

Arnav Rakesh Pant

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OBJECTIVE STATEMENT

A motivated and enthusiastic computer science junior with hands-on experience in object-oriented design, Linux-based systems, and strong problem-solving skills. Seeking an internship opportunity to gain practical experience and contribute to a dynamic organization.

RELEVANT COURSEWORK

CS1114 (Intro to Software Design), CS2104 (Intro to Problem Solving), CS2505 & CS2506 (Computer Organization 1 & 2), CS2114 (Software Design & Data Structures), CS3114 (Data Structures & Algorithms), Linear Algebra, Calculus 1 & 2, Discrete Maths, Physics, Chemistry and Combinatorics, CS3214 (Computer Systems), CS3304 (Comparative Languages)

EDUCATION

Bachelor of Science (BSc), Computer Science (Minor in Finance)
Virginia Polytechnic Institute and State University, Blacksburg, VA, USA

Graduation date: May 2026
GPA: 3.5 / 4.0

EXPERIENCE

Front-End Developer Intern

Aug 2024 - Sept 2024

HorizonLabs

- Designed and implemented responsive web pages using Webflow, ensuring compatibility across multiple devices and screen sizes.
- Collaborated with designers to translate Figma prototypes into pixel-perfect, interactive web interfaces.
- Worked with back-end developers to integrate dynamic content, improving the performance and responsiveness of the web applications.

Power Apps Intern

May 2024 - Aug 2024

Altius Strategic Consulting

- Worked on creating and sorting data using Sharepoint Lists and
- Created a responsive user interface to display uploaded videos and display segmented data processed from the video.
- Improved the UI/UX of the app to enhance the user experience.

Software Engineering Intern

Jun 2023 - Aug 2023

Altius Strategic Consulting

- Developed a sports-based Android application using Java, demonstrating strong object-oriented design skills.
- Created a responsive user interface to display uploaded videos and display segmented data processed from the video.
- Improved the UI/UX of the app to enhance the user experience.

Student Researcher

Jan 2023 - May 2023

Minecraft Museum of Engineering, Virginia Tech, Blacksburg, VA, USA

- Participated in interdisciplinary projects at the intersection of education, art, biology and engineering.
- Developed Minecraft as an education tool for engineering instruction.
- Presented research findings to relevant stakeholders.

CERTIFICATIONS & PROJECTS

Memory Manager and Database Project

- Implemented a memory manager and database using object-oriented principles, involving complex data structures like QuadTree and SkipList.

Quick Sort Functionality Using Buffer Pools

- Developed a quick sort functionality, demonstrating problem-solving skills and efficient memory management.

Personal Web and Video Server

- Implemented persistent connections (HTTP/1.1), HTML5 fallback, and MP4 byte-range streaming.
- Focused on performance and scalability, supporting multiple clients simultaneously.
- Developed a multithreaded HTTP server to serve files, stream MP4 videos, and provide token-based authentication using JSON Web Tokens (JWT).

Fork-Join Thread Pool Framework

- Built a multithreaded work-stealing thread pool to efficiently execute divide-and-conquer parallel algorithms.
- Designed APIs for submitting tasks and managing asynchronous computations using futures.
- Ensured scalability and reduced contention through thread-local queues and a global submission queue.

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QuickSort program

- **Developed a Quicksort implementation with buffer pool management**, optimizing cache hits, disk reads/writes, and execution time. Automated output of sorting statistics to a file for performance analysis.

QuadTree and Skiplist DB Manager

- Designed and implemented Quadtree and Skiplist data structures to enhance performance in spatial data storage and search operations. Focused on efficient insertion, deletion, and querying processes.

SKILLS & COMPETENCIES

Languages	Hindi (Native), English (Native)
Software	MATLAB, C++, Java, Python, RISC-V assembly
Background in	DSA, Data Analysis, OOP, Memory Management, Concurrency
Soft Skills	Problem-Solving, Team Management, Time Management, Project Planning

ORGANIZATIONS

Virginia Tech Artificial Intelligence & Machine Learning Club

January 2023 - Current