Seminar Abstract

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Computational Methods for Neuroimaging in R: Stroke Hemorrhage in X-ray Computed Tomography Scanning

Intracranial hemorrhage (ICH), or hemorrhagic stroke, is a potentially lethal condition when a blood vessel ruptures in the brain. Currently, the location of the hemorrhage is described manually and qualitatively. I will present a full statistical pipeline to 1) describe the location of hemorrhage quantitatively using X-ray computed tomography (CT) scans, 2) determine the locations associated with stroke severity scores, and 3) compare this quantitative approach to manual description of location.

All the tools created presented were written using R, using the fslr package and other R packages written during my training for neuroimaging analysis. I will describe these packages and other processing pipelines for CT image analysis implemented using the Shiny system in R.