Human-inspired deformable medical image **registration**

Recurrent Registration Neural Networks for Deformable Image Registration

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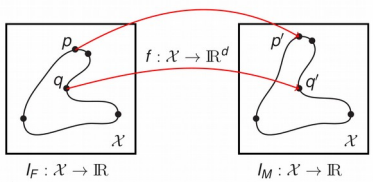
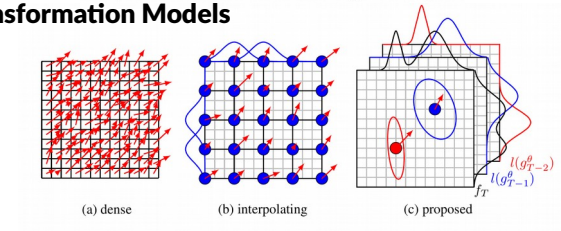
Image Registration

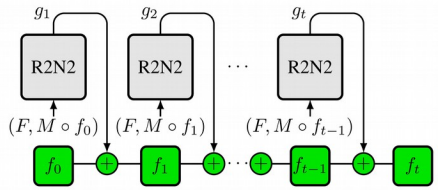
- Deformable registration is essential for medical image analysis methods assuming spatial correspondence



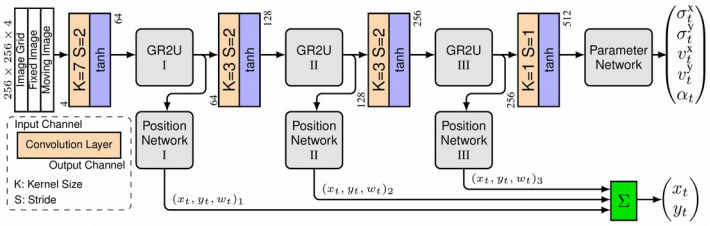
Transformation Models

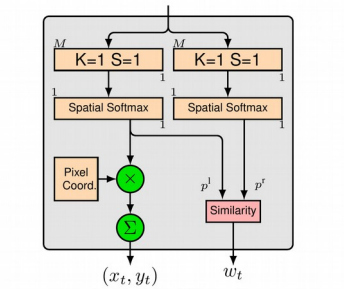


Sequence-based Registration

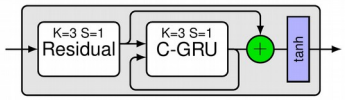


Network Architecture

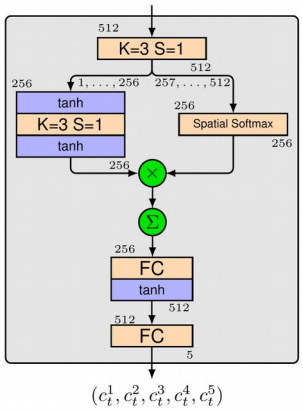




(a) Position Network

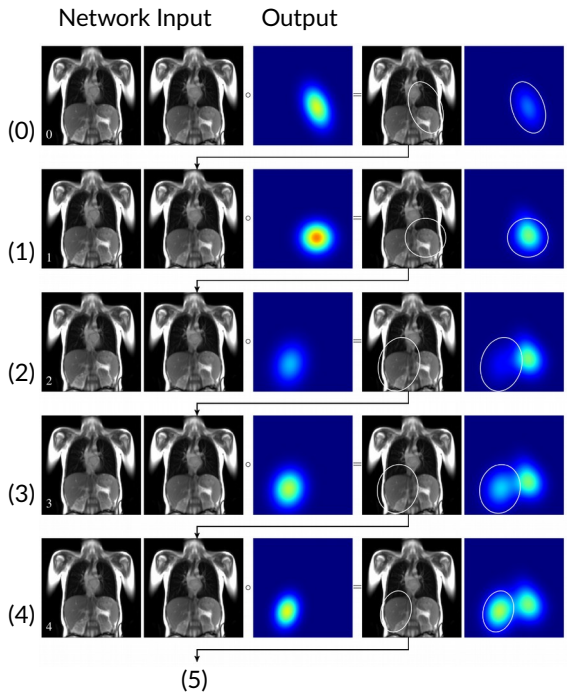


(c) Gated Recurrent Registration Unit

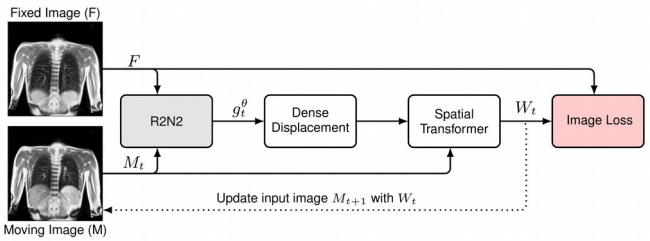


(b) Parameter Network

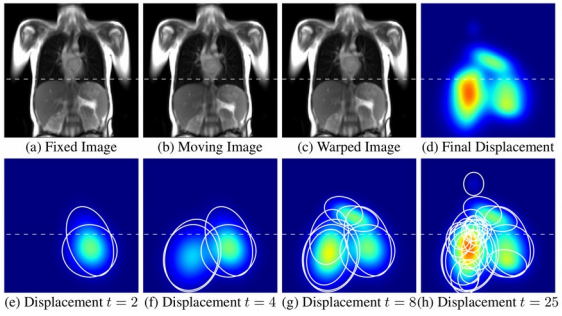
Sequence Results



Unsupervised Training



Results



Discussion

- We present a sequence-based deformable image registration method.
- Currently the number of registration steps is fixed.
- For future work, we will work on including uncertainty measures for the registration result as a possible stopping criteria. This could then be used to automatically determine the number of steps needed for the registration.

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The authors would like to thank the Swiss National Science Foundation for funding this project (SNF 320030_149576).

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