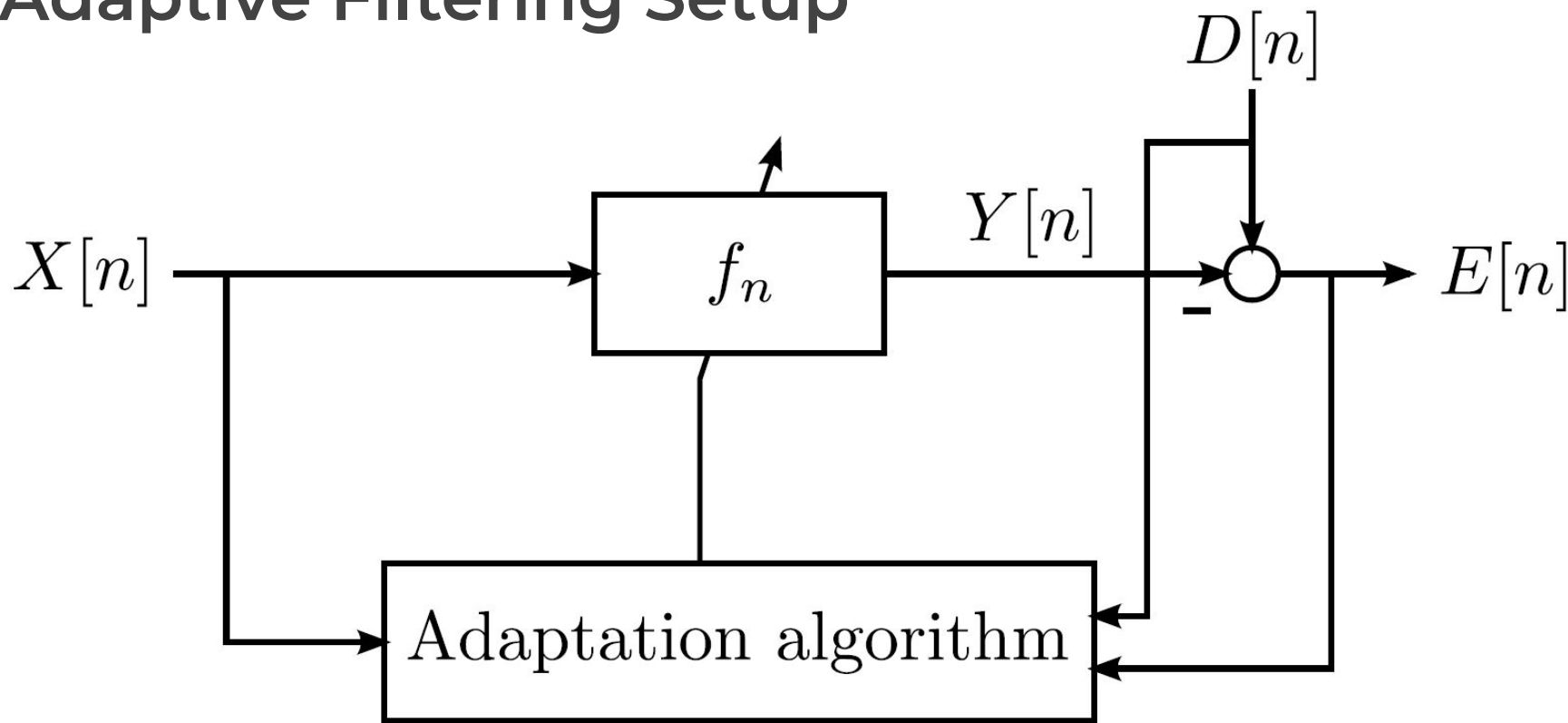


# Adaptive Filtering

Skander Hajri and Jeanne Fleury

# Adaptive Filtering Setup



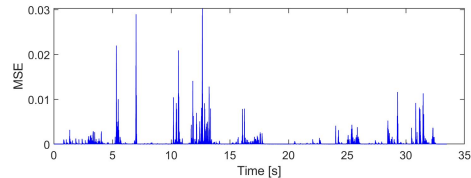
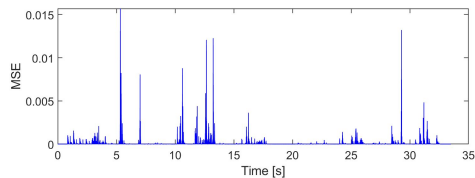
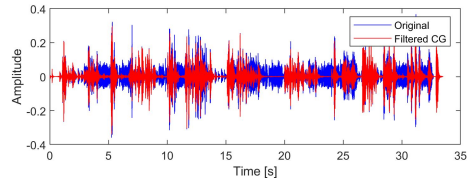
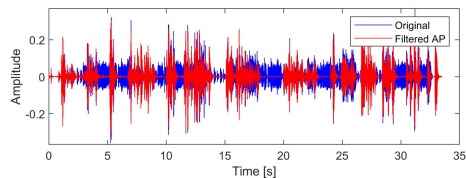
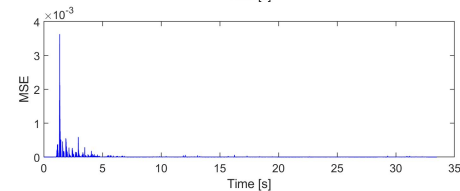
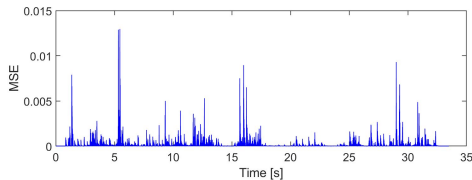
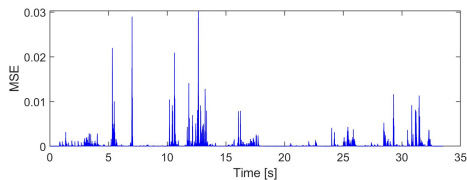
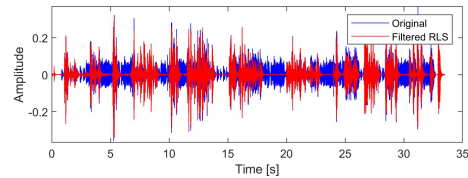
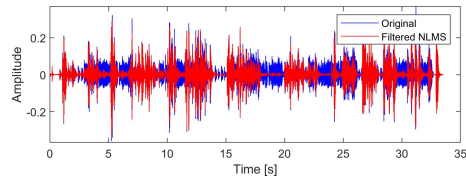
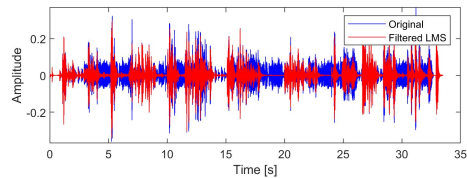
# Implemented tools

- Least Mean Squares (LMS)
  - Simple and low cost
  - Slow convergence
- Normalized Least Mean Squares (NLMS)
  - Better convergence than LMS
- Recursive Least Squares (RLS)
  - Fast convergence
  - Computationally costly

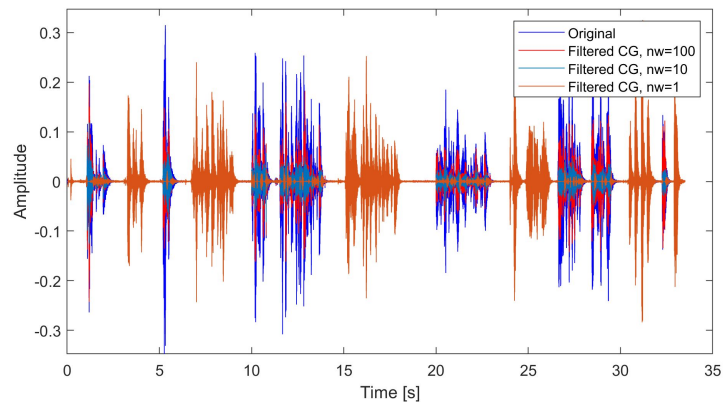
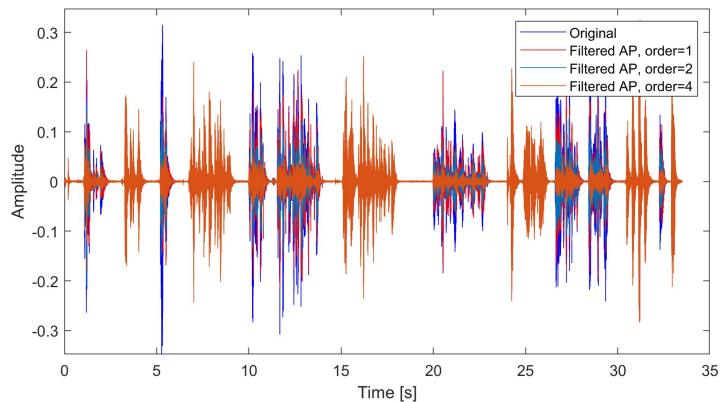
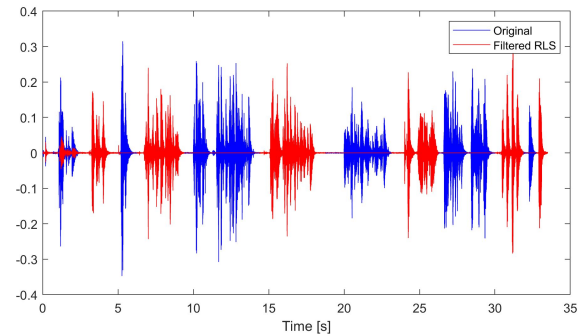
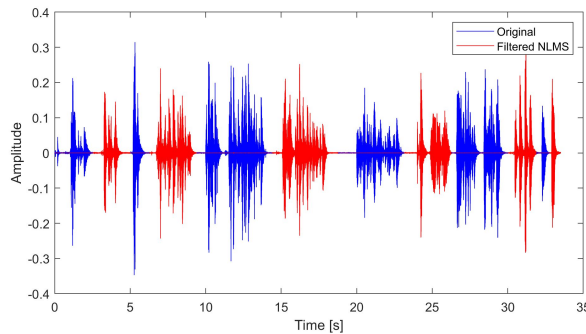
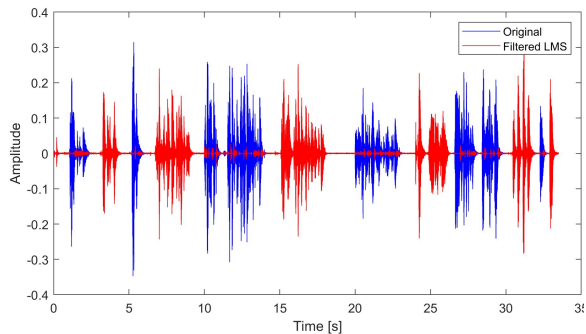
# Advanced tools

- Affine Projection (AP)
  - Fast convergence and low cost for small projection orders
  - Not better than LMS for non-highly correlated data
- Conjugate Gradient (CG) [1]
  - Tradeoff between convergence and complexity
  - Can be as fast as LMS (with same result)
  - Is said to be comparable with RLS when complexity is increased, but in practice is not better than LMS

# Results and comparison on simulated data



# Results and comparison on real data



**Demo**

**Thank You!**