UNIVERSITÄT STUTTGART
Institut für Visualisierung und Interaktive Systeme (VIS)

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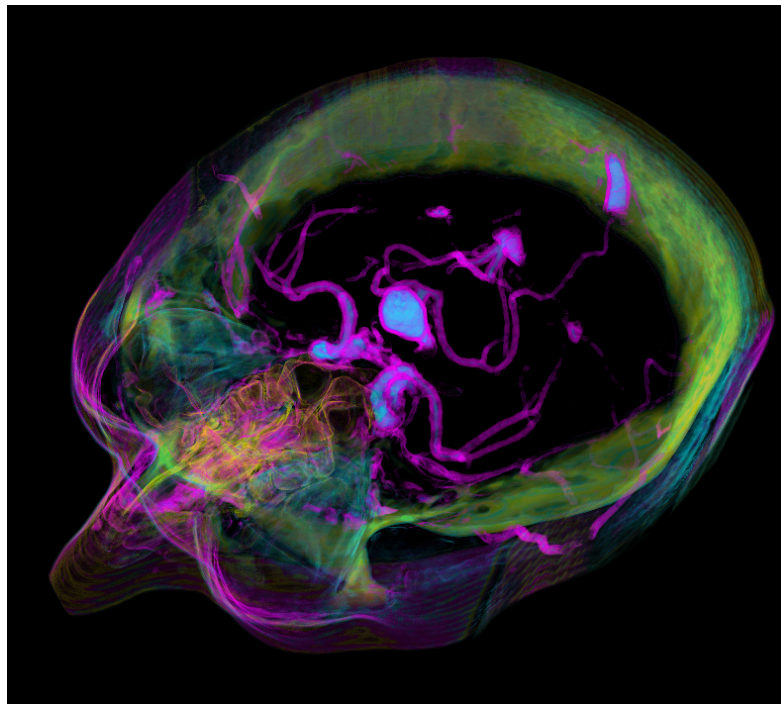
Scientific Visualization   (Assignment 2)

Exercise 2. 1   Visualization Pipeline [2 Points]

Explain what happens in each step of the visualization pipeline for the above cerebral aneurysm[1] visualisation model.

Exercise 2. 2   Data Representation [3 Points]

An important step in visualization is the classification of the data that will be visualized. Provide the data domain dimensionality, attribute dimensionality and the attribute scale type (nominal, ordinal, interval, ratio) for the following examples:

1. Celsius temperature of a thin heated rod.

2. Weather condition map (rain, snow, sunny...) of Europe.

3. Air flow around a car.

4. Amount of traffic on the roads of Stuttgart (visualisation from Google Maps).

5. Current time at every point on Earth.

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[1]An aneurysm is the enlargement of an artery caused by weakness in the arterial wall.
source: http://schorsch.efi.fh-nuernberg.de

Exercise 2. 3   Data Properties [4 Points]

Four data sets *Data1.csv* to *Data4.csv* are given in the same folder as the assignment. Using Python and NumPy compute the following statistical properties:

- Mean

- Variance

- Correlation

- Linear regression (line coefficients)

- *(optional)* Box plot (whisker diagram)

For each dataset generate a figure with Matplotlib, plotting the data and the computed line. Display the mean, the variance and the correlation values in the figure title.

Usage of built-in NumPy functions is encouraged but not required. Please use Python 3.0+, not the older Python 2.7. The easiest way to setup Python 3.0+ and NumPy on Windows is to install Anaconda.

Upload your python script and a screenshot of the figure to ILIAS.

Submission Deadline: 27.04.2018, 23:55

please hand in your submission through the ILIAS system.
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