



Partner Spotlight: Elysium

Mr. Kentaro Fukuta, General Manager of Global Business at Elysium, discusses 3D geometry healing and translation software, CADdoctor, available through the Altair Partner Alliance.

APA: What prompted the development of your software? What problem(s) is CADdoctor meant to solve?

Fukuta-san: It is ideal to choose the best tools in each field (CAD, CAM, CAE etc.) for the maximum performance. However, each tool has its own concept, scheme, representation etc., and the differences in them cause gaps between tools, which

become barriers—interoperability issues—which obstruct the smooth data circulation. Elysium solutions are designed to eliminate those barriers.

Our sophisticated technology connects CAx systems and contributes to the realization of a “true” open engineering environment.

CADdoctor facilitates data circulation with its powerful capabilities, including geometry healing, geometry simplification and mid-surface generation.

Data exchange issues are common headaches among people involved in design and manufacturing processes when they would like to re-use design data for CAE, CAM and other 3D tools. CADdoctor solves those issues and accelerates the effective utilization of 3D data to improve the productivity as a result.

APA: What are the benefits of using CADdoctor for 3D geometry healing and translation?

Fukuta-san: CADdoctor’s top capabilities are:

Elimination of the time-and-cost consuming manual work in data preparation for post processes

- Save time and cost with fully automatic / semi-automatic operations

Guarantee of high robustness in data utilization

- Provides highly robust geometry healing and geometry optimization throughout the product life cycle

Reduction of the overall time for analysis and increased success rate and accuracy of CAE analysis

- Enables the instant re-use of the design data for CAE analysis—shortens the time and raises the success rate in mesh generation—and improves the accuracy and efficiency in CAE analysis

APA: Are there any unique applications that CADdoctor works for that your competition cannot?

Fukuta-san: CADdoctor’s strengths are listed below to help illustrate what differentiates it from the competition:

Best-in-class quality in data translation

- Achieves the highest accuracy in data translation by complementing the gaps caused by the differences in tolerances, adjusting the topology which differs from one CAD format to another, and detecting and correcting geometry errors. This is, of course, far beyond what CAD-integrated translators do.

Powerful geometry simplification

- Works even on complex models. This dramatically reduces the data size, raises the success rate in mesh generation, and improves the accuracy in CAE analysis.

APA: How much time does it take to learn and start using CADdoctor?

Fukuta-san: One to two days should be enough to cover the basic operations in CADdoctor through self-learning using the tutorial.

APA: What's next for CADdoctor ... what can we look forward to?

Fukuta-san: We are hoping to support more and more customers around the world with our powerful solution, CADdoctor.

In addition to geometry healing and simplification provided by APA CADdoctor, reverse engineering - to generate B-rep from point clouds or polygons - is another key feature for true utilization of 3D data. As well as "translation" between various CAD formats, "transformation" - connecting point cloud data, polygon data and B-rep data smoothly - is important for wider and deeper utilization of 3D data in various fields.

APA: What are the biggest challenges or problems that customers in your target market face and how do you address their needs?

Fukuta-san: CAE engineers want to provide quick and accurate feedback to the design engineers based on CAE results for them to make effective modifications. However,

- It consumes a lot of time to prepare CAE models from design CAD data;
- The calculation time gets too long because the calculation does not converge due to poor quality meshes; and
- The results are inaccurate because the CAE models are inadequate.

CADdoctor optimizes design CAD data with its robust geometry healing and geometry simplification technology. This supports users work to create high quality meshes in HyperMesh and obtain accurate CAE results within a reasonable time.

APA: Describe a typical workflow using CADdoctor.

Fukuta-san: Import CAD data > Geometry Check > Geometry Healing > Optional: Geometry Simplification/ Mid-surface > Export to HyperWorks

APA: Is there a use case or case study that highlights your software's strengths? If so, please briefly describe and give link or share the file with us for the resource library.

Fukuta-san: Here are some helpful resources available to our users:

<http://www.elysium-global.com/casestudy/customervice/>

<http://www.elysium-global.com/casestudy/customerstory/>

<http://elysiuminc.com/case-studies/>

<http://www.deskeng.com/articles/aabety.htm>

For more information about CADdoctor through the APA, visit the [solution page](#).

