Thesis Project Portfolio

Evolving UI Design: CNN's Article Elevate

(Technical Report)

The Evolution of Web Design: Innovations, Accessibility, and Ethical Considerations

(STS Research Paper)

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Rashid Bah

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Department of Computer Science

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Executive Summary

Introduction

My Capstone project and STS research paper both explore how modern web platforms are designed to balance innovation with accessibility. These projects share a common concern: how user experience is shaped by both technical choices and broader social forces. My Capstone focused on hands-on software engineering during my internship at CNN, where I worked on a large-scale UI redesign. The STS paper offered a critical lens on similar issues, examining how design trends, accessibility standards, and organizational goals intersect. As I progressed through both, I began to see how theory and practice inform each other. My technical work gave depth to my research, while the research helped me think more critically about the implications of my code. Working on these projects together revealed that thoughtful web development requires more than just technical skill—it calls for an understanding of the human and institutional dynamics that influence design decisions.

Front-End Innovation at CNN

The capstone project involved optimizing key components of CNN's digital platform to improve accessibility, responsiveness, and maintainability. As part of the Web Foundations Team during my internship, I worked on large-scale user interface updates using CNN's proprietary Stellar framework, a modular front-end system that supports scalable and flexible development. One of my core responsibilities was the complete redesign of CNN's navigation bar, which required balancing uniformity across the platform with the distinct visual identities of site sections like CNN Crime. This work demanded a deep understanding of responsive design principles, as well as strong collaboration with cross-functional teams including product managers, designers, and other developers. Additionally, I helped implement custom JavaScript

functions that reduced over 1,000 lines of redundant code and allowed for dynamic updates to article elements without requiring full component rewrites.

Beyond technical development, my contributions included improving internal documentation for the Stellar framework and participating in agile development processes such as ticket grooming and iterative testing. These practices ensured that design decisions were aligned with editorial goals and brand standards, while also enabling quick feedback cycles and continuous refinement. The navigation bar and other redesigned components are now live on CNN's website, and further A/B testing is planned to assess website performance metrics. This experience revealed the complexities of large-scale front-end engineering, particularly the importance of building inclusive, future-ready interfaces that can evolve with user needs. The project not only sharpened my technical skills but also taught me how thoughtful, collaborative design can directly impact user experience at scale.

Accessibility and Ethics in Web Development

My STS research paper investigates how web development practices have evolved alongside shifting expectations for accessibility, usability, and technological innovation. Through a case study of CNN's "Article Elevate" project, I explored how modern UI/UX strategies attempt to balance user engagement with inclusive access, and how design decisions are shaped by both technical limitations and institutional incentives. Drawing on Actor-Network Theory (ANT) and Technological Momentum, the paper analyzes how various human and non-human actors—developers, business executives, accessibility standards like WCAG 2.1, and legacy code infrastructure—interact to guide the direction of platform redesigns. ANT allowed me to examine the power dynamics and stakeholder negotiations that influence which features get prioritized in real-world development settings, while Technological Momentum helped explain

why certain interface conventions—like nav bars, dropdowns, and component hierarchies—persist even as new, more adaptive technologies become available.

Rather than focusing solely on innovation or aesthetics, the paper explores how accessibility emerges as a complex outcome of competing technical goals, user needs, and organizational pressures. While guidelines such as WCAG 2.1 provide a baseline for inclusive design, I found that true usability depends on continuous iteration, stakeholder collaboration, and a commitment to scalable, maintainable development practices. My research demonstrates how accessibility is not a one-time fix, but an ongoing process shaped by the evolving dynamics of the web.

Concluding Reflection

Working on both the Capstone project and the STS research paper at the same time provided me with a uniquely holistic understanding of what it means to build meaningful digital experiences. The Capstone gave me the opportunity to apply technical skills in a real-world engineering environment—writing code, solving design problems, and collaborating within agile workflows—while the STS paper gave me the critical space to reflect on the larger ethical, institutional, and societal forces that shape how and why those technical decisions are made. This dual engagement helped me move beyond thinking of code as just functionality and instead begin to understand it as something deeply situated within human values, user needs, and organizational dynamics.