

Can EEG be Hi-Res? Finding out with Theory, Experiments, Algorithms and Instrumentation

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more electrodes, even beyond Nyquist rate!

Fundamental Limits

What is the best attainable source localization resolution, for a given number of electrodes?

Minimax bounds for localizing a point source

- (Venkatesh and Grover, *ISIT* '17)
- Numerically computed lower bound vs. number of sensors



Number of sensors, m

UHD-EEG proof of concept

Current experiments based on self instrumented system with ~1cm inter-electrode distance.





Mean classification accuracy of visual tasks is higher when using high-density EEG systems instead of low-density EEG systems.











- 5. P. Venkatesh and P. Grover, "Lower bounds on the minimax risk for the source localization problem", ISIT 2017 (to appear)