

BUILD IN 2D. OPERATE IN 3D.

ADVANCE INTO INTELLIGENT ENGINEERING.

Explore realistic operating scenarios, respond to intelligent fault challenges and strengthen technical decision-making.

From interactive engineering models and optional HIL to custom Digital Twin applications, Avida opens new possibilities for education, research and industry.



CORE TECHNOLOGIES

2D Design / 3D Operation / Optional HIL / Digital Twin

AI Fault Engine / AI Intelligence / Performance Reports

MASTER MACHINES. COMMAND INDUSTRY.

www.avidadynamics.com

What Avida Makes Possible

Powerful simulation experiences designed to develop engineering understanding, operational confidence and technical competence.

Build and Validate with Confidence

Explore components, construct engineering systems and verify configurations through interactive tasks.

Experience Realistic Operations

Understand equipment behaviour and operating conditions through interactive virtual operations.

Bridge Virtual and Physical Operations

Extend selected simulations with compatible physical controllers and equipment interfaces.

Experience Intelligent Fault Challenges

Investigate realistic problems that challenge observation, troubleshooting and corrective decisions.

Strengthen Technical Judgement

Develop analytical thinking through guidance, engineering questions and problem-solving challenges.

Demonstrate Measurable Competence

Review decisions, fault-handling performance and assessment outcomes through reports.

ONE CONNECTED EXPERIENCE. MULTIPLE ENGINEERING POSSIBILITIES.

Beyond Simulation.

Towards Engineering Intelligence. Avida turns virtual operations into opportunities for understanding, investigation, professional reasoning and intelligent decisions.

POWERED BY AVIDA'S AI FAULT ENGINE

OBSERVE / THINK / DECIDE / VALIDATE / IMPROVE

Engineering Understanding

Explore engineering principles, system behaviour and equipment functions.

OUTCOME: Stronger fundamentals and practical understanding.

Analytical & Professional Competence

Strengthen reasoning through engineering problems and GATE-style challenges.

OUTCOME: Improved analytical and technical competence.

Fault Diagnosis & Operational Intelligence

Investigate abnormalities, evaluate possible causes and corrective actions.

OUTCOME: Greater confidence in troubleshooting decisions.

FROM ENGINEERING KNOWLEDGE TO INDUSTRY-FOCUSED PROBLEM SOLVING.

Standard Academic Models - 15

Interactive engineering systems, virtual operations and application-oriented problem-solving.

FLUID POWER SYSTEMS LABORATORY - 10

DPSC	Pneumatic synchronising circuit
EHC-PSV	Hydraulic pressure sequence valve
EHC-SCHM	Hydraulic motor speed control
SCPC-AA	Pneumatic sequence without timer
SCPC-WT	Pneumatic sequence with timer
PCPHC	Proportional hydraulic pressure control
PCFHC	Proportional hydraulic flow control
CP-EPSS	Electro-pneumatic position control
CPPT-EHSS	Electro-hydraulic position & profile tracking
PID-TDAT	PID time-domain analysis & tuning

THERMAL ENGINEERING LABORATORY - 05

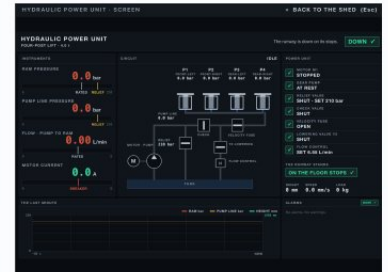
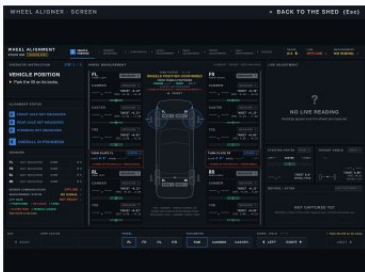
- T01 Four-stroke single-cylinder diesel engine
- T02 Four-cylinder spark-ignition petrol engine
- T03 Two-stage reciprocating air compressor
- T04 Vapour-compression refrigeration system
- T05 Steam generator and turbine

SOFTWARE-ONLY THERMAL LAB / INTERACTIVE FLUID POWER MODELS

Standard Industry Models - 02

Realistic industrial workflows, 3D environments and HMI-based operating challenges.

01 FOUR-POST WHEEL ALIGNMENT BAY



WHEEL ALIGNMENT

FOUR-POST LIFT

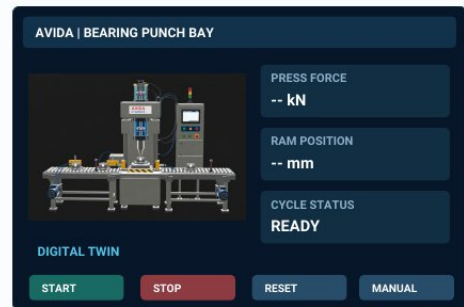
HYDRAULIC POWER UNIT

Experience vehicle positioning, lift operation, hydraulic power-unit behaviour and alignment workflows.

RAISE. POSITION. ALIGN. MONITOR.
FAULT DIAGNOSIS. TROUBLESHOOTING.

02 BEARING PUNCH BAY

HYDROPNEUMATIC SYSTEMS



POSITION. CLAMP. PRESS. VERIFY.

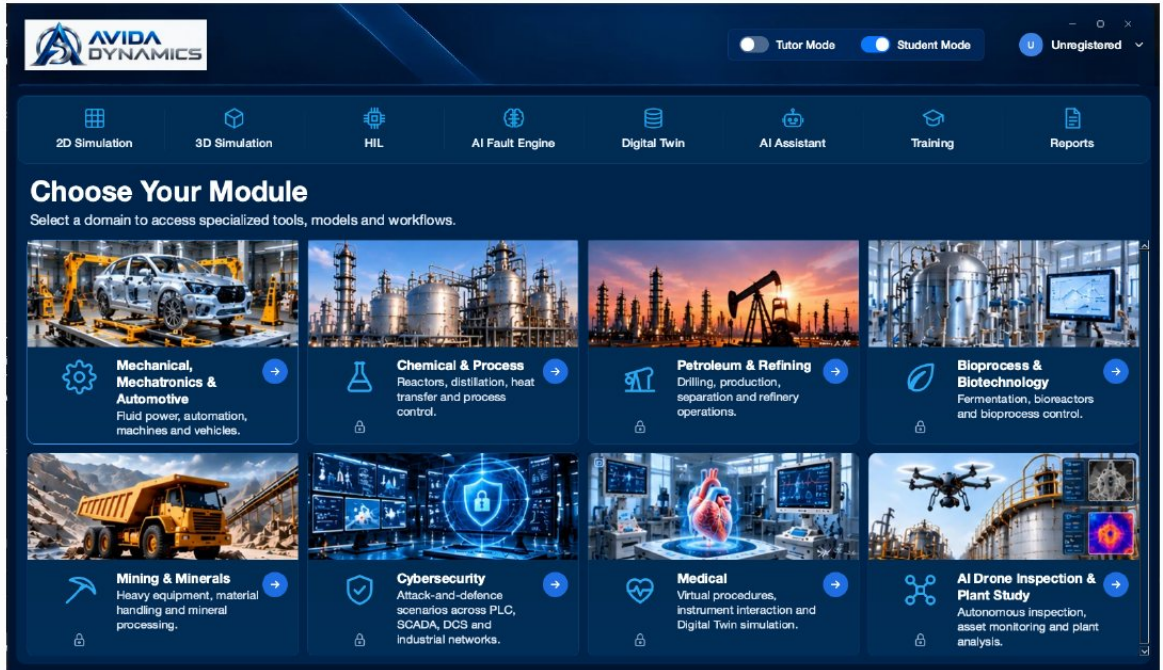
DIGITAL TWIN HMI / PROPOSED DESIGN

Practise positioning, clamping and pressing. Monitor force and travel through the HMI. Diagnose pressing-cycle faults and troubleshoot abnormal operation.

FAULT DIAGNOSIS. TROUBLESHOOTING.

Built Around Your Industry

Your engineering challenge. A customized simulation experience.



01 Soft Sensors & Virtual Analysers

Data-driven process quality and equipment insights.

02 Engineering Digital Twin

Virtual assets supporting engineering decisions.

03 Medical Simulation & Digital Twin

Anatomical visualization and surgical rehearsal concepts.

04 AI Robotic Inspection

Inspection, anomaly investigation and mission training.

05 Engineering & Development Services

Process development, laboratory and pilot-plant support.

CUSTOM HMI / CYBERSECURITY / OPTIONAL HIL / CENTRES OF EXCELLENCE

Soft Sensors & Virtual Analysers

Sharper Process Insight. Better-Informed Decisions.



SEE MORE — Critical Parameter Estimation

Estimate selected product-quality and process variables that are difficult or costly to measure.

DETECT EARLIER — Condition Monitoring

Identify emerging deviations and changes in equipment behaviour.

IMPROVE — Predictive Analysis

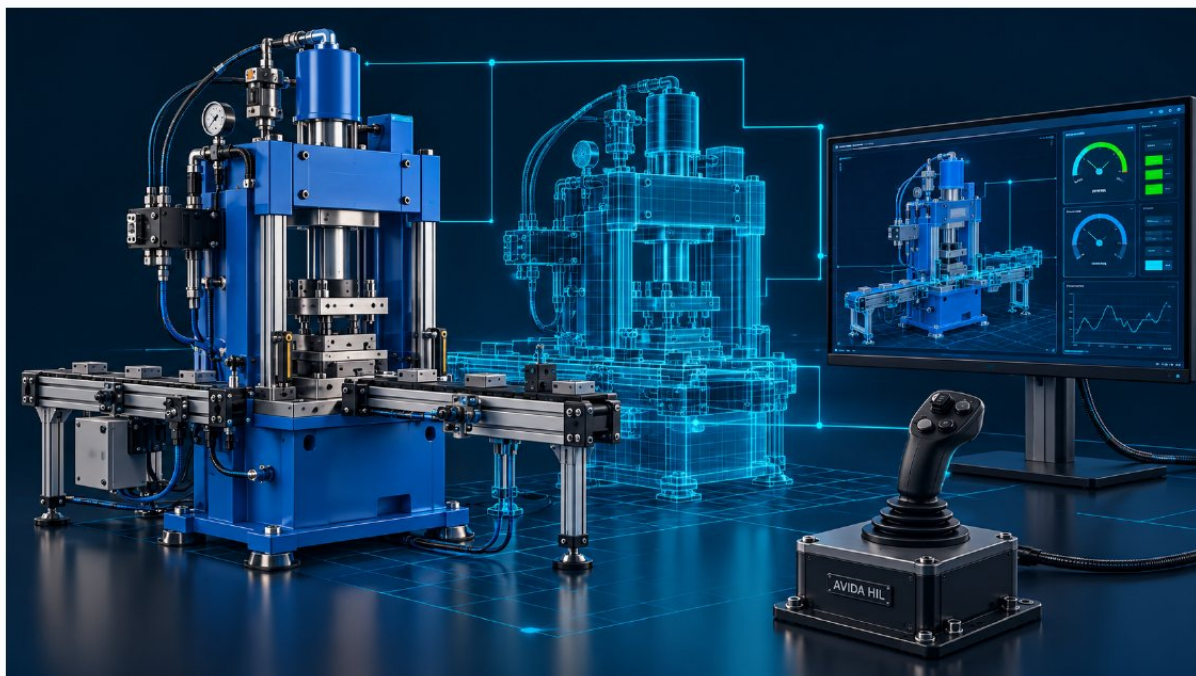
Explore future operating trends and efficiency opportunities.

Model performance depends on representative data, calibration and validation.

Faster insight / Earlier awareness / Better process understanding

Digital Twin

See What Happens Now. Explore What Happens Next.



UNDERSTAND

Visualize equipment and process behaviour using relevant operating data.

EXPLORE

Investigate operating alternatives and possible responses through virtual scenarios.

IMPROVE

Use validated insights to support maintenance and process optimization.

Live data connectivity and model accuracy are project-specific.

Manufacturing / Chemical / Petroleum / Energy / Biotechnology

AI Robotic & Drone Inspection

Inspect Smarter. Prepare for the Unexpected.



MISSION PLANNING

Explore inspection routes, viewing positions and operating boundaries.

INTELLIGENT INSPECTION

Investigate simulated anomalies using visual and sensor-based environments.

FAULT RESPONSE & REPORTING

Practice responses to mission challenges and document findings.

Physical drone and advanced sensor integrations are custom project options.

MISSION / OBSERVE / DIAGNOSE / RESPOND / REPORT

Engineering Services

From Engineering Concepts to Practical Development.



Renewable Energy & Green Hydrogen

Technical feasibility, process simulation and development opportunities.

Alternative Fuels & TPO Quality Improvement

Biodiesel, bioethanol and tyre pyrolysis oil quality improvement.

Bio-CNG & Waste-to-Energy

Engineering studies for waste conversion, biogas and biomethane upgrading.

Engineering delivery scope and specialist services are agreed project by project.

R&D LABS / ANALYTICAL LABS / PILOT PLANTS / PLANT SUPPORT

Medical Digital Twin

Visualize Anatomy. Rehearse Procedures. Strengthen Clinical Skills.



Interactive 3D environments for medical learning, equipment simulation and guided procedure rehearsal.

Anatomy & Case Visualization

Explore organs and spatial relationships. Use reviewed scan-derived models for case-based learning.

Procedure Rehearsal

Practise instrument positioning and procedural sequences in a controlled virtual environment.

Robotic & Equipment Training

Connect compatible training controls to virtual equipment. Study movement, operating states and fault scenarios.

Adaptive Learning & Assessment

Work through simulated challenges, receive guided feedback and review procedural performance.

Patient-specific models and clinical use require appropriate review and validation.

VISUALIZE / PRACTISE / ASSESS / IMPROVE

Your Application. Your Simulation.

Explore what intelligent engineering simulation can make possible for your institution or industry.

REQUEST A DEMONSTRATION

Explore Avida's simulation capabilities, review relevant engineering applications and discuss a solution suited to your training, research or operating requirements.

SALES & ENQUIRIES

EMAIL sales@avidadynamics.com

WEBSITE www.avidadynamics.com

LANDLINE +91 44 3161 5307

MOBILE +91 9566825512

ADDRESS P.No. 23, KK Nagar, Chennai - 78, India

AVIDA DYNAMICS