Medical 3D Light Field Camera

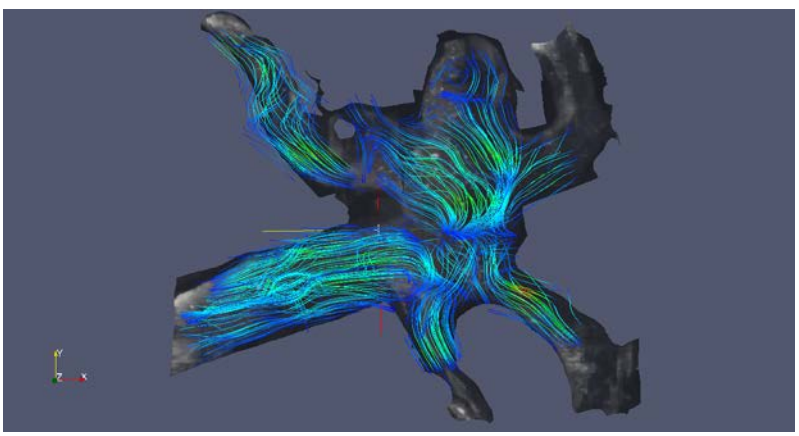
Intervention Planning for Training & Risk Minimization in Endovascular Device Implantations

New approach for stent implantation training within transparent 3D prints of vasculature models by real time 3D camera tracking of blood flow inside aneurysms

3D

Particle Flow Velocimetry Tracking Camera & Simulated Real-Time Blood-Flow Visualization

3D Rotational Digital Subtraction Angiography (DSA) data based 3D printed replica of neural blood vessels showing aneurysms simulate the impact of devices (e.g. stents) being positioned and adapted by the surgeon before the final intervention. The cerebrovascular particle flow will be tracked by the monocular light field camera, offering volumetric position and velocity over time. This new approach enables the interventionists to plan and exercise them under realistic conditions without any risk for the patient to evaluate the optimal device type (stent, coil, flow diverter) and position in advance – may be extended to tailored devices according to the morphological needs.



3D Video + Velocity

Blood-Flow Analysis inside Aneurysm Models & Stents

A corresponding light field software tool box offers an in-depth look inside the stented vessels to analyze the temporal particle flow trajectory and velocity (color coded).
Device implantation can be simulated in advance to reinforce cerebrovascular blood vessels weakened by aneurysms.

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