

Acoustic Echo Canceling: Echo Quality Index

Mengran Du

University of Maryland

Dr. Bogdan Kosanovic

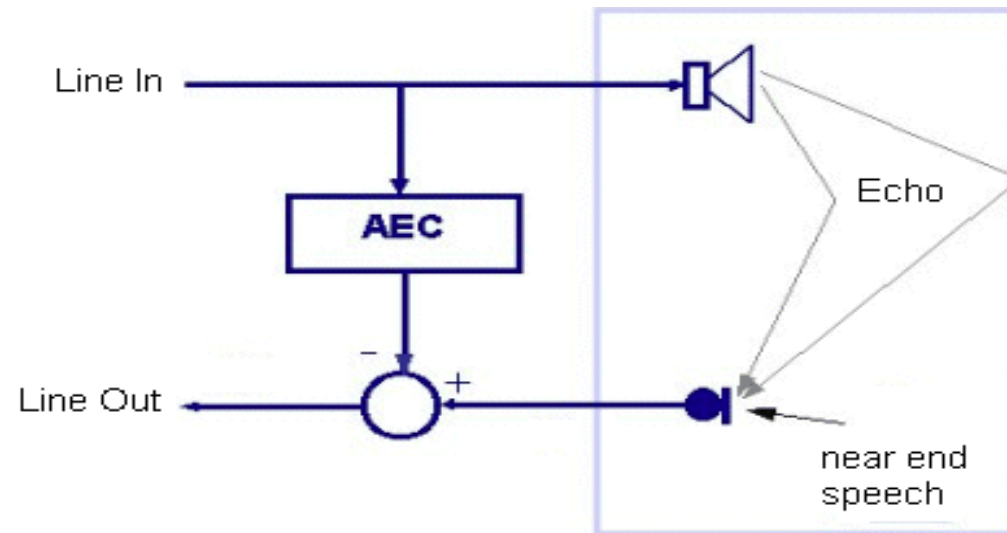
Texas Instruments, Inc.



MERIT
2007 FAIR

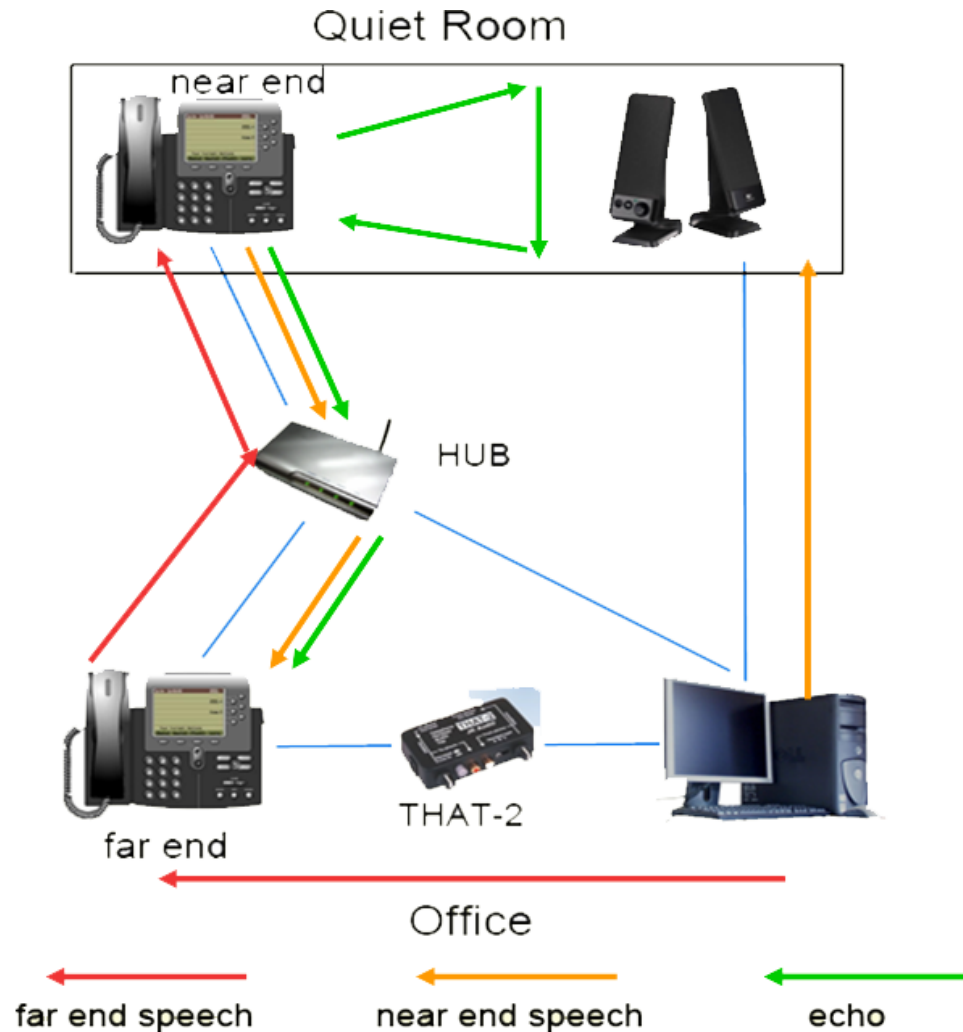
[Introduction]

- What is Acoustic Echo?
- What is AEC/AER?
- What is EQI?



AER Measurements

- Simulated conversations
- 96 Test scenarios
- Collected AEC debug statistics



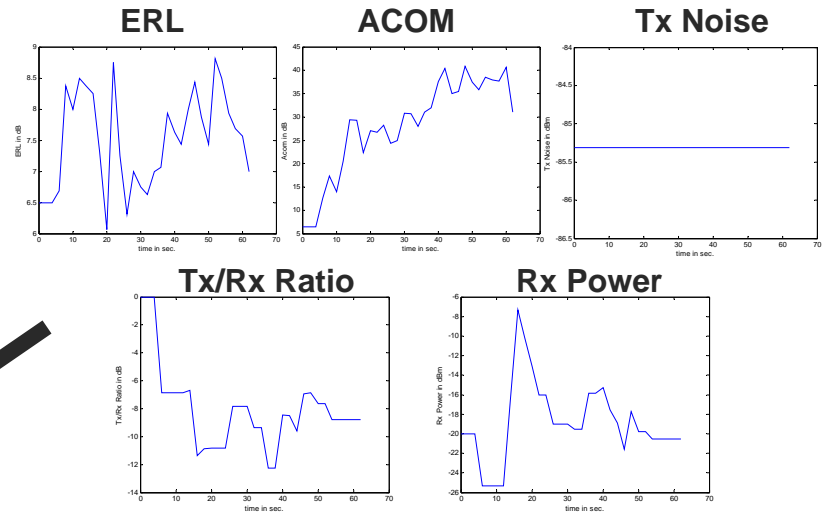
EQI Calculation

AER Debug Statistics

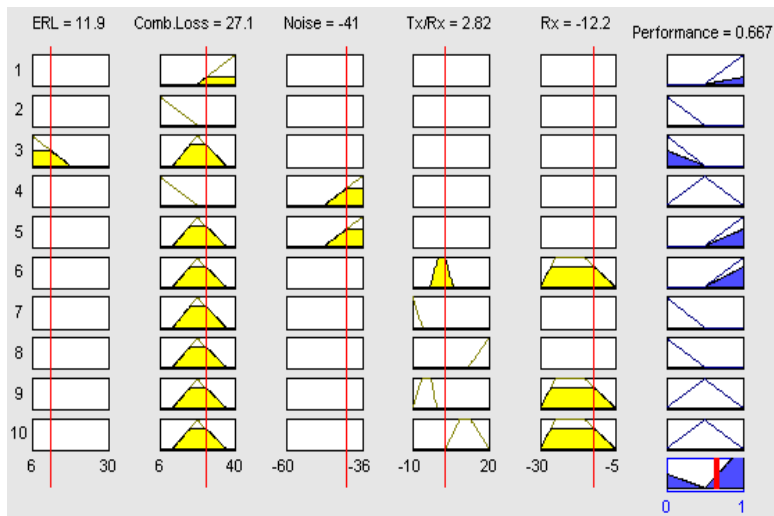
```

P[01,08] 0x0387 0x0008 0x0000 0x0004 0x0000 0xb004 0x0026 0x0640
P[09,16] 0x01a8 0x0000 0x0000 0x0000 0x001c 0x0000 0x000a 0x000f
P[17,24] 0x0271 0xffe8 0x02bc 0x02bc 0x0008 0x0000 0x0000 0x0000
P[25,32] 0x0000 0x0000 0x0005 0x4100 0x0000 0x1504 0x0000 0x1504
P[33,40] 0x0005 0x415c 0x0000 0x1504 0x0000 0x1504 0x0001 0x0000
P[41,48] 0x0000 0x0000 0x0000 0x0000 0x0001 0x0000 0x0000 0x0000
P[49,56] 0x0000 0xfb92 0xfb4 0xfc3d 0xfaab 0x0050 0x0000 0x0000
P[57,64] 0x000e 0x0002 0x0009 0x0000
    
```

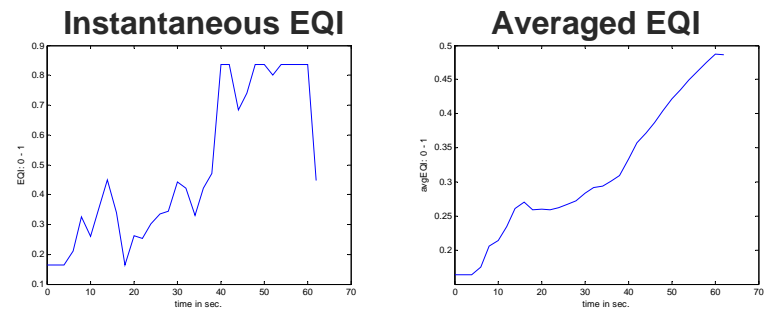
5 FIS Inputs



LEC Fuzzy Inference System



EQI



[Conclusion/Future Research]

- FIS is functioning, but AER measurements (inputs to the FIS) are inaccurate
- Valuable AER debug statistics collection method and MATLAB parsing functions
- Correct AER measurement errors
- Modify input parameters to improve FIS