

Software

"Normalcy" is an open source (licensed under Apache 2) software package for automated processing of MR and CT data to extract morphometric parameters of the head. The software was originally developed by the Electronic Radiology Laboratory <http://erl.wustl.edu/> at Washington University School of Medicine under NIH grant R43 NS67726, Pediatric Head Models for Improved Imaging of Neurological Development. The development team has move to the University of Arkansas for Medical Sciences, Department of Medical Bioinformatics <http://dbmi.uams.edu/>. The 2 main uses of normalcy are 1) to measure tissue thickness (scalp, skull, CSF) and skull density along a specified surface normal (See Figure 1); 2) to measure braincase volume, skull circumference, and skull length, width, and height (See Figure 2). These uses are published in references [1] and [2] respectively. Normalcy also registers MR data to CT data in order to calculate the CSF values. Click the link "[Normalcy](#)" to access download site.

Figure 1.

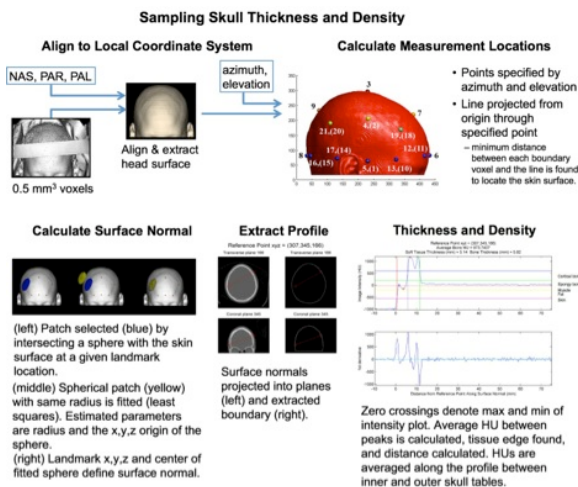


Figure 2.

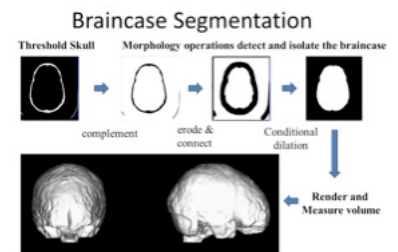
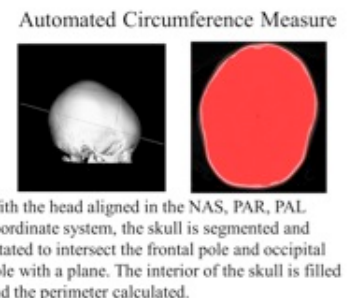


Figure 3.



References:

1. Smith KE, Politte D, Reiker G, Nolan T, Hildebolt C, Mattson C, Tucker D, Prior F, Turovets S, Larson-Prior L. Automated Measurement of Pediatric Cranial Bone Thickness and Density from Clinical Computed Tomography. 34th Annual International IEEE EMBS Conference 2012, San Diego, CA. 978-1-4577-1787-1/12/ 2012 IEEE
2. Smith K, Politte D, Reiker G, Nolan T, Hildebolt C, Mattson C, Tucker D, **Prior F**, Turovets S, Larson-Prior. Automated Measurement of Skull Circumference, Cranial Index, and Braincase Volume from Pediatric Computed Tomography, IEEE EMBS Conf. 2013; 3977-3980. doi: 10.1109/EMBC.2013.6610416

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You may also download the software from [GitHub](#).

