Prospectus

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

Advisor

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Introduction

I am disabled, and sometimes I really feel disabled. It does not have to be this way; in fact, our technology has developed in such a way that even those with the most extreme disabilities can coexist in certain environments without impediment – on the same level as their able-bodied counterparts. I know this because for the majority of the time, in my most frequented environments, I do not feel disabled. I feel normal; like everyone else. In my apartment and at newer or refurbished academic facilities, I face no barriers. In these moments I am not disabled and I do not even have to think about accessibility. On the other hand, when I go to play tennis with my friends and the elevator is broken, I have to go all the way around to the back entrance of the facility to access the courts. Even worse, when I go to get my mail and the package room of my apartment is filled with mail strewn across the floor, I simply turn around and go back to my apartment because my wheelchair can not fit in the mailroom. For lack of a better word, it sucks.

In my case, I know that I live with a lot of privilege. Countless disabled Americans do not have the privilege to live in or around newer facilities with improved accessibility. For them, the helpless feeling of struggling with seemingly mundane tasks is ingrained in their daily lives. The point is, infrastructure defines my and many others disabilities – it produces it. With this in mind, countless advocates and persons with disabilities fought, and in 1990, President George Bush signed the Americans with Disabilities Act (ADA) – the world's first comprehensive civil rights law for people with disabilities.

Through ADA, the lives of those with disabilities slowly improved with a new precedent being set for enforced accessibility standards. In today's climate of an increased demand for equity and inclusion as well as the means to achieve it, I am motivated to inquire into ADA and its impli-

cations as well as inadequacies today. How has the Americans with Disabilities Act addressed the marginalization of people with physical disabilities, and how can current approaches adapt to evolving accessibility needs in today's society? In this Prospectus, I will outline my STS paper which will attempt to answer this question; an answer that I hope will help to highlight improvements that can be made to ADA and in turn reduce the marginalization of those affected by physical disabilities. In an unrelated vein, I will discuss my technical project which will be centered around redesigning a capstone project for Computer Science majors that will replace the current system put in place at The University of Virginia.

Technical Project

As it currently stands, a UVA Computer Science student in the Engineering School must produce a Capstone project that fits into two categories – Experiential or Proposal. The former has the student describe an experiential learning event that was an outgrowth of their UVA program, internship, development project or non-profit volunteer effort; or offered value to a specific organization, group or community-at-large. The latter is a proposal that explains how to solve a given problem using a new, different or enhanced CS-related approach; provides a meta-study review on a CS related topic; or develops recommendations for enhancing the value of the UVA CS program or course through redesign or enhancement. I provide this explanation of the options available to UVA CS students because my technical report will be a proposal aimed at redesigning the Capstone requirement for UVA CS students.

For engineers at UVA who are not Computer Science students, the final capstone is something that is brimming with passion and ingenuity, challenging the engineering and creativity skills that

were developed over the four years spent at UVA. For many UVA students, that very same Capstone is oftentimes a throwaway done simply to satisfy graduation requirements. Where the other engineering majors have small class sizes, allowing them to embark on year long group passion projects aimed at creating a real impact or flexing their skills with the close mentorship of a faculty member from their department, the CS students whose class size far exceeds the other majors are logistically incapable of doing the same type of Capstone. As a result, the majority of CS students (those without research positions or high impact internships) are unable to do a Capstone project that achieves the very essence of what an engineering Capstone project should be – hands-on engineering. Many CS students do not end up creating or engineering anything tangible for their project and are left with a Capstone project that is little more than words on paper. But this, per the CS Capstone requirement, fulfills the same graduation requirement as the other engineering majors tangible, applied engineering projects do.

In my opinion, the current iteration of the UVA CS Capstone project does a disservice to countless students at UVA. Students who have the skills to make real change and impact if their Capstone, which should be the culmination of four years of education, allowed it. The final product of my technical project will be a comprehensive meta-analysis of capstone projects for CS students across the nation, allowing me to create a roadmap for the ideal capstone project for UVA to implement for its CS students. This will be a capstone project that is wholly separate from that which is used by the other engineering majors. It will be personalized to the CS department at UVA, accounting for its size, necessary oversight, and skill set of the UVA students with the hope to spark change in the way that UVA currently defines the CS Capstone project.

STS Project

What We Know

The Americans with Disabilities Act (ADA) of 1990 and its subsequent amendments (ADAAA) in 2008 aimed to establish comprehensive rights for individuals with disabilities, addressing various forms of discrimination and setting accessibility standards in public and private sectors. The ADA established a framework based on civil rights principles, ensuring that individuals with disabilities could access public spaces and services, while the ADAAA expanded protections and clarified the definition of disability to cover a broader range of impairments (Emens, 2012). Researchers have explored the ADA's successes and limitations, particularly in employment, where studies highlight the act's mixed impact on hiring practices. While the ADA sought to empower individuals with disabilities, judicial interpretations have sometimes constrained its scope, leading to inconsistent enforcement (Barry, 2010).

Scholars emphasize that the ADA has influenced not only the physical design of public spaces but also the social context of accessibility, as highlighted by the development of accessible infrastructure in urban planning. For example, some studies suggest that zoning laws, when adjusted to accommodate inclusive design, significantly improve accessibility and community integration for people with disabilities (Malloy, 2015). Additionally, inclusive design practices such as incorporating accessible public transit and pedestrian infrastructure can support broader societal participation, which is essential for creating more equitable communities (Malloy, 2015).

However, the ADA's impact on changing public attitudes towards disability is still debated. Some researchers argue that while physical accessibility has improved, attitudinal shifts lag, lead-

ing to ongoing stigma and a limited understanding of disability as a societal, rather than an individual, issue (Monteleone, 2020). Furthermore, local governments often prioritize short-term financial considerations over sustainable accessibility, underscoring a persistent gap in fully integrating disability rights into mainstream infrastructure planning (Malloy, 2015).

What We Do Not Know

Despite the ADA's achievements, questions remain about its comprehensive effectiveness and adaptability. Key uncertainties include understanding how well the ADA addresses the evolving needs of individuals with disabilities, especially as society's infrastructure and demographics change. For instance, there is limited knowledge about the enforcement mechanisms at local and federal levels and how these vary by jurisdiction, leading to inconsistent accessibility standards. Moreover, while the ADA and ADAAA have set a foundation, the scope of the law's reach—particularly in digital accessibility and emerging forms of public space—is underexplored (Burgdorf Jr., 2008).

Current discourse in disability studies also questions whether the ADA's emphasis on physical accommodations is sufficient in addressing broader societal barriers, such as economic disparities and access to technology. Additionally, scholars debate how to enhance ADA policies to better support marginalized subgroups within the disabled community, including racial minorities and economically disadvantaged individuals, who face compounded accessibility issues that the ADA does not adequately address (Emens, 2012).

Methods

To address these questions, this study will employ two main methodologies:

- **Meta-Review of Existing Literature:** By synthesizing findings from approximately 20 sources on ADA enforcement and impact, this review will highlight common themes, divergences, and knowledge gaps. This approach will examine what current research says about the ADA's efficacy, with particular focus on trends in accessibility, employment, and attitudes toward disability. The review will allow for a thematic analysis of how the ADA's goals align with its real-world outcomes and identify specific areas where policy improvements are necessary.

- **Discourse Analysis:** This method will delve into the rhetoric surrounding ADA advocacy, particularly examining perspectives before, during, and after the ADA's enactment. By analyzing how disability and accessibility were framed in policy and advocacy, this approach will reveal gaps in coverage and persistent barriers that continue to affect individuals with disabilities. This analysis will also explore who the ADA primarily serves, addressing ongoing debates over which disabilities are most visible within policy implementation and how to more inclusively define and support the disabled community.

These methodologies will contribute to a better understanding of the ADA's current strengths and limitations, offering insights into how policies might evolve to meet today's accessibility demands and demographic changes.

Conclusion

Technical Project

The current capstone model for UVA Computer Science students lacks the hands-on, impactful experience found in other engineering disciplines. By redesigning the capstone to better match

the size, needs, and skill sets of CS students, this project aims to transform the capstone into a meaningful culmination of their education. Implementing a more tailored, experiential approach could not only elevate the students' learning and engineering experience but also enhance their preparation for real-world challenges. A reimagined capstone would empower students to apply their skills in impactful ways, ultimately benefiting the UVA CS community and its stakeholders by fostering innovation and practical expertise.

STS Project

The ADA and its amendments have been crucial in establishing accessibility standards, yet significant gaps remain. While physical accommodations have increased, attitudinal shifts and comprehensive enforcement lag, leaving many disabled Americans still marginalized in essential aspects of daily life. This study highlights that the ADA's framework, although foundational, requires adaptation to address evolving societal and technological needs. Addressing these gaps could significantly improve quality of life for disabled individuals by expanding accessible spaces and tackling economic and social barriers more effectively. Society benefits when everyone, regardless of ability, has equal access; ensuring that the ADA evolves to meet contemporary needs is essential for a truly inclusive future.

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