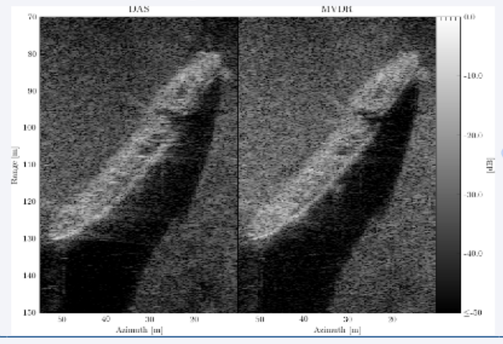
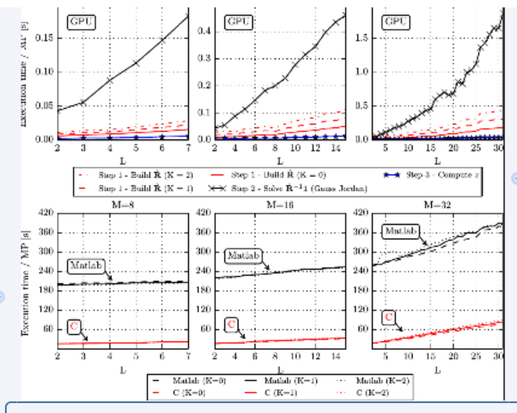
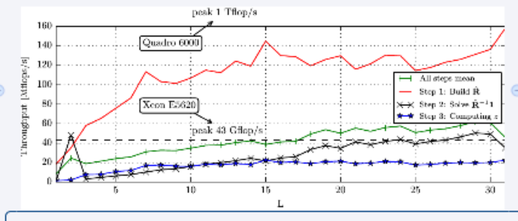
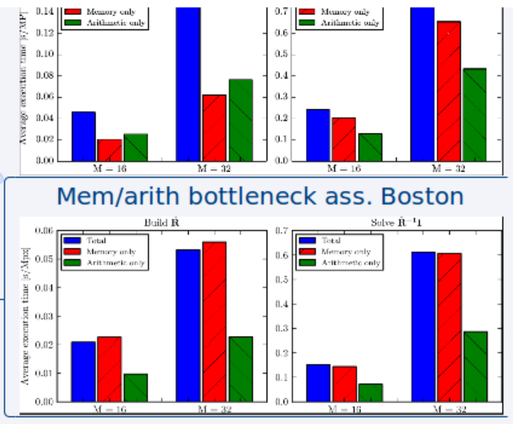
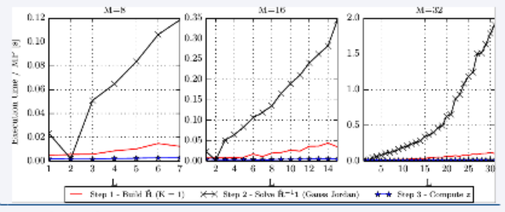
- ıchmarks
  - Holmengraa proof it works
    

  - 

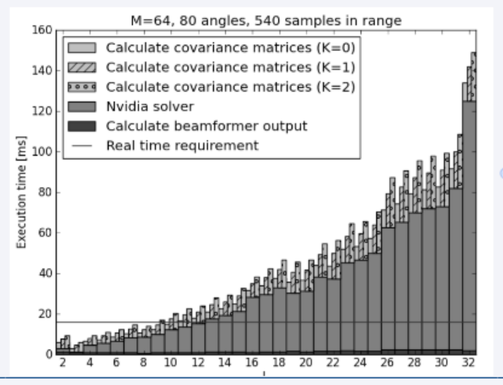
  - FLOPs breakdown
    

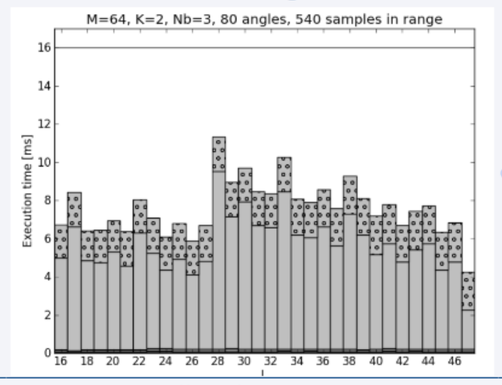
  - Mem/arith bottleneck ass. Boston
    

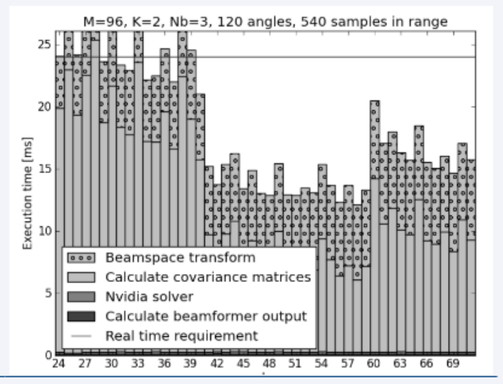
  - Benchmark Boston HPC
    

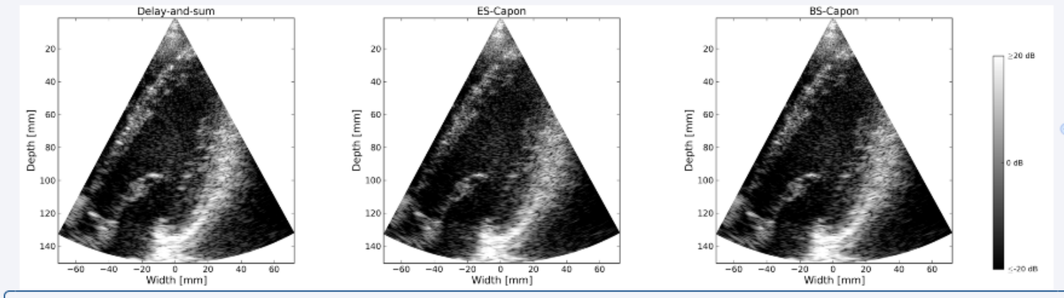
- t M<=32 building R is just as much a bottleneck as inverting it
- ne problem is primarily bound by memory bandwidth
- VDR on GPU increased by 1-2 orders of magnitude
- PU implementation closer to max FLOPS than CPU

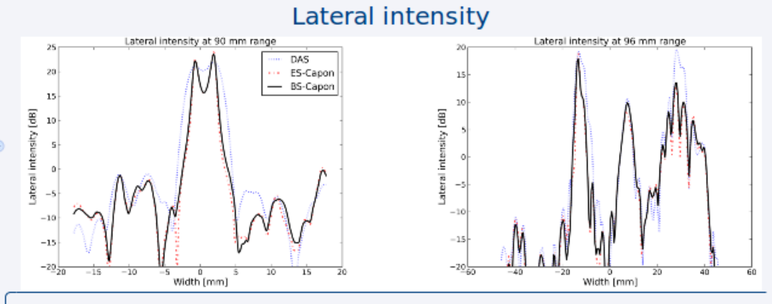
- duction
  - Problem: Many channels. Oversampling desired for spatial shift invariance
  - Use case: Ultrasound, M>32, narrow beam, 3Mhz, wideband
  - Based on: C-I. beamspace
- :ground
  - Capon Beamforming
  - GPU Compute Model
- lel Capon
  - Calculation of Multiple Sample Coveriance Matrices
  - Solving Multiple Small Linear Systems
  - Compute Beamformer Output
- nspace Processing

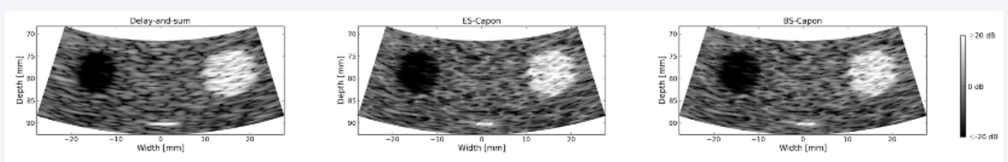
- :hmarks
  - Total runtime and breakdown
    

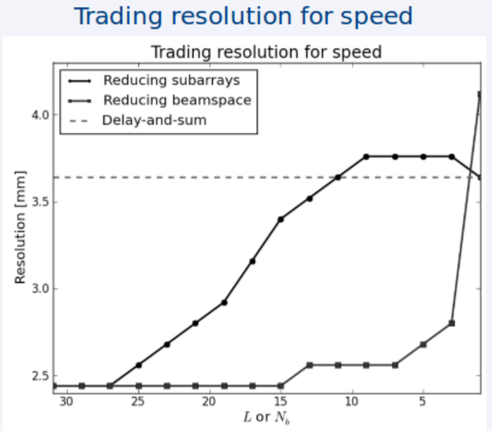
  - BS: 80 angles
    

  - BS: 120 angles
    

  - Cardiac data
    

  - Lateral intensity
    

- ng Resolution for Speed
  - Simulations
    

  - Trading resolution for speed
    

- ussion
  - Real-time processing possible up to 96 channels/beams using beamspace
  - BS needs a transform, but reduces the size of R to 3x3
- :lusion
  - A GPU can accelerate this further, ensuring real-time performance
  - Attractive when narrow TX beam, high M, TX oversampling