Project Title	Functional imaging using ultrafast and super-resolution ultrasound
Supervisor	Dr Mengxing Tang
Theme(s)	Image acquisition and signal/image processing
Project Type	Desk and Lab based
Project Description	Existing clinical imaging modalities all have limitations in terms of spatial and temporal resolution, sensitivity to functional information (blood flow), as well as their accessibility/portability, ionizing radiation, and cost. Ultrasound offers high accessibility as a point of care modality, non-ionizing radiation, and high affordability. This project aims to develop next generation ultrasound tools for non-invasively visualising and quantifying macro- and/or micro-vascular flow, using parallel data acquisition from a sensor array, advanced image reconstruction, and signal and image processing. We are hoping to apply the technology to imaging the brain function, the cardiovascular diseases, and/or in early detection of cancer and its therapeutic monitoring. The specifics of the project can be discussed and finalised according to the background and experience of the potential candidate.