

# MRI based Virtual Histology: Meeting Tomorrow's Healthcare Challenges Today

A French Embassy Sponsored Workshop  
Partnered with UCL Grand Challenges

## 1. EXECUTIVE SUMMARY

A workshop aimed at improving diffusion MRI (dMRI) based non-invasive analysis of the human central nervous system was organised on the 26th-27th of May with the funding provided by the French Embassy in London.

The workshop was held at UCL, UK, and involved three research teams from France. The three research teams are well known for their contributions to dMRI and for their complementary approaches. While MIG advocates the microstructure paradigm and uses compartment based models, Athéna specialises in methods using functional basis representations. Finally VisAGeS has contributions in both techniques. Hence, the aims of this Anglo-French workshop were:

- to encourage new research collaborations and links between UCL, UK, Athéna, Inria, France, and VisAGeS, France in virtual histology and dissection from dMRI to advance the frontiers of noninvasive medical imaging.
- to seek joint research themes and directions that can combine the complementary model based histology approach of MIG, UCL, UK, & VisAGeS, France, and generic signal representation based connectivity analysis approach.

The workshop was attended by 16 participants in total: 7 from UCL and 9 from France (Athéna: 5, VisAGeS: 4) and accounted for 13 Professors, 5 Honorary and Research Scientists, 2 Research Associates and 6 PhD candidates. There were a total of 16 presentations.

The workshop was a success due to the high quality of discussion to strongly foster collaboration. The workshop also included dedicated discussion sessions to establish joint research themes and concrete funding opportunities.

By the end of the short but intense workshop all participants expressed their appreciation of the scientific content and exchange. Furthermore, a number of joint themes and funding opportunities were identified. And finally, a plan for applying for a collaborative funding proposal was drawn out.

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## 2. PROGR

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## **5. OUTCOME**

There were several beneficial outcomes from the workshop. First, everyone appreciated the scientific content. A number of novel dMRI techniques that had been recently developed by the teams were presented in great detail with opportunity for elaborate questions. This led