

# **Thesis Project Portfolio**

## **Teaching Computer Science at UVA**

(Technical Report)

## **Does Google Negatively Impact Our Cognitive Ability?**

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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## **Socio-Technical Synthesis: Search Engines**

Within my prospectus, I analyzed the impact and efficiency of search engine designs on society. My technical and STS projects helped form my analysis through two separate yet interconnected methods. These two projects help me gain an understanding of both the design process of search engines and the result that design choices have on society. In what follows, I address and explain each of these projects, and the benefit I found from working on them simultaneously.

For my technical project, I recall an internship experience at Capital One where I was given the task to create a document search engine web application programming interface. The application design was supposed to be quick and able to search through thousands of documents with minimal search criteria. It had to leverage several cloud computing platforms and interact with multiple Capital One resources to produce a list of documents that the user most likely searched for. For the project, I think of how my education at the University of Virginia prepared me and list recommendations for how the Computer Science department could better prepare future students. My STS project explored the impact that search engines have on society. In this project, I examine the technological momentum of Google from its creation until today to prove that search engine technology became more the shaper of society, rather than shaped by, as it gained more popularity and influence.

I found significant value in working on my technical and STS projects simultaneously. Working on the two projects at the same time gave me additional insight that I would not have gained through just one project or the other. The work on the technical design of my search engine helped me see both the difficulty of designing an efficient search engine and the many

design choices that must be made along the way. The STS project boosted my understanding by making visible the impact of what I thought were unimportant design choices on society. These two projects highlight both the complexity of search engine design and the effort that engineers must make to create technology that does not have harmful effects on society. They have allowed me to see just how related technology and society are and helped me to realize that any technology could negatively impact society.