VEDANT SINGH

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Education

Delhi Technological University	**August 2023 - May 2027**
Bachelor of Technology in Mechanical Engineering (GPA: 7.8/10.00)	*Delhi*
**St. Peter's Inter College	XII**	**2022**
Council for the Indian School Certificate Examination (Percentage: 96.0%)	*Uttar Pradesh*

Work Experience

UGV DTU | Software & Controls Engineer **Sept 2023 - present**

- Engineered and integrated sensor fusion systems (LIDAR, IMU, cameras) into a modular software architecture, enhancing real-time control and reducing latency by 30%.
- Developed and deployed machine learning models for autonomous systems, improving obstacle detection accuracy and optimizing dynamic path planning for efficient navigation.
- Led interdisciplinary teams, collaborating on the deployment of advanced sensor validation techniques in ROS environments, ensuring system stability and robustness.

Projects

Rover for ICMTC-8, Egypt | *4th Overall — 1st in Presentation Category* | Repository **July 2024**

- Designed an advanced autonomous platform, integrating sensor fusion and real-time control systems to achieve precise navigation and obstacle recognition with 20% accuracy improvement..
- Implemented adaptive machine learning algorithms for dynamic path planning, while establishing a 2.4 GHz communication system, enabling reliable 5 km telemetry.
- Architected a scalable software stack, optimizing sensor integration and achieving low-latency data processing, reducing response time by 15%.

Ganita Programming Language | Repository **January 2024**

- Stack used - C++, Assembly, CMake
- Created Ganita, a versatile interpreted and compiled stack-based programming language, tailored for efficient mathematical computations and optimized for both runtime flexibility and execution speed.

Student Testing and Performance Tracking Website | Repository | Link **September 2024**

- Implemented data-driven analytics, allowing educators to easily monitor student progress and adjust learning strategies based on real-time data.
- Facilitating weekly testing and progress tracking for over 100 students, enhancing their academic performance through efficient digital tools

Nim Text Editor | Repository **Dec 2024**

- Developed Nim Text Editor, a lightweight and efficient text editor leveraging the Raylib library, with features like keyboard shortcuts, a command palette, and file operations.
- Open-sourced the project on GitHub, actively engaging contributors and implementing community-driven enhancements.

VanillaNest Game Engine | *Open-Source Project* | Repository **Nov 2024**

- Developing a high-performance game engine in C with a focus on low-latency rendering and mathematical precision, achieved without relying on external math libraries.
- Implemented realistic sunlight simulation and multi-object rendering to enhance visual fidelity and scalability.
- Currently working on reflection systems, including advanced mathematical computations for real-time accuracy and dynamic scene adaptability.

Skills

Programming Languages: C, C++, JavaScript, GoLang, Dart, C#, Python, SQL

Web Technologies: HTML, CSS, React.js, Node.js, Express.js, MongoDB, Mongoose

Tools and Platforms: Git

Soft Skills: Critical Analysis, Process Improvement, Collaborative Development, Technical Communication

Other Skills: Linux, Bash, ROS