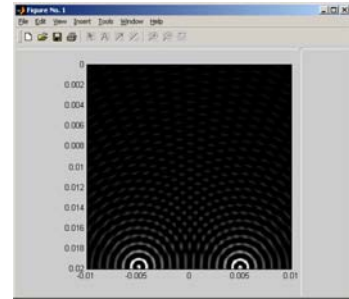


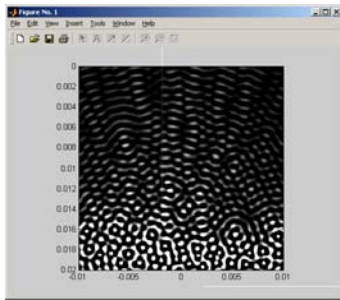
Speckle tracking



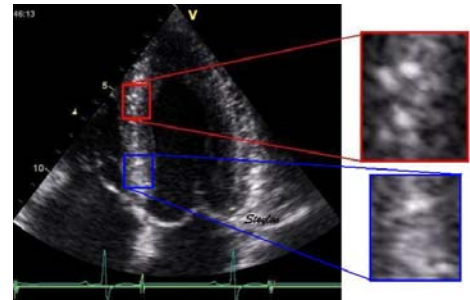
Interferens:



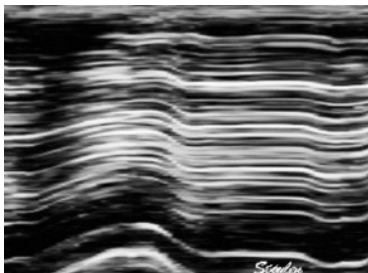
Interferens:



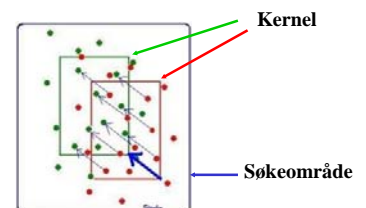
Speckle mønster:



Speckle mønsteret følger myokard



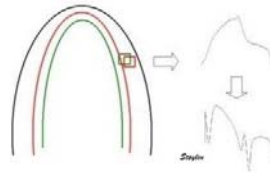
Speckle tracking:



$$\gamma_{m,n} = \sum_{i,j} [s_1(i,j)] - [s_2(i-m, j-n)]$$

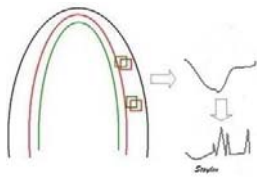
$$\gamma_{m,n} = \sum_{i,j} ([s_1(i,j)] \times [s_2(i-m, j-n)])$$

Kan brukes til å beregne bevegelse



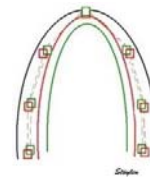
- Forflytning
- Hastighet

Og med flere områder:



- Strain
- Strain rate

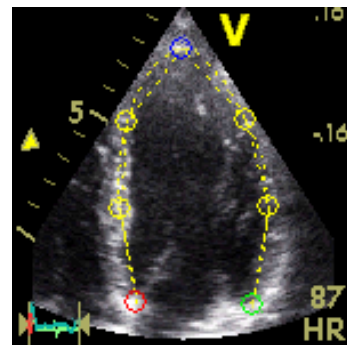
F. eks i alle segmenter:



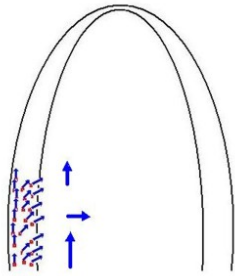
Søkeområder



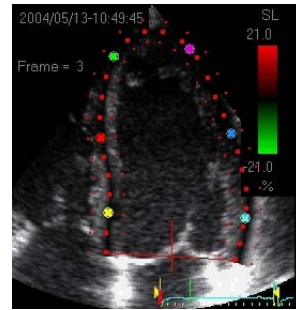
Resultat:



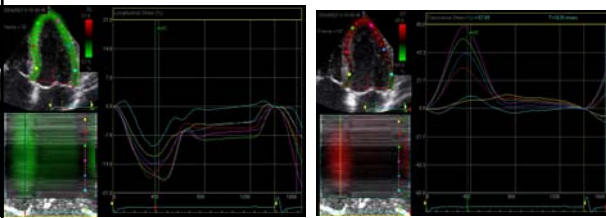
Multiple små kernels



2D strain



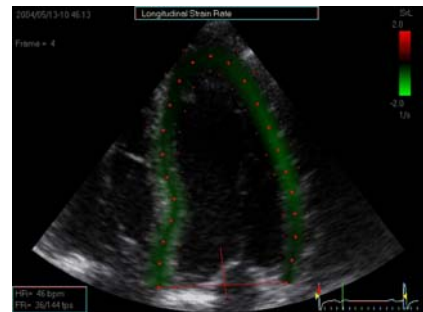
2D strain



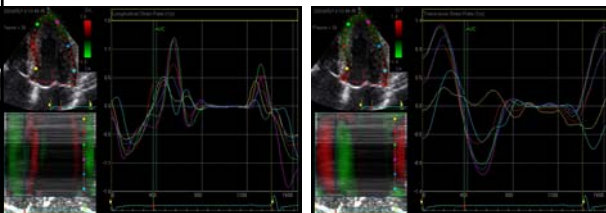
• Longitudinell

Transmural

2D strain rate



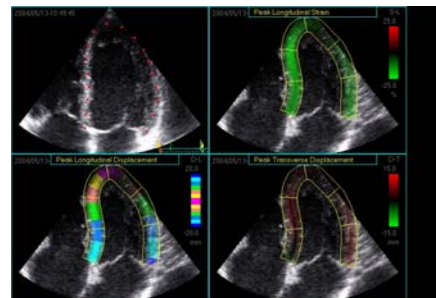
2D strain rate



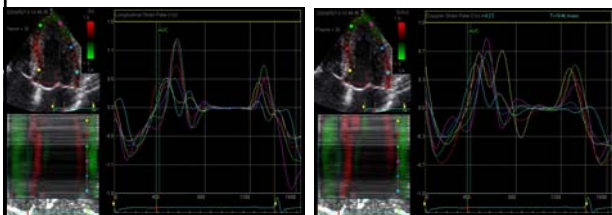
• Longitudinell

Transmural

Gir gjennomsnitt av et segment:



Speckle vs. TVI



- Speckle

TVI

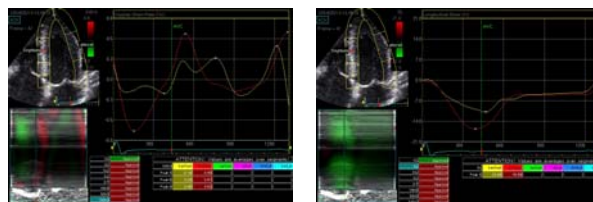
Fordeler:

- Vinkel uavhengig – sann longitudinell strain
- Vesentlig bedre lateral oppløsning (64 linjer vs. 16)
- Gir simultan strain i to dimensjoner (den tredje kan beregnes)

Problemer:

- Frame rate sensitiv
 - For lav FR: stor endring fra frame til frame – tracker dårlig
 - For høy FR: Redusert lat.oppløsn. (linjetetthet) – tracker dårlig
- Lav FR: Undersampling
- Gjennomsnittsverdier.
- Har vi virkelig bruk for to dimensjoner?

Feilkilder:



- Strain rate

Strain