Thesis Project Portfolio

Typerspace: An Interactive Approach to Teaching Keyboard Literacy

(Technical Report)

Black Interaction with a Whitewashed Internet

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

The digital divide is a critically overused term but generally refers to some type of inequity in technology usage between groups of people, usually as a result of a variety of socioeconomic factors. When people talk about the digital divide, they are usually referring to differences in physical infrastructure which cause inequitable disparities in technology access between certain social groups. However, another type of digital divide exists, which is less commonly discussed but arguably more relevant in modern society. This definition refers to the way that certain aspects of web design and information layout can impact how certain social groups interact with online content. In a world where ICT access is more universal than it was just 10 years ago, this software divide has a greater impact on many marginalized groups.

The technical thesis deals primarily with the first, more traditional definition of the digital divide and outlines the development of a web application to help people gain keyboarding literacy. The app, called *Typerspace*, began as a hackathon project in 2021 and development continues into 2022. Unlike traditional typing games, which just involve typing random collections of words and sentences, *Typerspace* allows users to watch an embedded YouTube video of their choosing, and type along with the captions. Our development team believes that the addition of entertainment value will increase both the frequency with which users want to use the app, as well as their ability to retain the skills that they develop during use.

The STS thesis explores the software digital divide, which I found to be a more interesting and relevant issue after preliminary research on the digital divide. It focuses specifically on the way Black people in America interact with the internet, and how the mainstream internet is whitewashed, limiting their engagement with common web applications.

Despite similar levels of theoretical access, cultural and social values can limit their effective access to certain online resources. It also explores how Black internet users circumvent this obstacle and the formation of culturally familiar Black online spaces, such as Black Twitter.

Overall, I am happy with the results of the projects I have completed as part of this thesis. *Typerspace* ideally would have been completed and released by this point, but the development team has a schedule in place to finish development over the summer. Aside from this logistical issue, development has given me technical experience with new frameworks and I am excited to see how the application helps users once released. I am very happy with the STS thesis, as I believe my research revealed a significant yet under-discussed aspect of the digital divide. To achieve true online equity, it is important for software developers to be aware of this software digital divide and consider it when designing web applications. Thank you to Professor Vrugtman and Professor Ferguson for their contributions to the technical and STS theses, and Matthew Damiata and Benjamin Lapidus for their contributions to the development of *Typerspace*.