GARI CLIFFORD &
ADAM WHITE

HTTP://WWW.BMI.EMORY.EDU/GARICLIFFORD

HTTPS://WWW.LINKEDIN.COM/IN/ADAM-WHITE-40302865/

Required Skills:

Business Strategy, Web Development, Mobile App Development, Project Management, Communications

Preferred Team Communications:

Conference call

Data Sources:

Georgia Tech synthetic data will be sufficient for the project. Mentor has additional synthetic data that can be used.

Other Items:

Project has timezone flexibility. Mentors and students will determine a good time for virtual meeting.

Mentor can provide information on business strategy and industry information for the project. Mentor may not be able to answer detailed technical questions.

BLOCKCHAIN ON FHIR

The project will build a decentralized EHR system for people to hold control own medical records. It is decentralized in two ways:

1. Storage (IPFS)
2. Computation (Ethereum)

PROJECT OBJECTIVES

The system (using FHIR) downloads records into the Interplanetary File System (**IPFS**). This shards, encrypts and duplicates the data over a community of nodes. Data is retrieved and rebuilt from the closest nodes. Each file then has a hash as its URI reference. Obviously, this is great for versioning as well.

For example, this is a video URI in IPFS:
ipfs/QmVc6zuAneKJzicnJpfrqCH9gSy6bz54JhcypfJYhGUFQu

Using **Ethereum**, a ledger is created of all Ethereum ID's that have access to the IPFS file(s). The patient chooses which users have access to which files. Public blockchain is used to store the state. Links and user authentication is done through a series of private/public key steps. The transaction added to a blockchain block looks like:

previous data state -> Smart Contract -> new data state

Smart contracts are Turing complete, written in Solidity. We have at least two smart contracts, one to add users, and one for reporting.

All links and EMR records are currently planned to be encrypted.

The end user interface is being put together as a web app to save time, but could also be a mobile app.

SUCCESSFUL PROJECT

Ability of user to access his/her medical records access even if most of the internet went down.

Intellectual Property: **Students own the IP on this project.**