

# Tejas Vipin

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SRM Institute of Science and Technology • Kattankulathur • Chennai, India

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## Contact

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## Skills

C/C++, Python, Javascript, Full stack web development, Tensorflow, Pytorch, Linux, Device Drivers, Compilers, Embedded Systems, Machine Learning, Operating Systems, LLMs, AWS, Transformers, Git

## Experience

### Calligo Technologies

May. 2025 - Present

*Software Intern*

- Working on Linux device drivers for Posit based hardware accelerators.
- Researched PCIe driver specification to enable high speed DMA between host and device.

### Intel Corporation

Feb. 2025 - Apr. 2025

*Student Trainee*

- Worked on Visual Search using VLM under the Intel Unnati program.
- Researched various VLM capabilities to generate image and text embeddings for large datasets.
- Collaborated with mentors and team members to create a Gradio workflow integrating FAISS to index search results.

### Linux Kernel

Jun. 2024 - Present

*Contributor to DRM subsystem*

- The Direct Rendering Manager is a subsystem in the kernel that contains the code and drivers for managing graphics related hardware.
- Optimized several display panels that use MIPI DSI by reducing generated code size and improving the internal API.

### LLVM

Jan. 2025 - Present

*Contributor to MLIR, Libc*

- Optimized MLIR generation for operations involving 0 dimensional vectors. Optimized and worked on unit test architecture involving the same.
- Implemented higher order math functions like asinh and hypot for Float16 in libc and wrote exhaustive tests for them.
- Profiled different function implementations and identified performance bottlenecks and removed them.

# Research

## Converting pretrained LLMs to Titans using neural memory modules

*Primary author - Presented at ICCNT, IIT Indore*

- Extended context window of pretrained LLMs without dramatically increasing the compute power required using Long Term Memory modules as introduced by Google's Titans architecture.

# Projects

## JPMorgan Chase Code For Good 2025 Hackathon

- \* Finalist in the JPMC Code For Good hackathon 2025.
- \* Created a website to enable rural women in Assam to sell their products directly to consumers.
- \* Made innovative considerations to enable illiterate people to use the website as well.

## AI Mathematical Olympiad Progress Prize 2 Competition

- \* Participated in a Kaggle competition involving create algorithms and models that can solve olympiad level math problems written in LaTeX format.
- \* Used cutting edge finetuning techniques to boost the performance of SLMs using CoT and TIR to be competitive with state of the art LLMs with 10x the number of parameters.
- \* Deployed state of the art LMs using vLLM and optimized sampling parameters to optimize GPU usage and speed up inference.

## Crime Detection and Classification using Deep Learning

- \* Detected and classified different classes of crime using RNNs and Transformers.
- \* Came up with several different novel strategies of analyzing video data to increase inference speed and accuracy.
- \* Finalized and contrasted different competing cutting edge models to come up with a final model that outperforms all current existing models for this task.

# Education

## SRM Institute of Science and Technology

*B Tech Computer Science and Engineering with Specialization in Cloud Computing*

Kattankulathur, India

2022 - 2026