HEXAGON

ODYSSEE CAE

Access CAE design space exploration to broaden your horizons

ODYSSEE CAE is a unique and powerful CAE-centric innovation platform that allows engineers to apply Machine Learning, Artificial Intelligence, Reduced Order Modelling (ROM) and Design Optimization to workflows. It allows you to benefit from modern data science technology by creating cost efficient digital twins through real-time predictive modeling and optimization for both CAE simulation data and physical test data.

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ODYSSEE CAE

ODYSSEE CAE is applicable to all design and engineering applications and is both software and physics independent. It employs algebraic or machine learning solutions for reducing the volume of data while preserving the most important parts of the information contained within the data. This is commonly done via decomposition or machine learning or other efficient data fusion techniques. Such techniques allow for creating on-board and real-time applications based on existing experimental or simulation results. Typical applications are optimization, parametric sensitivity analysis and robustness.

Rethinking Design COST (Computing, Optimization, Simulation and Time)

Computing

ODYSSEE CAE reduces the effective number of CPU intensive computations, replacing them with real-time equivalents capable of being run on small size laptops.

Optimization

Combining optimization and learning to provide very precise surrogate models that can be employed at very low computing cost allows ODYSSEE CAE to perform very robust optimization by allowing for thousands of runs in seconds or minutes.
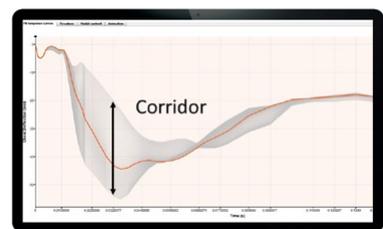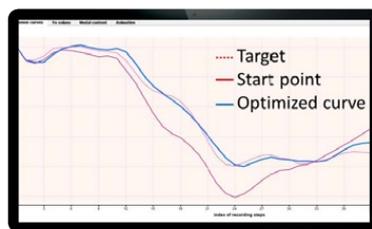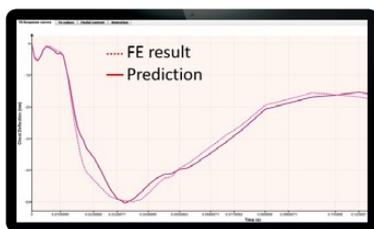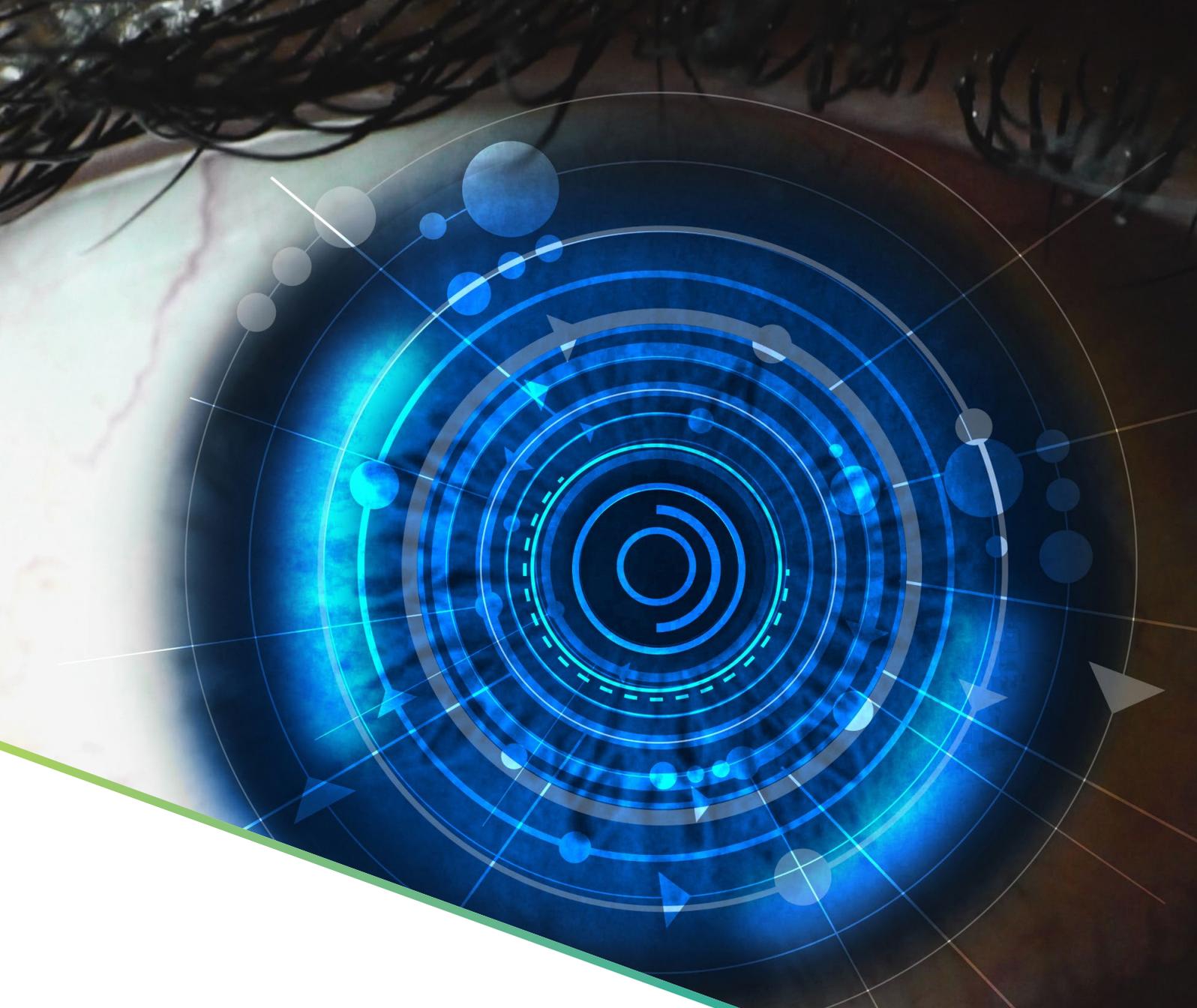
Simulation

ODYSSEE CAE establishes the missing link, combining learning from experiments and results from simulations. This improves the performance, the precision, and the feasibility of simulation-based engineering.

Time

ODYSSEE CAE is based on real-time computing; therefore, you need little-computing effort for parametric studies and optimization, exploring new horizons in data science to capture the most important part of the solution, leaving the details to more elaborate and CPU intensive computing, optimization, and simulation technology.

ODYSSEE A-Eye

Image based learning and prediction

ODYSSEE A-Eye is a unique and powerful image-based machine learning solution that accelerates product design and development via real-time parametric simulation and optimization using machine learning and artificial intelligence (AI) solutions. ODYSSEE A-Eye allows you to create your own AI application based on image data, sensor data, scalars, labels, curves, and CAD data as inputs and then predicts responses using the known data of your system. This insight enables designers and production technicians to explore the design space more extensively and interactively and improve next-generation products without prohibitive computing cost or time.

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ODYSSEE A-Eye

ODYSSEE A-Eye enables engineers and technicians to incorporate both ML and AI prediction into their workflows, designs, and systems. You can customize your AI applications using the ODYSSEE A-Eye engine by defining the descriptive variables and results. Once the A-Eye engine has learned the problem, it can then predict the result in real-time for new descriptive inputs. The applications are limitless for prediction and optimization in all industries.

ODYSSEE A-Eye can also perform intelligent data compression on images (best possible compression rate), while keeping as much as possible the useful information.