Kriens, Switzerland, November 2017

Dear readers,

We presented our new "FlexOmega" project in our last newsletter (www.mandanis.ch/newsletter/). We have reached further important milestones since then:

We are making major, welcome progress on the patent front. Both the European Patent Office and the US Patent Office have determined that "FlexOmega Measuring Rowing Power" is an innovation and is patentable. The two patents will very probably be granted in late 2017 or, at the latest, in early 2018. The European Patent Office's search report reads: "The item of the independent claims 1 and 14 is new and is based on inventive activity as defined by Articles 54 and 56 of the EPC (European Patent Convention) provided the objections pursuant to Articles 84 and 123 (2) of the EPC are resolved."

On the water front on the other hand, the tests with various rowers (professional and popular sport) are continuing. With one single exception, the measurements were flawless, including determining the energy per stroke.

We are currently still conducting measurements with a Bluetooth-enabled tablet computer (Windows 10). But we have tasked the Inno Tix AG company to develop a Smartphone app. This will make measurement user-friendly, thus allowing any rower to use the "FlexOmega" system.

Even if rowing in the winter is more of an activity for hardened sportsmen and sportswomen, we intend to trial the most recent version of the system on the water in the next few months and gain important experience with it.

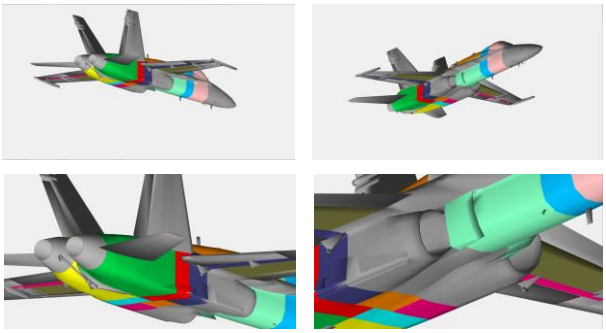
Vulnerability analysis

Within the framework of a large-scale vulnerability-analysis project, MAM has undertaken the task of displaying on screen the surface of a fighter jet as realistically as possible and in detail so that any hits can be localised visually. This brief was uncharted territory for us, and we were able to reach the goal in reasonable time with our popular and state-of-the-art tool MATLAB. It was an efficient, iterative process which can be used for other applications in principle. Our first step was to search the MATLAB example library for a case similar to our brief. We learnt the required skills digitally – to keep up-with the times – for the further steps. Digitally accessible, open-source manuals and webcasts etc. allow you to learn the methods needed for a specific task with absolute flexibility as regards time and location.

The object to be displayed consists of a set of triangles (facets) which, without interruption or overlap, describe the closed surface. With MATLAB's "patch" function, it is possible to generate a direct and current-3D display of the aircraft on screen using these triangles. Of course, visibility of the parts of the aircraft, dependent on the observer's position, is allowed for in this process. Approximately 50 image parameters are defined in order to be able to control lighting, rendering, colours and other effects. The digital learning tools were very successful and encouraging for this extremely specific task. You acquire the skills selectively, very quickly and step-by-step, so as to create a perfect image.

Vulnerability domains are illustrated on the surface with different colours in the enclosed examples:

You can download facet models like this from the



Internet. You can choose from more than 18,000 models (including all possible aircraft and vehicles, devices and even humans and animals) if you use a 3DCADbrowser, for instance.. MAM is now able to use this database for entirely different engineering applications and develop corresponding visualisations, computations or simulations on these bodies accordingly.

Kind regards

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