Module 4: Literature Review and Software Tooling

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1 Question:1

Create a bibliography file related to your research topic and review atleast 2 research papers listing major strengths and weakness of the presented work in the research papers.

1.1 Needs to create a .bib file and upload it.

1.2 Two key Research papers (citation in IEEE Style) – with DOI link

I have added following two research papers:

1. Quantitative susceptibility mapping using deep neural network:QSMnet [1]
2. MoDL [2] :Model Based Deep Learning Architecture for Inverse Problems

1.3 List Major Strength and weakness of each paper Strength:

1.3.1 QSMnet:

Strengths: Constructs the high quality susceptibility mapping from single orientation data. Even though the data is single orientation data, the results are very close gold-standard COSMOS QSM maps.

Weakness: QSMnet has very deep architecture. Therefore, it needs lot of computational power.Since, it is in the clinical applications it is very important to check the reliability.

1.3.2 MoDL: Model Based Deep Learning Architecture for Inverse Problems

Strengths: MoDL merges the power of Model based construction schemes and deep learning. Therefore, it shows the data consistency and denoisng both.

Weakness: It doesn't provided theoretical analysis on the convergence. In this proposed approach the number of iterations are fixed.

2 Question:2

Create a github pages of your own.

2.1 One your home page (could be google pages as well)

The following is the link for my home page:
https://sites.google.com/view/vaddadivenkatesh/home

2.2 One your projects page

The following is the link for my projects page:
https://sites.google.com/view/vaddadivenkatesh/projects

References

[1] J. Yoon, E. Gong, I. Chatnuntawech, B. Bilgic, J. Lee, W. Jung, J. Ko, H. Jung, K. Setsompop, G. Zaharchuk *et al.*, "Quantitative susceptibility mapping using deep neural network: Qsmnet," *Neuroimage*, vol. 179, pp. 199–206, 2018. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S1053811918305378

[2] H. K. Aggarwal, M. P. Mani, and M. Jacob, "Modl: Model-based deep learning architecture for inverse problems," *IEEE transactions on medical imaging*, vol. 38, no. 2, pp. 394–405, 2018. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/8434321