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Duncan Takes Detail Driven Hobby to New Depths

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The idea of graphics and 3D Animation usually conjures up images of our favorite cartoons or the latest animated movies created by video artists in Hollywood. For Matt Duncan, a teacher at CMS and CHS, the glitz of Hollywood was not needed–rather, he has built his knowledge and skills on his own. He recently completed what is perhaps his most articulate creation to date.

Duncan, who moved to Clintonville in 2000 and recently purchased a home near Marion with his fiancée Wendy, said that he became interested in 3D animation about 13 years ago. He wanted to learn how to create his own artwork and animations, but much of the software needed was very expensive at the time. Fortunately, Duncan found a free program called Blender that was being created in the Netherlands.

He began downloading the program and started playing around with it. Because it was a very early version of the program, only basic objects were available to work with, and the Technology was not very advanced.

Duncan said the technology has grown in leaps and bounds in the last 13 years, and he is still using the Blender program-it is still free, and other animation programs are still very expensive to purchase. While his personal use of the program has grown, Duncan has also integrated the program into the classes that he teaches at the high school.

When he first moved to Wisconsin, he wanted to find something interesting about the state that he could latch onto. It wasn't long before he began looking into the Great Lakes, and soon found interest in the ore carrier, Edmund

Fitzgerald, which sank on Nov. 10, 1975 in the most famous shipwreck in Great Lakes history.

Duncan began to research the wreck of the ship in great detail, and he combined his re-

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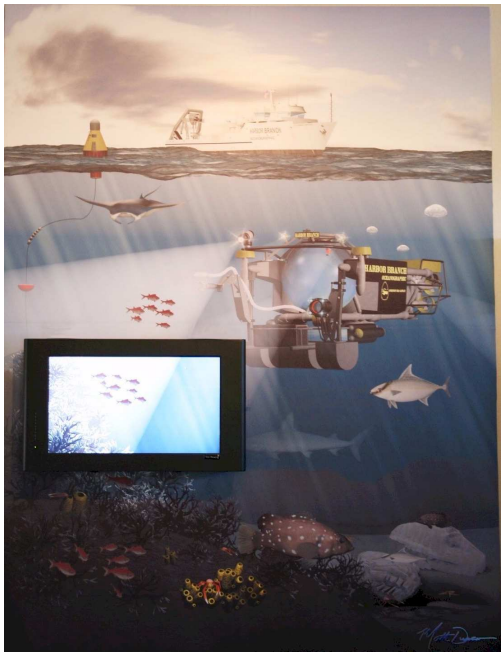

Matt Duncan (left) and his mural are shown here.

Animation

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search with his artistic animation talent by creating a model of the ship. His work was noted for its quality and detail, and he proudly shows off a diver's patch from the dive team that retrieved the ship's bell from the wreckage.

The Harbor Branch Oceanographic Institute in Fort Pierce, Florida was one group that had come to Wisconsin and done some dives to explore the Edmund Fitzgerald wreckage. Duncan learned of their efforts and contacted the institution to collect some more information.

Eventually, Duncan was put in contact with museum officials who were able to give him more information about submersibles like the one that was used to explore the Edmund Fitzgerald. He then informed the museum that he wanted to do a 3D model of the submersible, as he had already completed a model of the Edmund Fitzgerald.

Once he had announced his interest, the museum began sending him labeled pictures and highly technical engineer's sketches. Duncan used this information to begin his drawings, and would end up creating an incredible replica of one of the museum's submersibles, the Clelia.

After seeing his work, museum officials asked Duncan to create a model image of their new submarine, the Johnson Sea-Link II. This sub was designed to hold two divers in the front of the ship, looking out a plastic-acrylic sphere, while a research compartment at the back of the sub could hold more divers.

Duncan began building this model in a piece-by-piece fashion. Pictures, drawings and technical specifications were sent back and forth, and the engineers and dive pilots at the museum instructed Duncan as far as what looked accurate and what needed to be adjusted.

More and more detail was added, and eventually Duncan began to create the ship that is used to carry the sub to various dive locations as well. Each ship has many small details and moving parts, and Duncan said he spent a considerable amount of time to make sure that each item in his model could move and be controlled just like the actual ships.

Duncan's mural was sent to a company that creates vinyl-graphics, and the mural was built onto a frame that holds the mural on the wall at the museum. A touch screen was also added, and holds a digital image that is part of the mural itself. Users can use the interactive menu to explore a specific parts of the mural.

Before the mural could be transferred to vinyl and placed in the museum, it faced a number of mind-boggling detail alterations. All of the biology based life in the Fort Pierce area had to be researched, and each piece of aquatic life that Duncan included was required to be completely accurate.

"It took a long time to model each individual thing," Duncan said. "Every little fish has to be modeled." These detail requirements are what is responsible for the project lasting from September of 2006 to May of this year.

As Duncan created the aquatic life, he realized that living organisms are much more difficult to create than mechanical objects."The thing that drove me crazy the most was the biological life. I used pictures as templates, but the fish were so much harder to do than the mechanical submarine," Duncan recalled. "The mechanical stuff I can see – I had photos, architectural drawings, labeled diagrams– that sort of thing just makes sense to me, but the fish and the coral drove me crazy."

Duncan says the sub took him about six weeks to complete, with the rest of the time being spent on aquatic life. He made minor adjustments and sent them to the museum, and the professional oceanographers would send him advice on what to change to make things more accurate. Many images of just one fish or piece of coral were sent back and forth during the slow-moving process.

Once the image was finally done, it had to be resized to the approximate dimensions of 12,000 pixels by 10,000 pixels. This makes for a mural that is about 10 feet by 8.5 feet in size. This image is rather large and it took Duncan's quad-core computer about a day and a half to render the image. Finally, after all his hard work, the mural had reached its final stage.

"It's cool to see it come to completion," Duncan said. "You know in your mind what the eventual goal is, but it's not until you finish it that you can step back and say, "Hey, that's my artwork! I did that!"

"Hearing back from people is also very nice. I get feedback and comments from professional oceanographers and marine biologists that I have never met face to face," Duncan said. Perhaps what is more amazing is the fact that Duncan is completely self-taught in his animation and graphical knowledge and talent.

Duncan shares his talent in his classes at the middle and high school. He teaches web page design and 3D graphics course at the high school, where students learn the basics of how to use the program by creating logos and basic animations. Students also create a 3D roller-coaster that is completely animated from start to finish.

" There are so many uses for animation skills," Duncan concluded. "There are lots of opportunities for people who are familiar with this technology. Obviously, not every student is going to work for a big movie animation company, but what they learn is very useful and versatile. It will help them as they grow in their careers."

What Duncan has accomplished in his spare time is truly incredible. He has translated his hobby into an educational item, and has inspired his students along the way. His attention to detail and incredible skill level truly extend to oceanic depths.

School Truck

In addition to his mural and numerous hobby animation art creations, CMS Tech Ed Teacher Matt Duncan also created the fire truck seen here, which is also a part of the school's website. *Image courtesy of Matt Duncan*