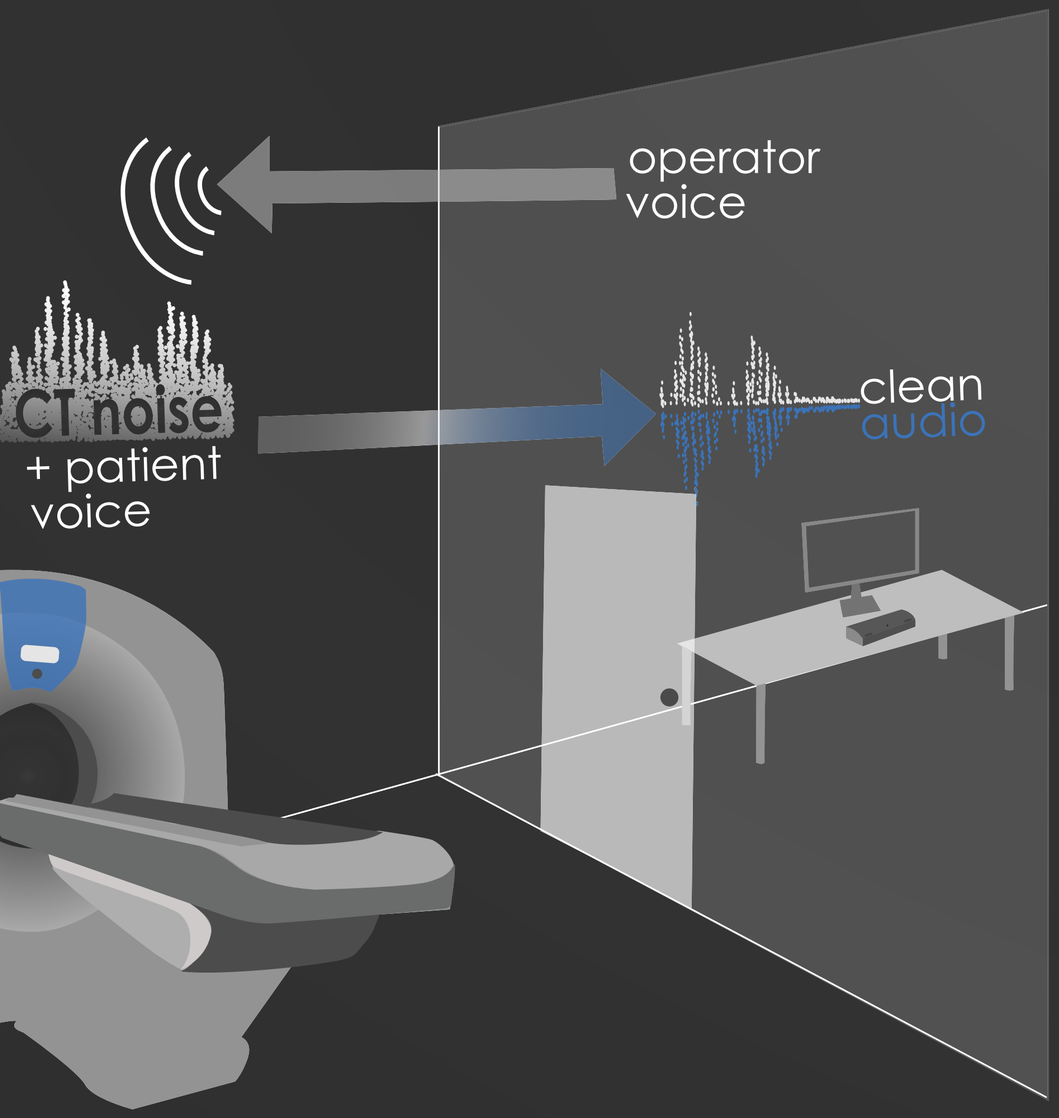
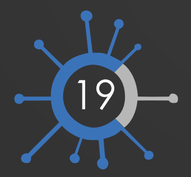
CT Patient-Operator Intercom

During a CT scan, patients and operators use an intercom to communicate across rooms. Noise from the CT machine and physical constraints make this communication difficult. We set out to design a **next generation intercom system** that will allow patients and operators to communicate seamlessly throughout the process.



Operators use the intercom to give instructions during the scan



COVID-19 has highlighted the need for effective distanced communications

System

Our digital intercom system implemented active noise cancelling to provide **even clearer communication** between the CT operator and patient, for optimal imaging results and user experience.

Active noise cancelling
Tested two approaches to digital filtering

Microphones
Optimized selection and placement

DSP hardware
Leveraged existing technology in an audio development board to focus on algorithm implementation

Operator control box
Designed to resist spills and cleaning damage while maintaining desired acoustic qualities

Integrated prototype
Simulated operating conditions in a CT scan room as closely as possible

The team

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