Tejas Vishnu

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Education

Bachelor of Computer Science Sept. 2024 - May 2028
Dalhousie University *Halifax, NS*

Relevant coursework: Programming in Java and Object-Oriented Principles, Web Development, Computer Systems, Discrete Mathematics, Data Structures, Database Design.

Projects

RedBall Game Engine | Java, OpenGL, Git Feb. 2026 - Present Github Link

- Architected a 2D game engine from scratch in Java leveraging OpenGL via LWJGL, implementing a GLSL shader pipeline and **batch rendering system** optimized for efficient single-draw-call sprite rendering.
- Built a Unity-inspired editor with a Hierarchy panel, Viewport, Inspector, Asset Browser, and Console, enabling full scene authoring, real-time component editing, and in-editor game playback.
- Designed and implemented an **Entity-Component System (ECS)** with a runtime inspector, allowing components to be dynamically attached and modified during engine execution without recompiling.
- Developed a custom **scripting framework** where user-defined components auto-register in the Add Component menu, supporting extensible game logic without modifying core engine source code.

Distributed File System | Java, Git Feb 2026 Github Link

- Collaborated with a teammate to architect and implement a distributed file system using Java **ServerSockets** to facilitate communication across multiple storage servers.
- Implemented multi-node connectivity supporting file distribution across independent hard disks, improving system **scalability**.
- Designed a centralized file management interface enabling structured access and organization of files across distributed storage nodes.

Custom Malloc Implementation | C, CMake, Azure Pipelines, Git Jan. 2026 Github Link

- Implemented a custom **heap allocator** in C from scratch using sbrk, managing allocations via a linked list of metadata blocks tracking size, free status, and next pointer.
- Supported full allocator functionality including block reuse on free, resize with data preservation, and a debug reporting utility tracking live blocks, total allocations, and leak detection status.
- Configured an **Azure Pipelines CI/CD** pipeline to automatically build and run the test suite on each commit, ensuring allocator correctness across changes.

Skills

Operating Systems & Shell	**Linux (Arch, Ubuntu), Bash (Shell)**
Software & Applications	**Microsoft Office 365** (Word, Excel, PowerPoint, Outlook), Git, GitHub, **Microsoft Azure (CI/CD)**
Languages	**Java, C/C++**, HTML/CSS, JavaScript, **Python**
Backend & Systems	Server-Side Programming, Distributed Systems, File I/O, Multi-threading, Entity-Component Architecture