Adaptive beamformer

* **Develop an adaptive beam former for normal b-mode images, and if time permits, extend this work to develop an adaptive beamformer for swept synthetic aperture beamforming**
* Fully adaptive beamformer (capon/minimum variance) which is commonly used in array processing to reduce bright off-axis energy contributions (noise reduction and resolution improvement)
* Utilizes spatial covariance matrix of received signals in optimization problem to find the weighting of aperture locations given a focusing vector designed to steer the beam in a specific direction

Weiner filtering and blind deconvolution

* **Devise a deconvolution scheme given the system PSF (calculated analytically, numerically, or derived via blind deconvolution) to improve resolution and reduce speckle noise in a b-mode image, and if time permits, extend this work to swept synthetic aperture beamforming**