



Virtual Dentist

Bachelor Student Project

Peter Haddawy, Maximilian Kaluschke & Gabriel Zachmann
AG Computer Graphics and Virtual Reality

cgvr.cs.uni-bremen.de

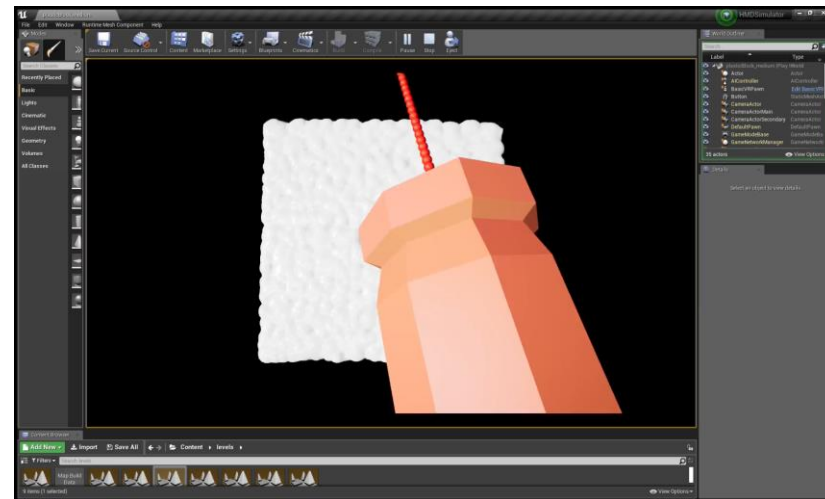
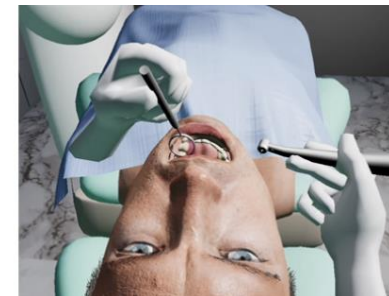
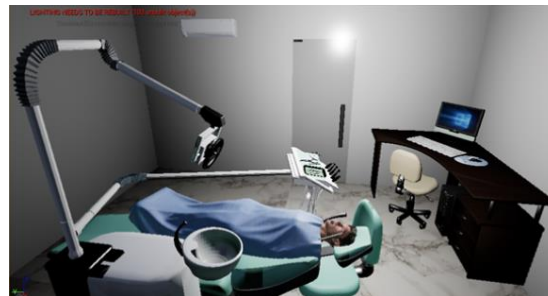
Main Goal of the Project

- Create/improve virtual environment in Unreal Engine
- Design/improve haptic rendering algorithms
- Userstudy with dental students
 - (If circumstances permit)
 - To investigate usability and learning effectiveness

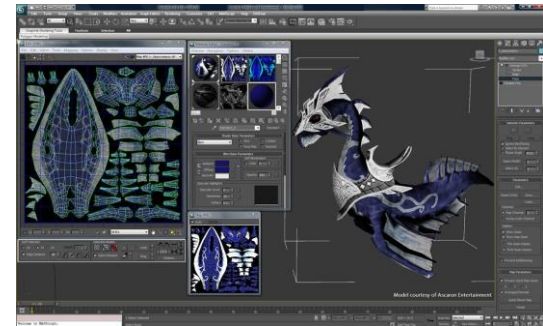


Starting Point for Project

- Unreal engine dental surgery environment
 - Caries removal
 - Root canal opening
 - Root canal filing
- Plugins for haptic rendering



- For programmers:
 - Improve filing simulation
 - Generate new volumetric models of different teeth models
 - Recording user input & rolling the game back to earlier states
 - Implement/improve “Teleteaching” prototype
- For designers & modelers:
 - 3D modelling of realistic teeth or dental surgery interior objects, using tools like 3DSMax, Blender, Photoshop
 - Texturing (creating textures, uv mapping, ..)
- For both:
 - Userstudy design, execution & data analysis



Project Infos

- **One-semester**
- **Summer semester 2021**
- Nice to have:
 - A bit of Virtual Reality / computer graphics / 3D knowledge
 - E.g., from “Computer Graphics”, “Virtual Reality”, "Advanced Computer Graphics" course
 - Programming skills in C++/CUDA or modelling skills
 - Commitment!
- The envisioned project team: mix of CS & DM students
- Great opportunities for bachelor/master theses subsequently

Ready to dive into another world with us?



Contact us:

Maximilian Kaluschke: mxkl@cs.uni-bremen.de

<https://digitalmedia-bremen.de/profile/bachelor/gruppenprojekte/>