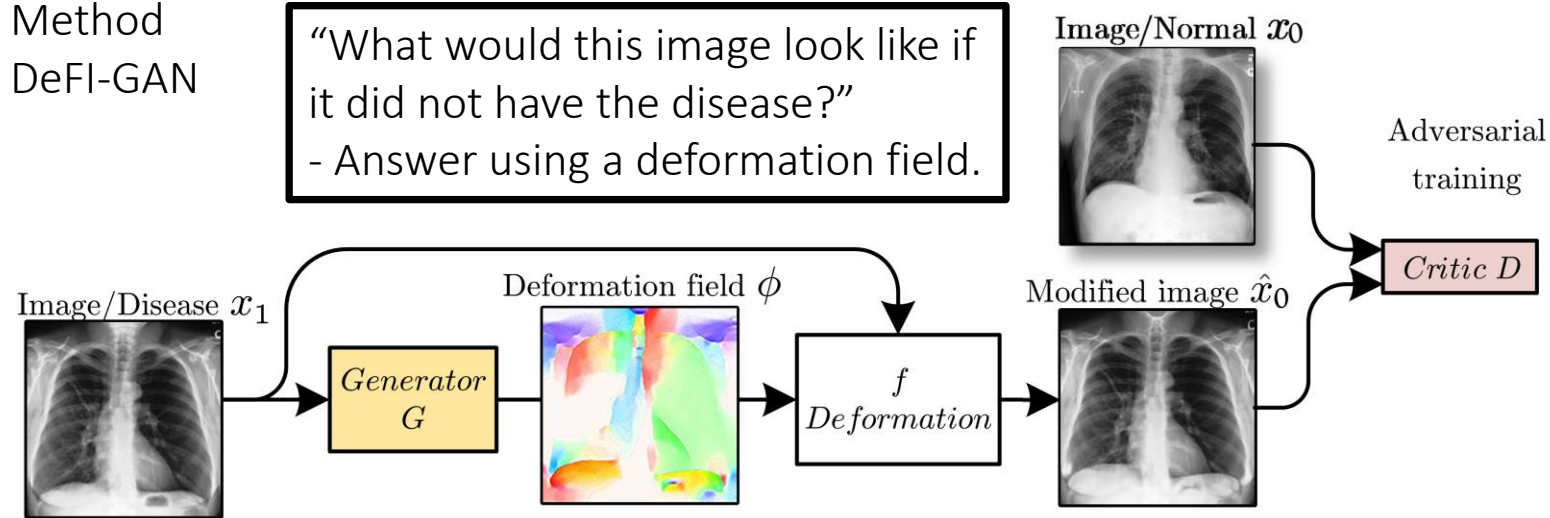


Interpretation of Disease Evidence for Medical Images Using Adversarial Deformation Fields

Ricardo Bigolin Lanfredi, Joyce D. Schroeder, Clement Vachet, and Tolga Tasdizen

Method
DeFI-GAN

“What would this image look like if it did not have the disease?”
- Answer using a deformation field.



Quantitative results

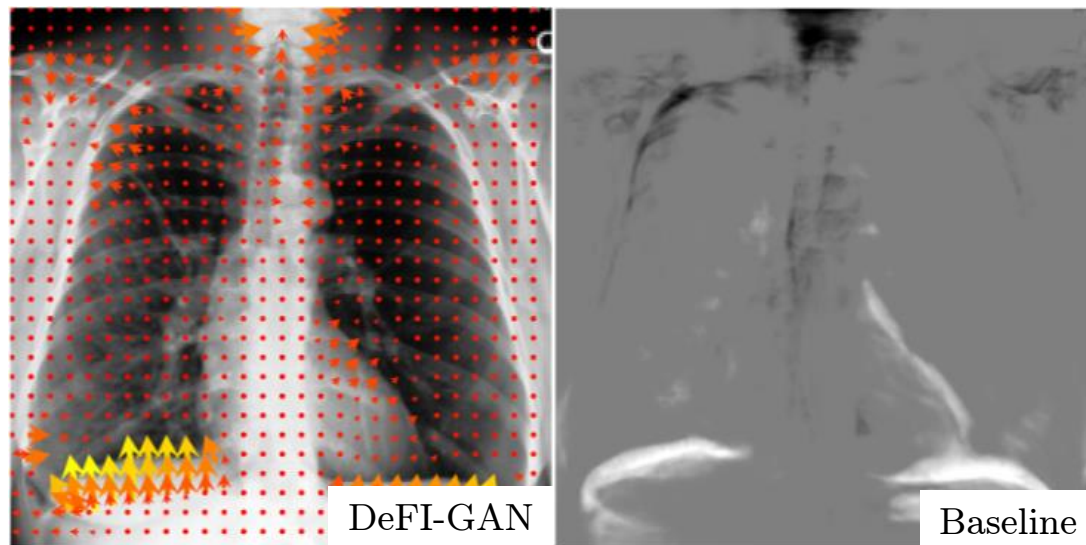
Better prediction of longitudinal data of patients who got worse over time.

Normalized Cross-Correlation Scores

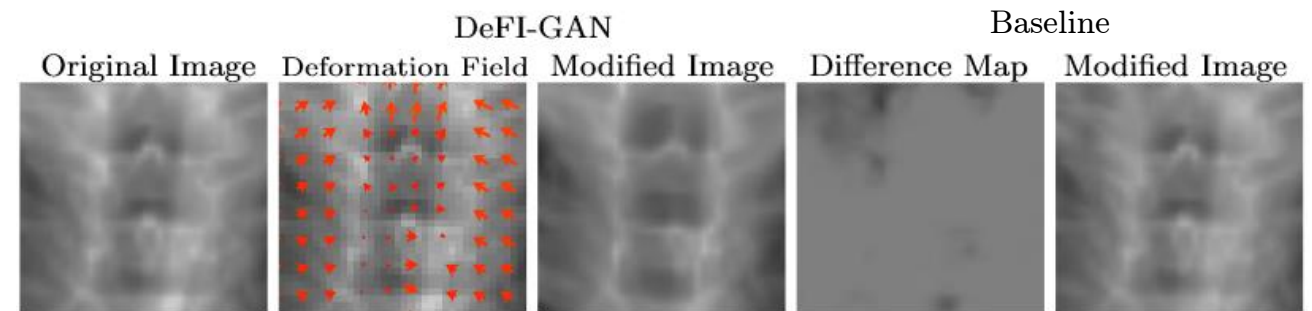
Dataset \ Method	Baseline*	DeFI-GAN
ADNI	0.332 ± 0.015	0.365 ± 0.014
COPD	0.174 ± 0.007	0.204 ± 0.006

*Baseline: summation instead of deformation

Example of Qualitative Results – Highlighting of different types of evidence



Zooming in on trachea:



Among other differences, saber-sheath trachea was highlighted by our method.