

# **Department of Computer Science and Engineering**



## **National Institute of Technology Delhi**



# VISION & MISSION



## VISION

To communicate quality Computer Science Education for producing globally identifiable technocrats and entrepreneurs upholding sound ethics, profound knowledge, and innovative ideas to meet industrial and societal expectations.

1. To impart value-based technical knowledge and skill relevant to Computer Science and Engineering through effective pedagogies and hands-on experience on the latest tools and technologies to maximize employability.
2. To strengthen multifaceted competence, nurture creativity and innovation and create entrepreneurial environment for an ever-changing technological scenario requiring communally cognizant solutions.
3. To create an appetite for research and higher education in contemporary and emerging areas of Computer Science.
4. To inculcate the moral, ethical, and social ideals essential for prosperous nation-building.



## MISSION



# AI Research & Innovating Lab (AIRIL Lab)

## (FF Lab No. 102)

**Lab Coordinator**

**:Prof. (Dr.) Geeta Sikka**

**Technical Staff**

**:Mr. Manish Kumar Malik**

### Lab Objectives:

- **Rapid Learning:** The HPC Lab offers a hands-on educational platform for students and researchers to delve into high-performance computing technologies, frameworks, and tools commonly applied across academia and industry.
- **Collaboration Across Fields and Industries:** It fosters partnerships among researchers, academics, and industry experts across various domains, igniting innovative problem-solving approaches. It cultivates stronger industry connections, enabling the exchange of technology and addressing real-world challenges necessitating high-performance computing solutions.
- **Exploring Big Data, Machine Learning, and AI:** The lab facilitates research and experimentation in effectively managing and processing extensive datasets using methods like MapReduce, Spark, and parallel data processing frameworks. It also supports applications involving the training of intricate machine learning models, neural networks, and deep learning algorithms on high-performance clusters.



### Hardware Details:

- Lab Capacity : 35 PCs with i7 12<sup>th</sup> Gen, 512GB NVMe SSD, 1 TB HDD, 16 GB RAM, Windows 11, Ubuntu 20.04 LTS



# AI Research & Innovating Lab (AIRIL Lab) (FF Lab No. 102)

## Relevance and Novelty

- **Education and Training:** The AI Innovation and research lab equipped with HPC resources shall provide our students with hands-on experience in using advanced computational tools and prepare them for career in AI research and application development, equipping them with the skills needed to tackle real-world challenges.
- **Faster Innovation:** It will accelerate research progress and enable the development of AI solutions that can have a significant impact across various industries and domains.

**Advanced Research:** The use of HPC for transformative solutions that enhance efficiency, accuracy, and safety. It can be used for Image and Video captioning, developing large Language Models like chat GPT, visual question answering, chatbots, virtual assistants, and speech recognition etc.

**Competitive Advantage, Collaborative Research :** The powerful computing resources can provide us with a competitive advantage. It would attract researchers and students, secure research funding, and produce influential research publications etc.. **Collaborations with research institutions and industry partners would flourish leading to joint projects and knowledge exchange.**



# AI Research & Innovating Lab (AIRIL Lab)

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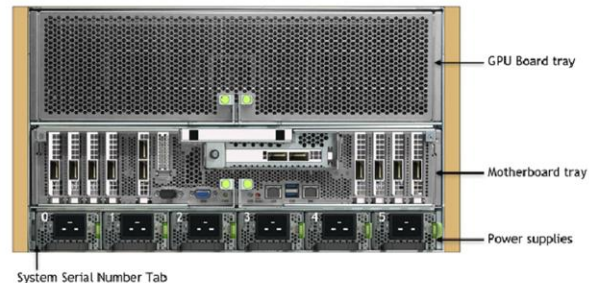
### Hardware Specs(proposed):

#### DGX A100 Station:

- 8x NVIDIA A100 80 GB GPUs
- 320 GB total GPU
- 5 Petaflops
- Dual AMD 7742, 128cores, 2.25 GHz  
(base)–3.4 GHz (max boost)
- 512GB DDR4 (System memory), 1TB  
(System memory)
- OS : 2\*1.92TB M.2 NVME drive  
Ubuntu Linux OS
- Internal storage: 15TB (4\*3.84tb) U.2  
NVME drives



*The rear of the DGX A100 with the upper GPU tray removed and placed on top.*



*DGX A100 rear schematic – Courtesy NVIDIA*



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धन्यवाद | THANK YOU

कंप्यूटर विज्ञान एवं अभियांत्रिकी विभाग

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