ANGIOTK

An Open Platform to reconstruct vessels from MRI images and simulate blood flows to ultimately provide Virtual Angiographies

The platform is still a prototype, but reached a level of maturity that requires very little human intervention. The overall objective is to make available, to the medical community, tools for computer aided modeling for conducting experiments in silico, otherwise difficult or impossible to carry on patients.

A specific aim is to create an ecosystem around the platform composed of academic, research centers and enterprises and to provide services such as training, specific developments, consulting or deployment.

The platform is operated by Cemosis and Kitware.

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We have developed the open-source platform AngioTK that implements the complete pipeline using the following open-source software:

**Imaging:** VTK & ITK [http://www.itk.org](http://www.itk.org)

**Filtering:** RORPO [http://path-openings.github.io/RORPO/](http://path-openings.github.io/RORPO/)

**Extraction:** VMTK [http://www.vmtk.org/](http://www.vmtk.org/)

**Mesh Generation:** GMSH [http://geuz.org/gmsh](http://geuz.org/gmsh)

**Blood Simulations:** **Feel++** [http://www.feelpp.org](http://www.feelpp.org)

**MRI Simulations:** **JEMRIS** [http://www.jemris.org](http://www.jemris.org)

**Development**
https://github.com/vivabrain/angiotk

**Forum**
https://gitter.im/vivabrain/angiotk

**Open-Source License:** BSD

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**Feel++** is an open-source C++ library dedicated to solve partial differential equations using a language very close to the mathematics embedded in C++.

Its features include:

- arbitrary order Galerkin methods from 1D to 3D
- various finite elements $H^1$, $H^2$, $H$(div), $H$(curl)
- seamless parallel computing
- scale up to tens of thousands of cores
- In-Situ Visualisation

**Website** [http://www.feelpp.org](http://www.feelpp.org)

**Development**
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**Forum**
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