

# Alan Zhang

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## Education

**University of Maryland - College Park**

Expected May 2025

*Bachelor of Science in Computer Science*

*College Park, MD*

- **Relevant Coursework:** Algorithms, Artificial Intelligence (AI), Organization of Programming Languages (Ocaml, Python, Ruby, Rust), Object-Oriented Programming (Java), Computer Systems (C), Discrete Structures (Theory)

## Projects

**Web Portfolio | Next.js, GSAP, SCSS, React, JavaScript**

[Web Portfolio Link](#) | [GitHub Link](#)

- Developed a dynamic online portfolio using Next.js to showcase full-stack development projects, technical skills, and relevant experience.
- Leveraged advanced JavaScript and React features (components) to create interactive elements and enhance website functionality.
- Utilized Resend and React email for the contact form functionality. Employed Sass for styling, helping to preserve modular and maintainable CSS.

**Topflight Tracker | Next.js, GSAP, Axios, SCSS, JavaScript, React, Redis**

[Topflight Tracker](#) | [GitHub Link](#)

- Developed a comprehensive football tracking application using Next.js, displaying real-time standings, fixtures, and results for top European leagues.
- Implemented server-side rendering (SSR) to optimize API calls to Football Data API, minimizing client-side load and enhancing app performance.
- Utilized Axios for API requests, ensuring efficient data fetching from football leagues, while managing API rate limits through caching strategies.
- Integrated Redis for caching API responses, reducing redundant API calls and improving load times by storing league data and news updates for a defined period.

## Experience

**Research Assistant Intern**

August 2024 – Current

*@Temple University*

*Remote*

- Engaged in academic research related to Software-Defined Networking (SDN), focusing on the separation of control and data planes, enhancing network flexibility, and understanding SDN's role in simplifying complex network configurations.
- Contributed to the analysis of SDN architecture, including its use of OpenFlow to manage network traffic dynamically and securely through a centralized controller, allowing for efficient packet forwarding.
- Reviewed recent advancements and challenges in SDN technologies such as programmability, flexibility, and control-plane centralization, highlighting areas for further research and practical implementations.

**Software Developer Intern**

April 2024 – August 2024

*@MindHome*

*Remote*

- Worked on updates and enhancements to the company website, leveraging React for web application portions and React Native for mobile optimizations.
- Contributed personal insights and recommendations for leveraging React to enhance aesthetics and functionality of our web application.
- Collaborated closely with a team of interns to develop and refine React application projects, enhancing project outcomes through effective teamwork.
- Gained foundational skills in robotics programming by engaging with Linux and Python, gaining practical experience in developing and testing automated solutions.

## Technical Skills

**Programming Languages:** JavaScript, Python, Java, C, C#, Rust, Ocaml

**Web Technologies:** React.js, Next.js, Node.js, GSAP, Tailwind CSS, Three.js, HTML, CSS, Hooks API

**Software and Tools:** MATLAB, RStudio, GitHub, Microsoft Office, Excel

**Concepts:** Data Structures, Algorithms, DOM Manipulation, Complexity Analysis, Compiler Design, Operating Systems, Responsive Design, Object-Oriented Programming, Memory Management, Software-Defined Networking (SDN),