Understanding & Evaluation of Perfusion in MRI Using Ising Models/ SGT - Spin Glass Theory w.r.t Byte Code Engineering + JI Prolog + ImageJ/Fiji + JikesRVM + Antlr + Smart Devices [SD] + IoT + HPC Heterogeneous Systems.

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[I] Main Idea + Inspiration + Introduction :

https://www.quora.com/How-is-the-Ising-model-related-to-machine-learning -> Lot of scope for a better R&D approach in MRI Observations.

https://lewiscoleblog.com/spin-glass-models-3

"Perfusion is defined as the passage of fluid through the lymphatic system or blood vessels to an organ or a tissue. The practice of perfusion scanning, is the process by which this perfusion can be observed, recorded and quantified. The term perfusion scanning encompasses a wide range of medical imaging modalities.

The ultimate goal of perfusion MRI is to measure or assess the blood flow irrigating the explored organ, expressed in milliliters per 100 gram of tissue per minute. This flow corresponds to micro-circulatory tissue perfusion rather than the flow of the main vascular axes. There are different techniques of detecting perfusion parameters with the use of MRI, the most common being dynamic susceptibility contrast imaging (DSC-MRI) and arterial spin labeling (ASL). In DSC-MRI, Gadolinium contrast agent is injected and a time series of fast T2*-weighted images is acquired. As Gadolinium passes through the tissues, it produces a reduction of T2* intensity depending on the local concentration. The acquired data are then postprocessed to obtain perfusion maps with different parameters, such as CBV (cerebral blood volume), CBF (cerebral blood flow), MTT (mean transit time) and TTP (time to peak)."

[**Please see -> ref[a]**]

[II] R&D Informatics Framework :

https://vixra.org/pdf/1911.0342v1.pdf -> a good example for your use just fine tune and keep going.....

With thanks for understanding - Dr.Nirmal.

[III] Important References :

[a] https://imagej.net/plugins/mri-perfusion ; [b] https://introcs.cs.princeton.edu/java/98simulation/Ising.java.html

[c] https://fiji.sc/ ; [d] https://imagej.net/ ; [e] http://www.jiprolog.com/ ; [f] https://www.jikesrvm.org/

[g] https://vixra.org/pdf/1906.0226v1.pdf*

[IV] Acknowledgment/s : Non-Profit R&D - Inspire others always - Sincere Thanks to all WHO made this happen in my LIFE.

[V] Conclusion/s with Future Perspectives : One of the important & pioneering R&D Efforts.**Excellent Testing** is in progress.

[THE END]