Project 2:
Immersive 3D medical visualization and interaction

Description:
Medical imaging devices have been frequently used in hospitals and clinics around the world. They have provided invaluable information to medical staff and surgeons with pinpoint accuracy. While devices like MRI and CTScans are capable of capturing and producing 3D rendering of human anatomy, the captured imaged are usually displayed on 2D displays or hard copy prints. This project seeks to utilise 3D immersive and virtual reality facilities like CAVE and ZSpace to display and interact with the captured medical images. We hope this project can satisfy following key requirements:

1) Seamless integration of raw medical imaging formats to the virtual reality display formats.
2) Various interaction capabilities with the 3D rendering of medical images.
3) Capability to colour and identify region of interests using interactions.

Scope
This project is scoped around complete implementation of visualisation cycle from raw medical imaging format to the interactive visualisation in CAVE and Zspace. The student intern will perform following key tasks:

1) Investigate different medical imaging formats (dicomm, etc.)
2) Implement/use data converters and importers from raw medical formats to format readable by CAVE, ZSPace.
3) Investigate the necessary interaction capabilities of the devices.
4) Generate a proof of concept cycle and demonstration.
5) Thoroughly document various steps of the project and implementation.

Supervisor:
Iman Avazpour

Requirements:
- Programming skills.
- Hands-on and can do attitude.
- Experience in medical imaging is a bonus.