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Senior Individual Website

Process Paper

When I learned that the theme of NHD's 2021 competition was *Communication in History,* my mind went to encrypted or digital communication which was revolutionized circa World War II. I chose to interpret the theme literally because I find the process of digital communication fascinating. When I read about Claude Shannon's paper "A Mathematical Theory of Communication", I decided to look into Shannon. His motive to create artificially intelligent machines captivated me, as in his time this was presumed to be impossible. One of Shannon's main focuses, binary, or information represented by two states, also influenced how machines communicate, store, and transform information.

When I began my research, I looked into Shannon's advancements in information theory, but I soon realized that Shannon researched much more. I did not include all of Shannon's work in my website, as I wanted to focus on Shannon's ideas and creations that most influenced communication today. Additionally, Shannon wrote a song to accompany a Rubik's Cube solving machine. Shannon also created a rocket powered pogo stick, a flaming trumpet, and a wearable machine to increase chances of winning in roulette.

In the previous two years, I have created historical websites, and as I researched Claude Shannon, I decided that a website could express my research well. Since websites use some of Shannon's advancements to function, including converting images and text to binary, I found my choice of category fitting. I wanted to use a clean aesthetic in my website so it would not overpower the historical aspect. Although web design is challenging, my prior web development experience helped me understand the NHDWebCentral editor. Shannon's machine learning maze had very complex wires and switches on the inside, but on the outside, it was very simple to use

and understand. I wanted this same quality in my website so that I could incorporate complexity without confusing the reader.

In my website, I argue that although Claude Shannon humbly did not focus on self-promotion, his creation of information theory was the foundation of both the information age and modern digital communication. I want to cast light on Dr. Shannon's work because he rarely gets credit for all the foundational advancements he made.

Shannon was one of the first to focus on how machines could use binary, which was much more efficient to computers than sound waves or letters. This aspect of Shannon's work represents a direct interpretation of NHD's theme, as it pertains to transmitting information from one place to another. His work was used to send encrypted messages during WWII. Shannon also invented machines that stored information or even communicated to people through chess.

Shannon's work is the foundation of much of the information age and modern technology. Shannon's work was important to many technological advancements in history. It was not only influential in history but also defines technology today. Claude Shannon's ideas are the reason files can be easily stored on a computer or that this website can be easily accessed over the internet.