VR CoralReef

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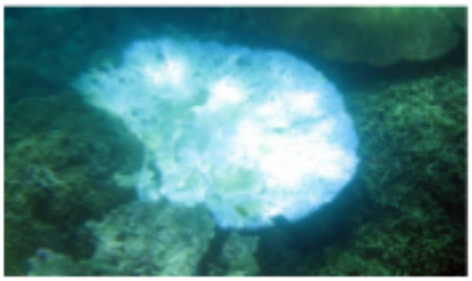
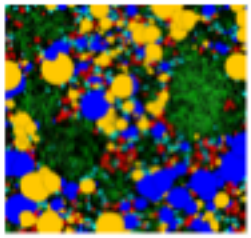
Motivation: Korallenriffe in Gefahr

- Korallenriffe sind ein sehr empfindliches Ökosystem



- Cooperation with the Center for Tropic Marine Ecology Bremen (ZMT)

- VR environment for showing simulation provided by ZMT to lay people (and, possibly, scientists of other areas)



- This project is right for you, if
  - You study computer science, you know OOP and want to earn some practice in Game Programming or AI
  - You study design/media and you are a creative mind with skills in 3D design & modelling (and/or 2D)

Main Goal of the Project

- Create a highly immersive underwater simulation of a coral reef

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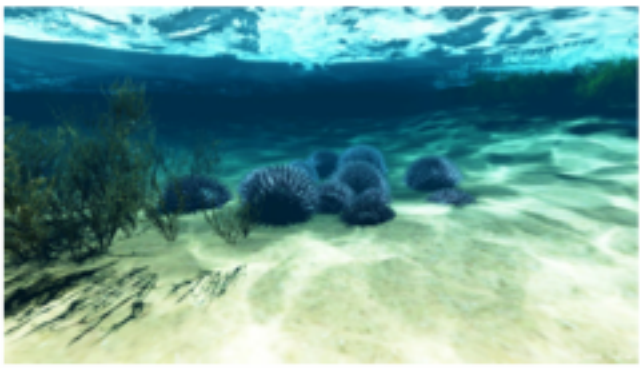
- Realistic visualisation of the effects of climate change on coral reefs
- Bring the virtual reef to life with fishes and special effects
- Design of a complete and unique immersive user experience
  - Stereo rendering in Oculus
  - User interaction with VE using Kinect and/or other devices



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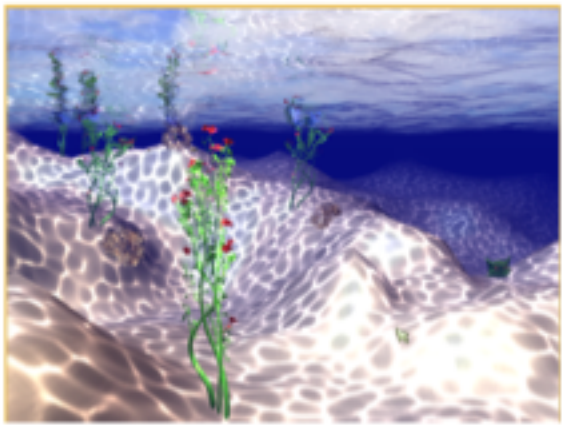
Project Base Point

- Complete, existing framework (implementing SW infrastructure):
  - Random fish movement and plant spawning
  - Editable water animation/ lighting (caustics)
  - Ready to design menus with placeholders
  - Based on the Ogre 3D graphics engine (in C++)



- Work closely together with developers (master thesis and, hopefully, computer science students)
- Introduction (February?) to:
  - Coral growth and fish interaction (by ZMT)
  - Computer graphics and/or C++ (on demand)

Project Tasks

- VE Logic (programming)
  - Get to know the C++ game engine Ogre3D
  - Interaction with VE
  - Design and implementation of simple AI's for behaviour of fish (e.g., flocking, eating)
- Modelling of VE (modelling)
  - 3D: modelling and animation of realistic animals, plants and environmental objects using tools like 3DSMax, Blender, Photoshop
  - 2D: project identity creation and custom interface

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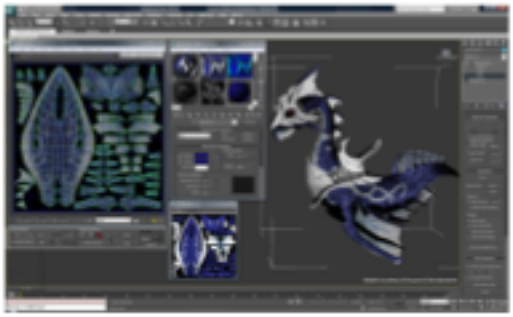

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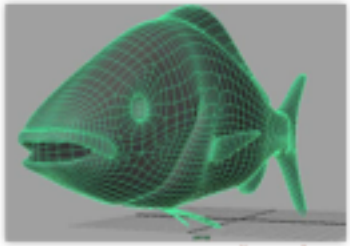
Modelling and Design Tasks

- 3D
  - Modelling, Texturing and Mesh Animation
  - Plant growth / Fish Swimming / Terrain



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- Sound
  - Record and implement 3D Sound

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- 2D
  - User Interface, Website
  - Logo and Project Identity

Project Infos

- One-semester project (with regular work in our lab)
- Summer semester 2015
- Preparation course during spring break (probably February)
- Prerequisites (somewhat soft):
  - My course “Computergraphik”
  - Some programming skills and/or modelling skills
- Nice-to-have:
  - My course “Virtual Reality and Physically-Based Simulation”
- The envisioned project team: mix of computer scientists & digital media students
- Further info (Schnuppertermin): January 27, 16:00 ct, Linzerstr. 9A, 3rd floor, CGVR lab
- Gute Anschluss-Fähigkeit an Bachelor- und Master-Theses

Ready to dive into another world with us?

[Image Source]

Meet us tomorrow, 16:00 ct, 27.01.
at Linzer Str. 9A, 3rd floor

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