**Quantum Computing**

# **Objective:**

## Through this outline I hope to frame the history leading up to the current state on Quantum Computing, additionally adding in what I believe this holds for the future.

# **Introduction:**

## Quantum computing: a type of computation that harnesses the collective properties of quantum states, such as superposition, interference, and entanglement, to perform calculations. The devices that perform quantum computations are known as quantum computers (1.)

## Discuss the history of Quantum Computing.

# **Companies Currently developing Quantum Computers:**

## Intel – Working in collaboration with Qutech to develop new tech

## IBM – Focused on advancing Universal Gate Models (2.)

## ColdQuanta – Used by NASA’s Cold Atom Laboratory (3.)

## 1Qbit – Focusing on APIs and variety of algorithms helping bridge the gap between regular computing and quantum computing.

## IONQ – Hardware based ion trapping technology, that allows laser beams to store, process and retrieve information from trapped atoms. They had a new discovery in the technology publish on 02/09/2022 (5.)

## Isara – Focusing on Quantum Security systems. (4.)

# **Discuss random cool findings from Quantum Computing experiments:**

## The first Quantum entangled network, set up with 3 nodes – Achieved by QuTech. (9.)

## Quantum entanglement on a tardigrade – Was not supported by peer review

## Quantum Communications & Simulations (7.)

## Redefining our understand of the universe through Quantum Properties.

# **Discuss some of the challenges of quantum computing in its current state:**

## Slow advancement in technologies.

## A lot of speculative research.

## Currently in what’s considered a “toddler” state.

# **Discuss the future of Quantum Computing:**

## Network Security.

## Space flight.

## Quantum Computers in Consumer Hands.

## What it can help tell us about our galaxy, and universe.