ABSTRACT

TITLE:	Anonymizing Medical Audio Databases Through Steganographic Concealing of Confidential Information
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PRESENTED AT:	2016 Undergraduate Research and Creative Activities Symposium, Fort Lewis College

ABSTRACT: As electronic databases of sensitive medical information continue to grow in the medical industry, the necessity for maintaining patient confidentiality within these files while simultaneously making large datasets available for doctors, medical students, and researchers is quickly growing. The potential for incredible medical advancements is unlocked with the distribution of large sets of Electronic Health Records (EHRs) to researchers and the public. Of course, as files are stored in medical records along with patients' confidential personal information, it would be a violation of the Health Information Privacy Protection Act (HIPPA) to distribute large EHR datasets to researchers without first anonymizing each individual file. In particular, medical audio files such as echocardiograms, sonograms, and venous dopplers all have the potential to be incredibly useful to researchers, but are almost always accompanied by sensitive identifying information of the patient. By using a Discrete Cosine Transform (DCT) in combination with a form of hard thresholding, we will modify these audio files, and embed sensitive patient data into the audio file using a steganographic process. This allows us to delete obvious sensitive data and distribute the files to researchers. Should they desire to do so, patients would be able to release any sensitive information to researchers even after anonymization by disclosing the details of the steganographic processes.