affecting the connection of the other sites.

PRODUCT OFFERING

CUSTOMIZABLE SOLUTION

TECHVIZ XL

Create your use cases with a scalable VR solution.
Works with all VR display systems and is scalable to unlimited display channels. Enables display on any surface (plane, dome, cylinder...) whatever the number of projectors thanks to Edge Blending and Warping functions.

PACKAGED SOLUTION

SHARE&VIZ

Packaged solution for VR headsets. Compatible with most headsets, high resolution and graphic optimization to avoid motion sickness, a variety of plans with annual license fee are available to fit your needs.

FLY&VIZ

Bring an immersive room to off-site project reviews.
Comprehensive, compact and light (23kg) solution, making it conveniently transported and quickly set-up (5 minutes). Integrates all the necessary hardware for VR presentation: projector, tracking systems, glasses & infrared transmitter, Flystick, cables and PC (optional). Includes TechViz software license.

TECHVIZ FEATURES

Mechdyne
ENABLING DISCOVERY

VIRTUAL REVIEWS

Digital Mock Up 

Analyze and share ideas on a 3D model. Interact through a tracked device, add bookmarks and annotations, take measurement, sketch on the model with a controller, cut planes, switch scale, shoot pictures, hide and show parts.

Video Recording 

Save your session for future review or presentation. Record all actions and navigation, replay your session in VR or in video, generate stereo 3D side by side, take 360° snapshots.

Automated Reporting 

Insert VR seamlessly into your engineering workflows. Don't waste time and avoid switching back and forth from VR to your notepad. Automated Reporting inserts a lost of decision items for the session and produces meeting minutes instantly. It improves processes by facilitating task tracking and decision traceability.

COLLABORATION

Clone-model collaboration 

Visualize your 3D model with multiple users. Works with multiple sites in different locations, interoperates all kind of VR display systems, tolerates high network latency and low bandwidth, top level data security with no exchange of model information.

Cloud&Viz -NEW-

Stream your 3D model in VR remotely with stakeholders who don't need to have CAD software nor high-end computing power. The rendering is continuously calculated on a server and streamed to every-one.

Plug&Viz 

Plug any workstation to a VR system. Multiport adaptor that carries the TechViz license, makes the link between a workstation with a CAD model and VR display installation, mutualize your VR installation both internally (all teams) and externally (suppliers, partners).

HUMAN INTEGRATION

Virtual Assembly 

Validate assembly, maintenance and provide training. Move interactively a part of the model, use virtual tools to simulate operations, see collisions and record a path that can be reloaded, connect to the PLM product structure tree.

Virtual Manikin 

Insert a manikin into the model for ergonomics assessment. Manikin can be manipulated via several limbs and articulations. Color-coded adequacy of the posture is displayed. Easy to use assessment without need for fully body tracking.

Body Tracking 

Validate ergonomics of a product or a workstation. Display body movements in real time, see collisions between user and 3D model, display part names and body part names, produce timed collision report, record and replay, show user or external viewpoint.

Finger Tracking 

Analyze precise reach. Display a virtual rendering of the hand fingers, based on real time full hand motion tracking, ideal for testing HMI at every step of a project.

ADVANCED FEATURES

Fusion 

Merge content from multiple 3D applications. Plug a CAD model of a future car into a driving simulator to test design in a dynamic environment. Mix CFD and CAD data for a better understanding of the flows. Mix BIM models and point clouds from laser scanning for quality control.

Interactive Image Integration 

Inlay and interact with 2D-Content. Creates texture markers on the original CAD model and replaces by real-time image stream. User can interact with the contact as if displayed on a touchscreen. Enables to test the HMI of the product under development or navigate between 2D content (bill of assembly for example) and the model.

TVZLIB API 

Develop tailored interactive functionalities with TVZLIB API. Enables the user to interact directly with the application in the VR environment instead of using keyboard and mouse. Successfully integrated with Unity, OSG, Ogre, Sketchup plugin, Catia V5 CAA plugin... Can be adapted to a broad range or programming languages (C, C++, c#, python...).

3D Model Customization

Import any 3D object in vrml format to improve the realism : tools, furnitures... Combined with the Virtual Assembly feature, the user can see collisions with the model.

USE CASES

Design review and presentation

Visualize the digital twin of your 3D model and make design reviews of a product, improve the interaction in a virtual environment and share ideas with others. Measure the distance between two points. Hide and show parts to explain specifities of the 3D model, stick virtual flags with annotations to point out specific issues, clip planes and navigate in an easy way.

Maintenance scenario evaluation

Create VR scenarios for training sessions or to assess risk and safety during maintenance operations. Get familiarized with vessels and task to be performed later on site with training sessions, verify the ability of your technician to perform immmediately the maintenance operation, and the ergonomics engineer to be able to check his posture.

Cockpit ergonomics

Optimize the ergonomics of a car cluster or a plane's cockpit with virtual reality. In order to guarantee the driver's safety on board with maximum comfort, car or aircraft manufacturers can check the comfort of a driving seat, the good visibility and the way the driver will be at ease to reach and manipulate all commands of the cluster.

Workstation ergonomics

Identify potential issues that could arise from workstation ergonomics by visualizing a 3D model from your desktop. Evaluate comfort, efficiency and safety of rather confined workstations right from the design phase. You can also reintegrate the human factor by imitating an operator in his work environment with the Virtual Manikin.

Visualization of complex data

Immerse yourself entirely into complex sets of data to see how things connect and interact with each other. Visualize fluids, environement and its impact, analyse microscopic elements or mix BIM models and point clouds from laser scanning for quality control to have a better understanding of your 3D models.

Specialized training

Train your employees entirely in a virtual environment with XR and avoid potential damages while risky situations training. Equip your users with HMDs and trackers in several places on the body: on their VR headset, on their wrists, on their ankles and on the computer carried on their back, enabling to launch the virtual reality software, and to be free of their movements. Add the haptic feedback to feel tools weight or possible collisions.

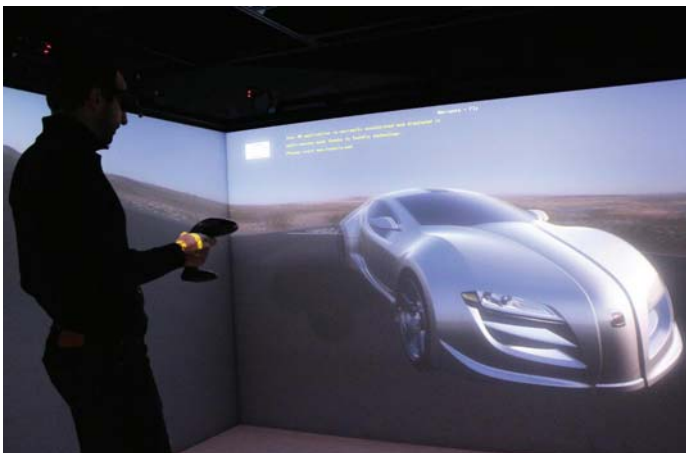
CASE STUDIES

Product ergonomics

For the Automotive industry VR has become a total game-changer. VR unlocks lots of possibilities: changing virtually the whole design of a car, checking the reachability of a person to the dashboard or modifying or upgrade the design in real time before even making a real mockup. Most of the validation process is now taken care of within the virtual environment.

That's exactly what the car maker Renault Engineering is doing since using TechViz in its 5-sided CAVE equipped with a driving platform simulator, the engineers can visualize in an instant their new prototypes.Totally immersed in VR, the engineers can simulate the driving of a car in the open road, in real life situations. Using the driving simulator, engineers and designers of future Renault vehicles can sit behind the virtual wheel of a new model during the development process and take it for a drive in a 3D universe achieving a level of realism and detail never seen before in the automotive industry.

With TechViz Fusion designers and engineers can check the design towards safety requirements in an easy way. A front pillar might meet esthetical requirements, but it is essential to ensure the driver has the necessary visibility clearance to drive safely. Engineers can thus verify comfort, ergonomics, accidentology, and control system of the vehicle dynamics.



Maintenance scenario

Mazagon Dock Shipbuilders Limited (MDL) is one of the leading shipyards in India. This company manufactures warships and submarines for the Indian Navy and ships for national and international customers.

Producing warships and submarines can be very challenging as those ships often are one of a kind and have to perform well (embarking heavy missiles for example or even helicopters onboard) while respecting safety and ergonomics standards of very confined places.

To meet those requirements, MDL can count on its virtual reality Lab consisting in VR headsets and a large Powerwall with high resolution multi-channel projectors with optical tracking system, a full body tracking to track users body in a virtual space, and TechViz, real-time visualization software enabling to display 3D models in real-time, providing a broad range of functionalities fitting MDL's use cases. Using full body tracking, TechViz displays a 3D avatar of the user's body in the virtual space helping users to conduct ergonomics reviews in real-time, reachability study, maintenance operations and check collisions between the virtual human & the 3D virtual model of the ships. Engineers can check the ergonomic posture of a technician when he performs maintenance operations, test the impact of making the changes in real-time, see collisions between manikin and the 3D object to understand the space availability and conduct reachability in different postures.

Mr. Deshpande added that since using VR, many stake holders from different divisions of MDL, can go through the design review process to validate ship design. This helps them in identifying issues and in making changes in real-time at an early stage of the project review. It also greatly helps in making decision making processes faster.

"Warship & Submarine construction is very complex and has stringent quality standards. VR helps us in innovating, anticipating errors and risks at an early stage of conception. It helps our customers to visualize the ship in an immersive environment and allow them to suggest any modification in design before releasing for production".

Parag M Deshpande
Chief Manager Design IT at MDL

Design review and presentation

Virtual Reality has the ability to achieve detailed visualization early in the development process of a product, avoiding unnecessary physical prototype.

AGCO, one of the largest manufacturers of agricultural machinery in the world, is committed to investing in state-of-the-art visualization technology to aid in design and development of farming equipment at its facilities. Using TechViz visualization software, AGCO engineers can immerse themselves into the virtual prototypes of the machines during the design and development process. This allows them to visualize design lines inside and outside the cabs, take off the hood, analyze HVAC airflow, and carry out overall reviews of the machines. Eventually, they'll use full automations of running machines to see how they respond to different surfaces and textures.

The core functions of the system are to achieve optimal product quality and reduce costs by streamlining product development. AGCO also plans to use the powerwall for manufacturing and assembly training purposes, as well as servicing and marketing, attesting to the versatility and value of the solution.

«By reviewing the models virtually we are able to catch interferences, perform clearance checks and fix engineering designs ahead of prototyping, allowing us to create fewer prototypes before the final product is ready. Ultimately, we hope the powerwall will not only help us reduce costs, but build the best farming equipment possible.»

Joseph Black
Senior Business Analyst at AGCO Corporation

OVER 200 CERTIFIED APPLICATIONS

Mechdyne
ENABLING DISCOVERY

CAD / GENERAL SOFTWARE (PER EDITOR)

Dassault Systemes
3DExcite DeltaGen
3DExcite DeltaView
3DVia Composer
DVIA Home
3DVia Composer Player
3DXML Player
3DExperience
Abaqus
Catia V5 & V6
Catia Composer
Delmia
Deltagen
Dymola
eDrawings Viewer
Enovia DMYU
Geovia
Icem Surf
Icem Viewer
IGRIP
PowerVIZ
Seemage
SolidWorks
SolidWorks Composer
Virtools

Trimble
Sketchup

RTT
RTT DeltaDen
RTT DeltaView

Autodesk
3DS Max
Alias
Design Review
Image Studio
Inventor
Maya
Moldflow Communicator
Moldflow Synergy
MotionBuilder
Navisworks
Opticore
Revit
Showcase
VRED

CEI
EnLiten
Ensight
Envision

Schlumberger
Eclipse
Gigaviz
Petrel

AGI
AGI STK
AGI STK Viewer

PTC
Creo
Creo Elements
Creo Direct
Creo Simulate
Creo Illustrate
Creo Parametrics
Creo View
CoCreate
Product View
Product View Express
Pro/engineer
Division 2000i2

ADOBE
Acrobat
Adobe 3D Reviewer
Acrobat Reader

Paradigm
VoxelGeo
3D Canvas
GoCAD
GeoDepth
GeoLog

Flex Structures
IPS Cable Simulation

ALTAIR
Altair Hypermersh
Altair Hyperview Player
Altair Hyperworks

Siemens PLM
I-Deas
JT2GO
Jack
NX
Plant Simulation
process Simulate
RobCAD
SolidEdge
Star CCM
TeamCenter
Tecnomatix Emplant
Tecnomatix Empower
Walkinside

Ansys
Ansys CFD Viewer
Ansys CFD Post
Standalone
Ansys Fluent
Ansys Workbench
Mechanical

Hexagon
Intergraph Smart Plant
Intergraph Smart Plant
FreeView
Intergraph Smart Plant
Review
Intergraph SmartPlant 3D

AVEVA
Marine
PDMS
Review
Tribon

Landmark
AssetView
Geoprobe
OpenVision
SeisWorks
StratWorks

Google
Google Earth

ESRI
ArcGIS
ArcGlobe
ArcReader
ArcScene
CityEngine

SAP
Deep Exploration
Deep Publish
Deep View
SAP 3D Visual Entreprise
SAP Viewer

Unity
Unity

SPECIALIZED SOFTWARE (PER APPLICATION FIELD)

CFD/FE/MB Simulation
CD-Adapco Starview
Ceetron
COMSOL Multiphysics
FieldView
GNS Animator
LMS Virtual/Lab
LS-Dyna
MentorGraphics FloVIZ
Moldex 3D
MSC Adams
RecurDyn
Tass MADYMO
VCollab

Point Cloud
Bentley Pointools
Cloud Compare
Faro Scene
Fledermaus
Infipoints
Innovmetric
PolyWorks
Rapidform
Steinbichler
CometInspect
Leica Cyclone

Mining
SDeMS
CAE Mining

VR/ Simulation
BSContact
Ciros
Corys T.E.S.S
Cosmo Player
DI-GUY
DiSTI GL Studio
Dspace Motion Desk
IPG CarMaker
Dolphinity Racer
Eon Studio
FlightGear
Forum8
Octaga Plater
OpenDS
Oktal SCANER
Presagis TheaLite
Presagis Vega Prime
Virtual Battle Space
WorldViz

CAD
Bentley Microstation 8.1
EDEM
Cadenas 3D
Kompas 3D
Lattice XVL Player
Lattice XVL Studio
Sener Foran
Vortex
Topsolid

Animation Modeling
AC3D
Blender
Lumiscaphe Patchwork 3D
Lumiscaphe Portfolio 3D
Luxology Modo
MAXXON Cinema 4D
N-Sided Argile
Rhino 3D
Sidefx Houdini

PDM/Ergonomics
DMWorks
FleSim
Flexstructure IPS
Haption IFC
ISG Virtuo
KineoCamPath Planner
Perpectix Px5
RAMSIS
Synchro
VisLab

Molecular
Accelrys Discovery Studio
Cambridgesoft Chem3D
Material Studio
MED-SuMo
PyMol
Schrodinger Maestro
VMD

Scientific
AVS
Avizo
Celestia
Digital Surf Mountains Map
K3D Surf
Matlab
MeshLab
MeVisLab
MineSet
Paraview
Smart 3D Capture
VisIt
Vizlab Drishti

Oil&Gas
Geovel
Opendtect
Roxar RMS
Roxar Tempest
SIM Reservoir
SMT VuPak
Tecplot RS

GIS
3DNature
Biosphere 3D
Erdas Imagine VirtualGIS
Skyline TerraExplorer

3D Toolkits
CERV AReVi
Cortona 3D Viewer
C-Motion Visual 3D
Coin3D
Java 3D
JoGL
OGRE
OpenSceneGraph
SGI Open GL Performer
Tf OpenInventor
VTK
XJ3D
Open TK

Architecture
ArchiCAD
CET Furniture
Design
Solibri IFC Viewer
Elite CAD
Ikea Home Planner
Nemetschek Allplan
Tekla BIMsight
EveBIM
Enscape

Medical
Amira
Bone Labs
Brain Explorer
Moti Ditcom