Final Project Report

Laptop L: 1440px
Mobile (Samsung Galaxy S20 Ultra): 412px x 915px

Part 1: Description

This website is a comprehensive **design portfolio** that highlights my expertise as a product designer. It's a curated display of **past projects**, showcasing my problem-solving and design skills while **engaging users through its content and micro-interactions**. It's designed primarily for **hiring managers** in the industry for when I search for a job and peers/coworkers would be considered the secondary target audience.

Part 2: Interactions

- Every **link has a hover state** that will trigger upon mouse hover, revealing a white underline animation. Links include:
    - Home page
        - Email (desktop window size, top center): margaretlu.2018@gmail.com ↗
        - Resume (top right, desktop window size, top right): resume ↗
        - Discover project ↗ (desktop window size, top page, bottom right)
    - Project pages
        - ← return home (stickied top right/top left of page)
        - Other projects, every project (NCR VOYIX, Oxygen, Design Bloc, Capstone)
    - Every page
        - Footer (Email, Resume, read.cv, Linkedin)
- **3D interactive element** using Three.js on home page
    - With a mouse, users can left click to rotate the object and right click to pan
    - On Mac trackpad, users can left click to rotate the object and hold shift + left click to pan (did not test controls on Windows laptop)
    - On mobile (specifically Android with Opera browser), users can drag to rotate the object and two finger drag to pan
- **Discover project ↗ element** on home page
    - Particularly useful for mobile site to bring users to the project section of the page by clicking on the link as swiping will rotate the 3D object
- **Scrolling** on every page for the first time
    - Triggers a delayed scroll reveal animation for every element on the page
- **Entering a new page**

    - Content will slowly reveal through a delayed scroll reveal animation for smoother transitions
- Every project page (NCR VOYIX, Oxygen, Design Bloc) clicking on the same project (as indicated with an up arrow) in the “Other Projects” footer will **bring users to the top of the page**

Part 3: External Tools

- [JS Library] Three.js
    - **Why**: Build an interactive 3D element for enhance user experience while also delivering my message as a designer
    - **How**: Built the cube in Spline and exported the Three.js code, adjusted the position within the `html` and user controls such as rotation and panning, also disabled zooming and adjusted the camera position
    - **Addition**: Adds a new level of interactivity and references back to my background in industrial design, and conveys how I transitioned from a physical product designer to a digital product designer
- [JS Library + Animation] ScrollReveal
    - **Why**: Have a smoother user experience throughout the website with delayed scroll animation
    - **How**: Used ScrollReveal guide to install using `<script src="https://unpkg.com/scrollreveal"></script>` and adjusting the default `reveal()` function with the options (`delay`, `distance`, `duration`, `easing`, `opacity`, `interval`) from their API
    - **Addition**: Adds a micro-interaction that engages users and enhances their experience, also has smoothing so it isn’t jarring for the user or sterile
- [Animation] Link hover states
    - **Why**: Implemented as a feedforward element to let users understand that this is a link that can direct them to a different location, paired along with the arrow signifier to better help users navigate the website
    - **How**: Through CSS (used SCSS for the project) hover state animation, code can be found in `main.scss`

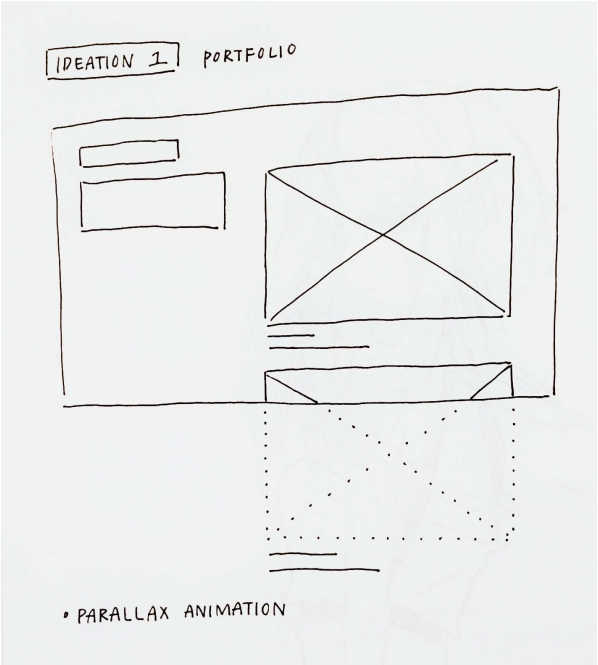
```scss
// When hovering over a link, an underline animation will occur
.link-hover {
    &::before {
        content: "";
        position: absolute;
        width: 100%;
        bottom: -3px;
        left: 0;
        height: 2px;
        background-color: $white;
        transform: scaleX(0);
        transform-origin: top left;
        transition: transform 0.3s ease;
    }

    &:hover::before {
        width: 100%;
        transform: scaleX(1);
    }
}
```

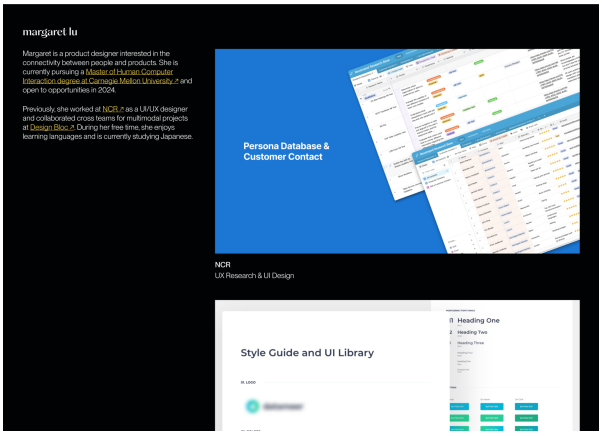
    - **Addition**: Acts as a feedforward elements to allow users to understand that clicking on this will navigate them to a different location in the website, pairing well with the arrow signifier to let users know that this is a link
- [Other: Front-end Framework] Bootstrap
    - **Why**: Used for quickly setting up responsiveness and some CSS stylistic choices such as margins and font sizes
    - **How**: Installed via their website and implemented throughout the website, especially in places where flexbox could have been used for multi-column content such as the navigation and footer
    - **Addition**: Acted as a base for the website from a stylistic perspective, which allowed the website to feel more cohesive right from the beginning without defining a lot of CSS properties
- [Other: Iconography Library] Google Material Design Icons
    - **Why**: Needed iconography to indicate certain information without using more text, as it would have looked more cluttered and harder to parse
    - **How**: Pulled a specific icon through the Google Materials Design System's iconography library through their embedded feature
    - **Addition**: Adds the ability for users to process information quicker and without the need of cluttering the website with more text. Only used to indicate that the capstone project is currently locked, and people cannot access it.
- [Other: CSS Extension] SCSS
    - **Why**: To be able to take advantage of variables and nesting. Allowed for easy reuse of stylistic elements while decreasing the time needed to change elements when developing
    - **How**: Installed via website and used for organizing CSS via variables and nesting. It allowed for quicker changes in style via the variables I defined, and nesting allowed repeat of styles to be consolidated
    - **Addition**: It added all the visual stylizing I needed that differed from Bootstrap's default styles. However, it was significantly easier to manage and adopt new changes when needed.

Part 4: Prototypes Iteration

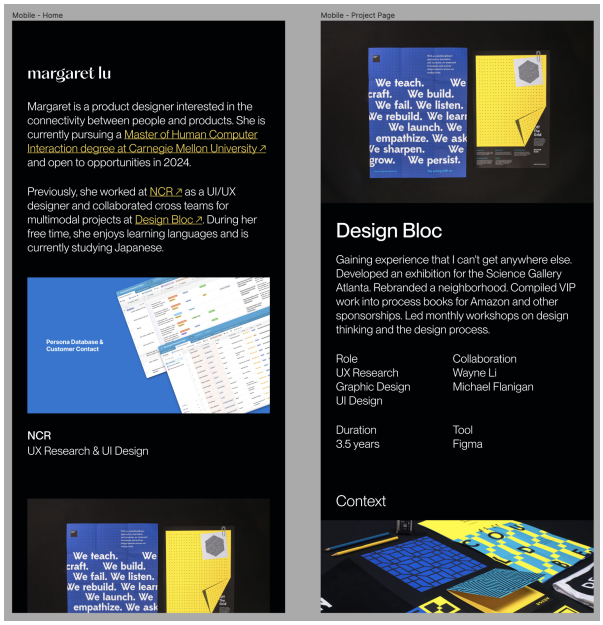
The initial idea was to have a multi-column website that allowed users a quicker way to skim through all the content as the primary target audience (hiring managers/designers) don't spend a lot of time looking at the website in great detail.



Inital sketch of the website portfolio

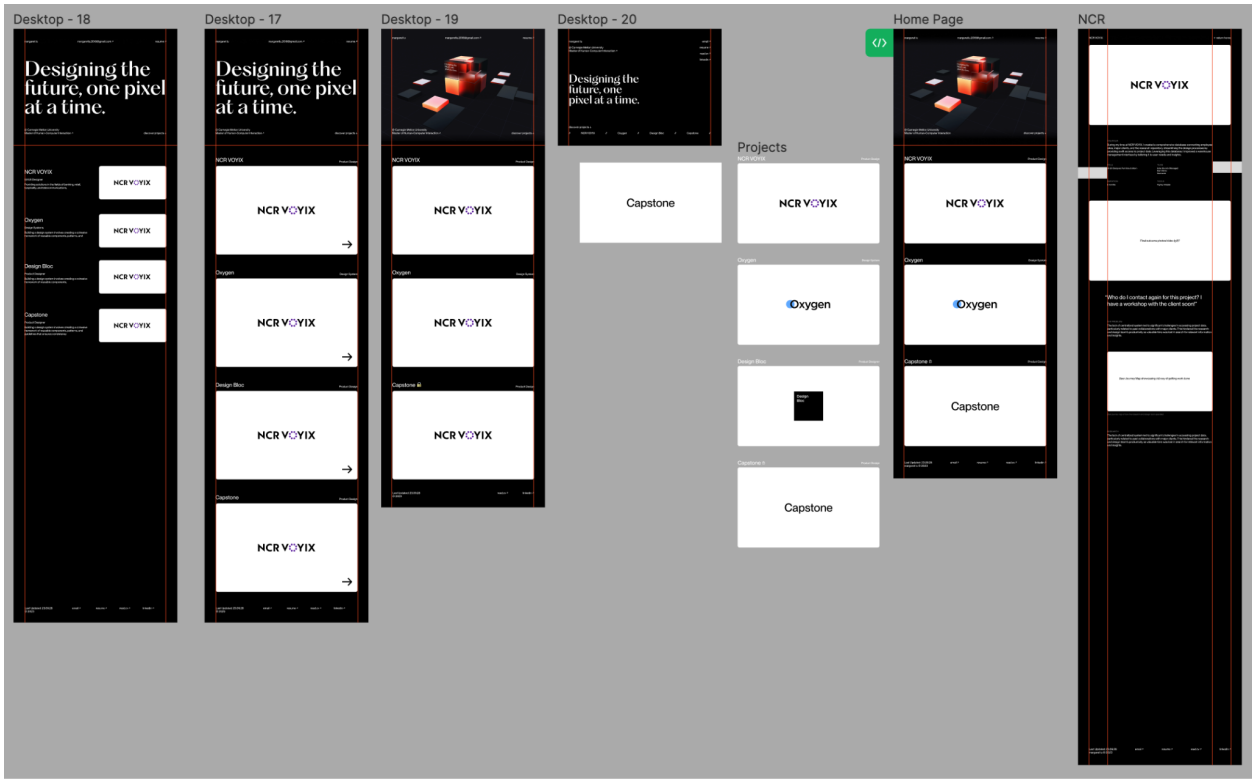


Mid-fidelity prototype of home page



Mid-fidelity prototype of mobile for responsiveness

I followed my initial design into the mid-fidelity prototype; however, after user testing, I had many comments related to how **the lack of white space** (or in this case would be black space) was limited **making the text harder to parse**. With this in mind, I decided to **redesign the visual style of the website to better suit chunking content** (information processing).



Process of the redesign with the final high-fidelity prototype at the very end

After redesigning based on user feedback, I did another round of testing and the general consensus was that **it was much easier to read** with the same amount of information. I adjusted the margins and paddings to increase the spacing between contents to improve skimming, and highlighted important quotes and information by increasing the font size. With the **increase in target salience**, it allowed for a **more comfortable user experience**.

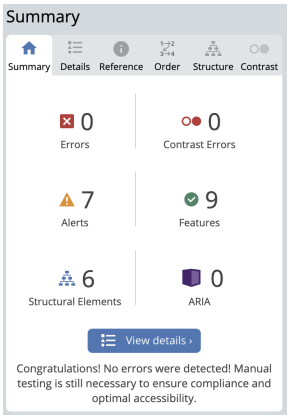
Part 5: Challenges

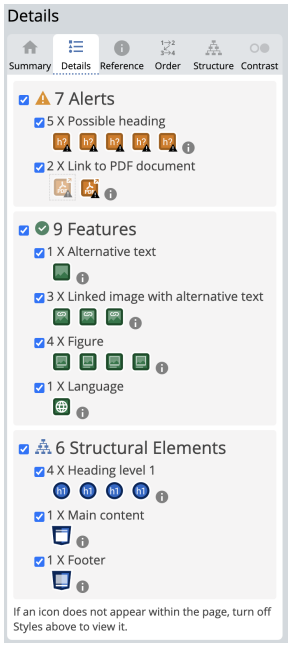
My biggest challenge was related to the **3D interactive element on the home page** at the very top since it was my first time using a JS library. While I did build the object in Spline and it did have an export-to-code feature, this was still in beta and the exported code wasn't perfect. I had many **bugs related to positioning of the physical element itself and many of the controls to interact with the object** as well. Even after fixing all the camera angles and disabling the ability to zoom as it coincided with scrolling, I had to **test it on mobile** as well, which was a nightmare in the beginning. Nothing was positioned correctly

on the infinite canvas, and I couldn't figure out how to scroll on the website since it kept registering my swipe as a rotate gesture. In the end, I **added a discover project button** that **linked internally** to the project list, which solved the major scrolling issue. Overall, I spent most of my time debugging this feature and every other problem seemed minor in comparison.

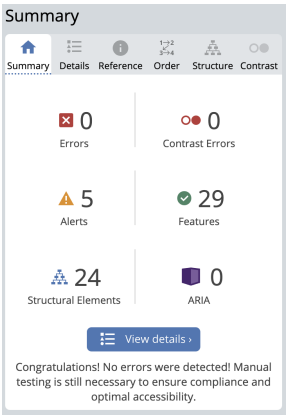
Appendix

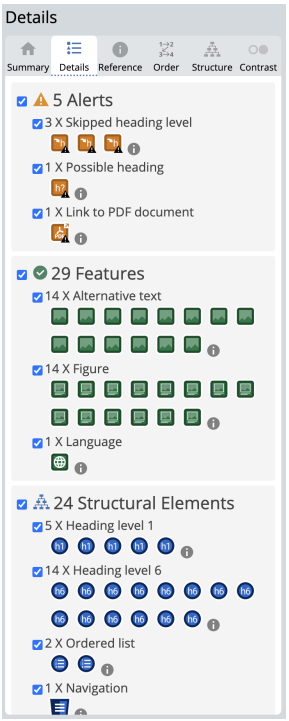
Home Page WAVE Report





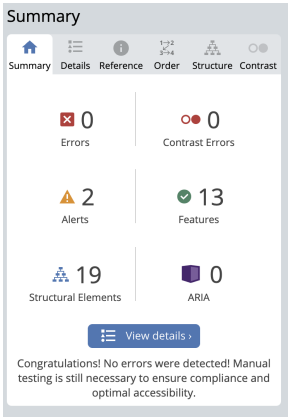
NCR VOYIX WAVE Report





Oxygen WAVE Report

Design Bloc WAVE Report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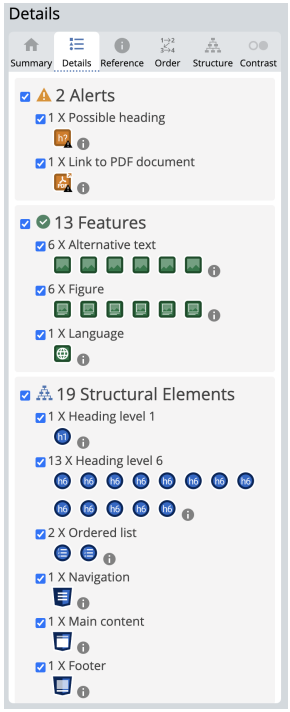
Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.


Details
Summary
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Structure
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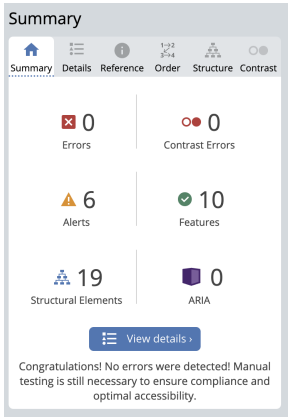
2 Alerts
1 X Possible heading
1 X Link to PDF document
13 Features
6 X Alternative text
6 X Figure
1 X Language
19 Structural Elements
1 X Heading level 1
13 X Heading level 6
2 X Ordered list
1 X Navigation
1 X Main content
1 X Footer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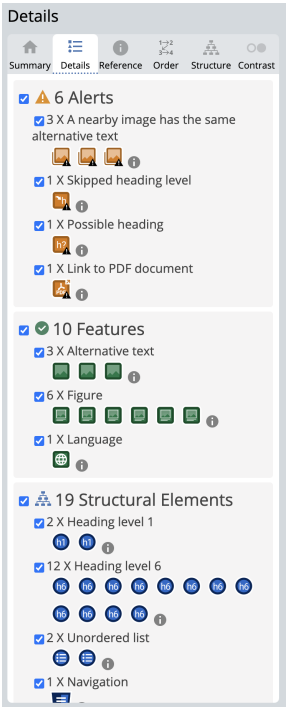
Details
Summary
Details
Reference
Order
Structure
Contrast
6 Alerts
3 X A nearby image has the same alternative text
1 X Skipped heading level
1 X Possible heading
1 X Link to PDF document
10 Features
3 X Alternative text
6 X Figure
1 X Language
19 Structural Elements
2 X Heading level 1
12 X Heading level 6
2 X Unordered list
1 X Navigation