

Portfolio Website Design Report

Author: Bui Quang Viet An

Date: November 2025

Live URL: alexan75541.github.io/HtmlPortfolio

Repository: github.com/alexan75541/HtmlPortfolio

1. Technical Overview

1.1 Technology Stack

Built using HTML5 and CSS3 without frameworks or JavaScript dependencies. The site uses CSS3 Level 3 features including flexbox, grid, and custom properties.

- **HTML5:** Semantic markup for structure and accessibility
- **CSS3:** Styling with flexbox (CSS Flexible Box Layout Module Level 1), CSS Grid Layout Module Level 2, and CSS Custom Properties (CSS Variables)
- **Google Fonts API v2:** Dosis font family (700 weight) for typography
- **GitHub Pages:** Static site hosting with relative path configuration

1.2 Key Design Features

- **Glassmorphism Effect:** Navigation bar uses `backdrop-filter: blur(12px)` for frosted glass appearance
- **Flexbox Layout:** Vertical stacking with `flex-direction: column` for consistent page structure
- **CSS Variables:** Centralized color scheme for easy theme management
- **Responsive Grid:** Auto-fitting project cards using CSS Grid
- **Optimized Assets:** Background image compressed to 25% of original size for faster loading

2. Responsive Testing

2.1 Mobile Testing (320px-480px)

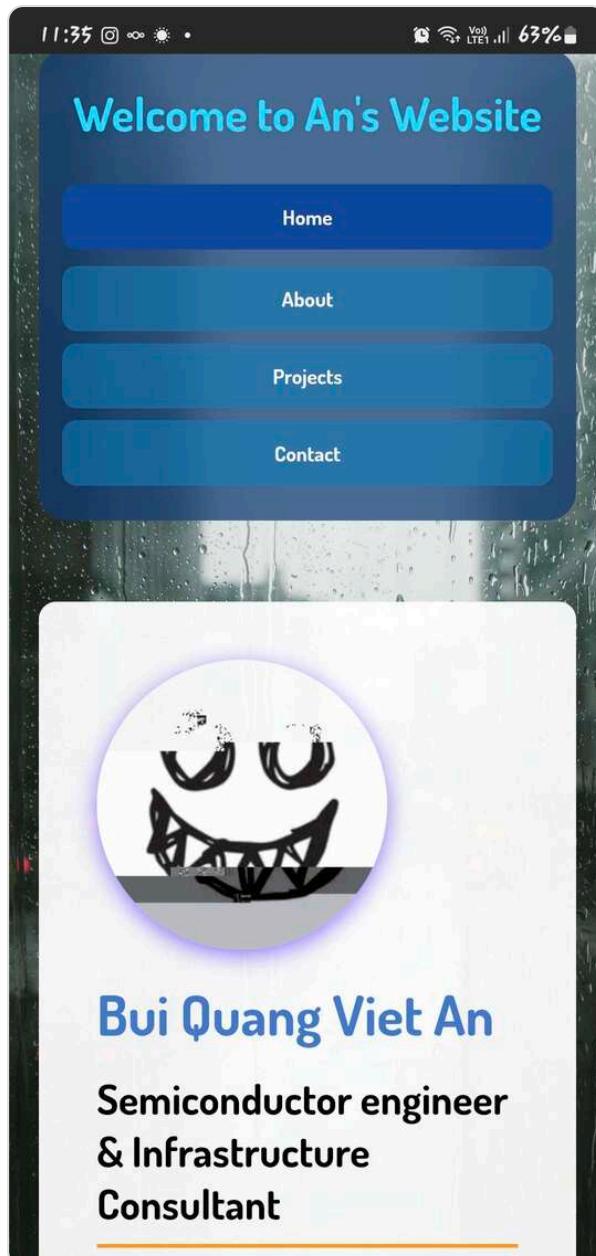


Figure 1: Mobile viewport with vertical navigation

Mobile Behavior:

- Navigation buttons stack vertically for easier touch interaction
- Content containers expand to full width
- Font sizes scale down using `clamp()` function
- Project cards display in single column layout

2.2 Desktop Testing (1200px+)

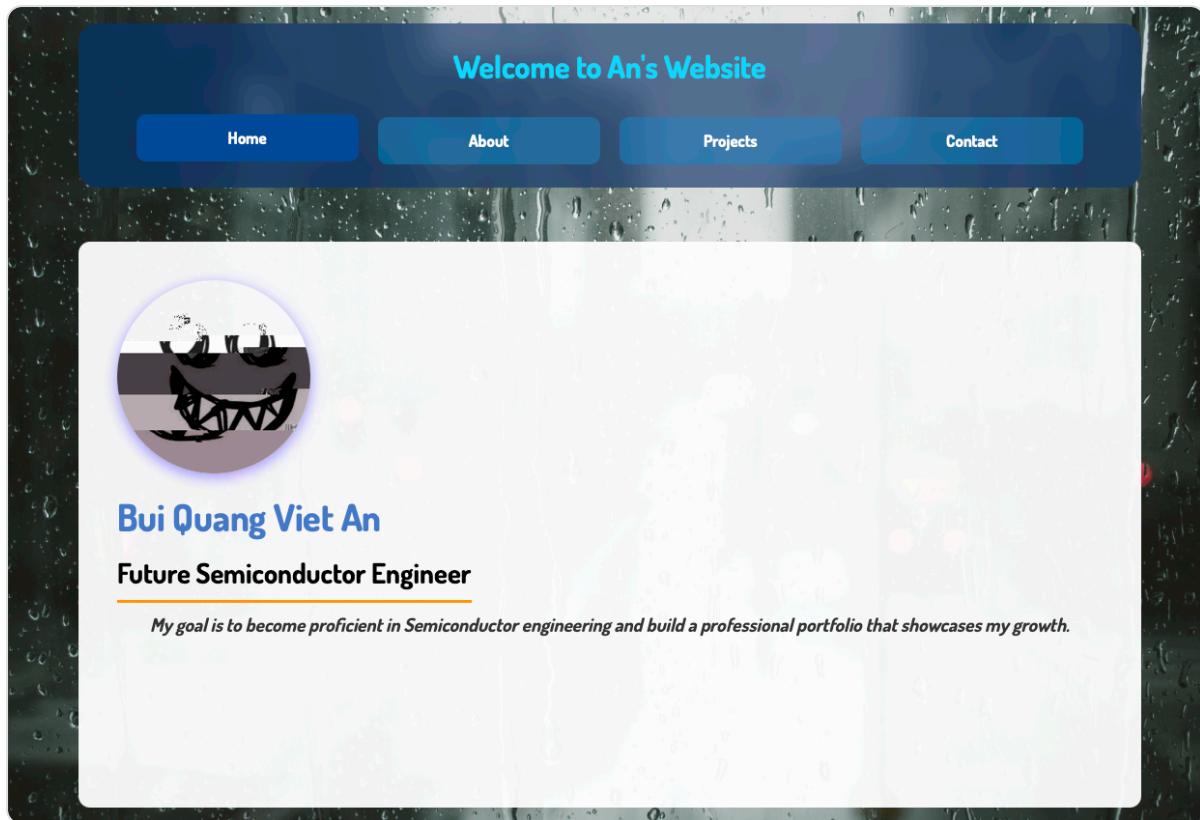


Figure 2: Desktop viewport with horizontal navigation

Desktop Behavior:

- Navigation buttons arranged horizontally across header
- Content centered with max-width of 1100px
- Project cards display in multi-column grid layout
- Hover effects on interactive elements (buttons lift up 3px)

2.3 Browser Compatibility

Tested successfully on Chrome, Firefox, and Safari (desktop and mobile versions). The `backdrop-filter` property works on all modern browsers. Note: Chromium versions below 85 may have rendering issues with `flex-direction: column`.

3. Project Architecture

3.1 Project Scope

Multi-page static website built from single-page portfolio. Implementation uses HTML5 and CSS3 without JavaScript. Structure includes four pages with navigation system.

3.2 Page Structure

- **index.html:** Homepage containing tagline and introduction text.
- **about.html:** Biography section with profile image and skills list.

- **projects.html**: Grid layout containing three project cards (image, description, button element).
- **contact.html**: Contact information with icon elements.

4. Implementation

4.1 HTML5 Semantic Structure

Uses semantic elements like `<nav>`, `<header>`, `<main>`, and `<footer>` for accessibility and SEO. All pages follow a consistent structure with heading hierarchy.

4.2 CSS3 Flexbox

Applied throughout the site for flexible layouts. The body uses `display: flex` with `flex-direction: column` to push the footer to the bottom. Navigation menu uses flexbox for horizontal alignment on desktop.

```
body {
  display: flex;
  flex-direction: column;
  min-height: 100vh;
}
```

4.3 CSS Grid for Projects

Project cards use CSS Grid with `auto-fit` to automatically adjust columns based on screen size. Each card is minimum 280px wide and expands to fill available space.

```
.projects-grid {
  display: grid;
  grid-template-columns: repeat(auto-fit, minmax(280px, 1fr));
  gap: 2rem;
}
```

4.4 Backdrop Filter Glassmorphism

The navigation header uses `backdrop-filter: blur(12px)` (CSS Backdrop Filter Effects Level 1) combined with semi-transparent background (`rgba()`). This property blurs the content behind the element.

```
.header-wrapper {
  background: rgba(8, 54, 110, 0.7); /* 70% opacity blue */
  backdrop-filter: blur(12px); /* Blur background */
  border-radius: 20px;
```

```
    width: 90%;  
    max-width: 1100px;  
}
```

4.5 Fluid Typography with clamp()

Font sizes and spacing use the `clamp()` function (CSS Values and Units Module Level 4) to scale between minimum and maximum values based on viewport width.

```
.navigation-menu a {  
    font-size: clamp(0.9rem, 2.2vw, 1.05rem);  
    /* Min: 0.9rem, Preferred: 2.2% of viewport, Max: 1.05rem */  
    padding: clamp(8px, 1.6vh, 14px) 0;  
}
```

4.6 Responsive Breakpoint

Navigation adapts to screen size using a single media query at 520px:

```
@media (max-width: 520px) {  
    .navigation-menu {  
        flex-direction: column; /* Stack vertically on mobile */  
    }  
}
```

4.7 Navigation System

Navigation bar implemented across all pages using `<nav>` element. Current page indicated with `.active` class applying CSS transforms and background color changes.

```
.navigation-menu a.active {  
    background: #084a9a;  
    transform: translateY(-3px);  
}
```

4.8 Layout System

Uses CSS Flexible Box Layout Module Level 1 and CSS Grid Layout Module Level 2. Media query breakpoint set at 520px for viewport adaptation.

```
@media (max-width: 520px) {  
    .navigation-menu {  
        flex-direction: column;
```

```
    }  
}
```

4.9 SEO Configuration

Each page includes `<title>` element, `<meta name="description">` tag, and favicon link with `type="image/x-icon"`.

```
<link rel="icon" href="./assets/favicon.ico" type="image/x-icon">
```

4.10 Google Fonts Integration

Imported Dosis font (700 weight) via CSS `@import` from Google Fonts CDN.

4.11 GitHub Pages Deployment

Relative paths updated to `../content/` for routing on GitHub Pages. Repository configured with `index.html` at root for deployment.

4.12 File Organization

External stylesheet located at `css/style.css`. Image assets stored in `assets/` directory. All pages reference external CSS using `<link rel="stylesheet">`.