

# ANKUSH KAPOOR

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## EDUCATION

**Vidyalankar Institute of Technology**  
*Bachelor of Technology in Computer Engineering*

- CGPA: **10.0** (Semesters 1-4)

**Mumbai, India**  
*Sept 2024 – Present*

Expected Graduation: **2028**

## EXPERIENCE

### Open World Holidays Framework

*Google Summer of Code 2026 Contributor (Python Software Foundation)*

**Remote**

*May 2026 – Present*

- Implementing verified holiday coverage for **India** at **national** level and across all **36 subdivisions** (28 states + 8 UTs), cross-referenced against official government gazettes and calendars.
- Designing **solar and lunisolar calendar generators** to compute Hindu festival dates including **Diwali, Holi etc.** using tithi, paksha and sunrise-based rules enabling scalable date generation across extended year ranges.
- Expanding multilingual localization support across **10+ Indian languages**.

*Open Source Contributor (GWOc Rank 7/2300+) & Sponsored Contributor*

*Jan 2025 – June 2025*

- Achieved **Rank 7 out of 2300+ contributors** in Google Winter of Code (GWOc) '25; top-tier performance led to a **sponsored task** to implement **Mongolian holidays**.
- Engineered a **lunar calendar** to compute **Mongolian** holidays, while extending pre-existing date systems to support complex holiday logic for **India** and **Nepal** to support **249 countries** in the library with **20M+ monthly PyPI downloads**.
- Added Hindi and Mongolian translations for native-language accessibility across regional users.

## PROJECTS

**BaseKernel (Custom 32 bit Kernel) | C, NASM, QEMU**

[GitHub](#)

- Built a **32-bit protected mode** kernel from scratch, **bootstrapped** from **real mode**.
- Implemented **bootloader, GDT, IDT, ISR, and IRQ** handling for low-level system control.
- Added **memory paging, screen output** along with a **Round Robin scheduler** to enable fair CPU time allocation across tasks.
- Developed entirely without standard libraries to achieve bare-metal execution.

**Transformer From Scratch (Neural Machine Translation) | Python, PyTorch**

[GitHub](#)

- Developed a complete **Transformer architecture** from scratch using **PyTorch**, manually building **multi-head attention, encoder-decoder blocks, and positional encoding**.
- Trained a bilingual NMT model on **OPUS Books** using **greedy and beam search** decoding, implementing **learning-rate warmup** and **label smoothing** for optimized convergence.
- Evaluated performance using **SacreBLEU, WER, and CER** metrics, utilizing **TensorBoard** for experiment tracking and checkpointing logic.

**Alloc (Custom Memory Allocator in C) | C, NASM**

[GitHub](#)

- Created a 32-bit allocator mimicking **malloc()** and **free()** over a 1 GB virtual heap.
- Implemented **alloc(bytes)** to allocate memory in words by taking size in bytes as input.
- Added **destroy()** for secure deallocation with memory zeroing to prevent data leakage, ensuring data privacy.
- Built packed headers, manual tracking, macros for KB/MB/GB allocation, and a **show()** debugger.

## TECHNICAL SKILLS

**Languages:** C, Python, Assembly, Java

**Tools and platforms:** Git, GitHub

**Database:** MySQL

**OS:** Linux (Ubuntu, WSL), Windows

## EXTRACURRICULAR ACTIVITY

**Our Tech Community (OTC) | [ourtech.community](https://ourtech.community)**

**Jul 2025 – Present**

*Co-Organiser*

- Co-organize and grow a vibrant, inclusive, and open-for-all tech community of currently **600+ members**.
- Plan, organize, and execute OTC's **flagship programs**, including weekly **catchups** and **technical talks**.
- Oversee community operations, including **technical setup and maintenance** for events, ensuring smooth execution and **comprehensive documentation**.

**Rotary Divyang Center | [rotarydivyangcenter.org](https://rotarydivyangcenter.org)**

**Feb 2026 – Apr 2026**

*Social Service Intern*

- Supported operations at a **prosthetics and orthotics center** providing **artificial limbs**, assisting patients with administration and coordination.
- Built and deployed the center's website to enhance **outreach and accessibility**.