Our research focuses on cornea, which is the first lens of the eye. Different pathologies can disrupt its tissular structure causing a loss of its transparency. In close collaboration with the Quinze-Vingts national eye hospital, we study the measurement and diagnostics of corneal transparency using physical modelling, imaging, and data processing. Future work in which the student may participate will address the extension of the approach to a full characterisation of the tissular quality by refined measurements, advanced tissular modelling, and the implementation of deep learning approaches.

(a) High resolution ex vivo image of a cornea specimen; (b) OCT image obtained by a clinical diagnostic device, (c) clinical OCT device available at Quinze-Vingts national eye hospital.

References:
